Shri Vithal Education & Research Institute's
COLLEGE OF ENGINEERING, PANDHARPUR
P.B.No.54, Gopalpur - Ranjani Road, Gopalpur, Pandharpur - 413304, District: Solapur (Maharashtra)
Tel.: (02186) 216063, 9503103757, Toll Free No.: 1800 3000 4131 e-mail.: coe@sveri.ac.in
Website.: www.sveri.ac.in (Approved by AICTE, New Delhi and Affiliated to Solapur University, Solapur)
NBA Accredited all eligible UG Programmes, NAAC Accreditated Institute,ISO 9001:2015 Certified Institute
Accredited by The Institution of Engineers (India), Kolkata and ICS, Pune

Ref.:- Date:-

1.3.3 Number of the student studied course on experimental learning through Project Work / Internship

Programme Name: Mechanical Engineering Program Code: 1-1408968339			
Year of offering: 2018-19			
Sr. No.	**Name of the Course that include experiential learning through project work/field work/internship**	**Course code**	**Number of the student studied course on experiential learning through project work/field work/internship**
1.	Applied Thermodynamics	ME212	141
2.	Manufacturing Processes	ME214	
3.	Workshop Practice –II	ME217	
4.	Machine Tools & Processes	ME222	
5.	Workshop Practice –III	ME227	
6.	Metrology and Mechanical Measurement	ME312	144
7.	Fluid Machinery & Fluid Power	ME315	
8.	Workshop Practices -IV	ME317	
9.	Internal Combustion Engine	ME322	
10.	CAD-CAM & CAE	ME323	
11.	Tool Engineering	ME325	
12.	Workshop Practice –V	ME328	

COLLEGE OF ENGINEERING PANDHARPUR

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Shri Vithal Education & Research Institute's
COLLEGE OF ENGINEERING, PANDHARPUR
P.B.No.54, Gopalpur - Ranjani Road, Gopalpur, Pandharpur - 413304, District: Solapur (Maharashtra)
Tel.: (02186) 216063, 9503103757, Toll Free No.: 1800 3000 4131 e-mail.: coe@sveri.ac.in
Website.: www.sveri.ac.in (Approved by A.I.C.T.E., New Delhi and Affiliated to Solapur University, Solapur)
NBA Accredited all eligible UG Programmes, NAAC Accreditated Institute,ISO 9001:2015 Certified Institute,
Accredited by The Institution of Engineers (India), Kolkata and TCS, Pune.

Ref.:- Date:-

1.3.3 Number of the student studied course on experimental learning through Project Work / Internship

Programme Name: Mechanical Engineering Program Code: 1-1408968339			
Year of offering: 2018-19			
Sr. No.	**Name of the Course that include experiential learning through project work/field work/internship**	**Course code**	**Number of the student studied course on experiential learning through project work/field work/internship**
1.	Refrigeration and Air Conditioning		161
2.	Automobile Engineering		
3.	Project Work– I		
4.	Industrial Training		
5.	Plastic Engineering		
6.	Project Work– II		

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SVERI's
College of Engineering, Pandharpur

Department of Mechanical Engineering

Industrial Training Record

A.Y.: 2018-19

SVERI's College of Engineering, Pandharpur
Department of Mechanical Engineering
List of Students Those Who have Completed Industrial Training
Academic Year: 2018-19

Sr. No.	Name of Student	Name of Industry / Organization	Duration
1	/BhumkarManasi Dinesh	Gurukrupa Engineering works, Navi Mumbai.	25/05/2019 to 25/06/2019
2	/Chavan SonaliUmesh	Nilkanteshwar Engg. Work Yashwant Residency Ichalkaranji	28/05/2019 to 28/6/2019
3	/Ghogale Mansi Sanjay	Gurukrupa Engineering works, Navi Mumbai.	25/05/2019 to 25/06/2019
4	/Attar MuskanMukthar	Kakade Agro Industry pvt. Ltd. Tandulwadi	25/05/2019 to 25/06/2019
5	/MhetreShubhada Shantanu	Nilkanteshwar Engg. Work Yashwant Residency Ichalkaranji	28/05/2019 to 28/6/2019
6	/Gavali Anjali Pandurang	Chavan Autowheel PVT.ltdsolapurAkkalkot road Solapur	22/05/2019 to 21/06/2019
7	/Gore Gauri Ramchandra	ASB Alloys MIDC Tembhurni	23/05/2019 to 26/06/2019
8	/KothawaleShivani Sanjay	ASB Alloys MIDC Tembhurni	23/05/2019 to 26/06/2019
9	/NikatePornima Milind	Kakade Agro Industry pvt. Ltd. Tandulwadi	25/05/2019 to 25/06/2019
10	AtreShrirangRajendra	TOP Gear Transmission PVT.LTD satara	25/05/2019 to 26/06/2019
11	AutadeDashrathMadhukar	Leena Engg. Works Asara chowk solapur	25/05/2019 to 25/06/2019
12	BagwanMudaserMahebob	Hind Mechanical and welding work solapur	25/05/2019 to 25/06/2019
13	Bandai Prathamesh M.	Green Tech. solution pvt.ltd. At post: Wakhari, Pandharpur.	1/6/2019 to 21/06/2019
14	Bhise Akash Namdev	Jadhav Industry Kolhapur	23/05/2019 to 22/06/2019
15	Chavan Suraj Baban	Leena Engg. Works Asara chowk solapur	25/05/2019 to 25/06/2019
16	Dandwate Rushikesh Prasad	Leena Engg. Works Asara chowk solapur	25/05/2019 to 25/06/2019
17	Deshmane Rushikesh Sanjay	Green Tech. solution pvt.ltd. Wakhari	1/6/2019 to 21/06/2019
18	Devkate Sachin Kisan	LHP Chincholi MIDC Solapur	24/05/2019 to 24/06/2019
19	Devkate Yogeshwar Arvind	LHP Chincholi MIDC Solapur	24/05/2019 24/06/2019
20	Dhumal Vikas Vitthal	LHP Chincholi MIDC Solapur	25/05/2019 to 22/06/2019
21	Gahirwar Pawansing Kiransing	Vitthalremouldingpandharpur	24/05/2019 to 23/06/2019
22	Gaikwad Suraj Tanaji	Leena Engg. Works Asara chowk solapur	25/05/2019 to 24/06/2019
23	Gaikwad Swapnil Rajendra	Green Tech. solution pvt.ltd. Wakhari	25/05/2019 to 24/06/2019
24	Gandule Rohan Rajaram	Green Tech. solution pvt.ltd. Wakhari	25/05/2019 to 25/06/2019
25	Ganjale Ashish Namdev	ASB Alloys MIDC Tembhurni	23/05/2019 to 22/06/2019

(Coordinator)

HEAD,
Dept. of Mechanical Engg
C.O.E. Pandharpur.

SVERI's College of Engineering, Pandharpur
Department of Mechanical Engineering
List of Students Those Who have Completed Industrial Training
Academic Year: 2018-19

Sr. No.	Name of Student	Name of Industry / Organization	Duration
26	Gavali ParitPavan Ankush	Green Tech. solution pvt.ltd. Wakhari	25/05/2019 to 25/06/2019
27	Ghadage Vaibhav Prabhakar	TATA survicescentrePandharur	24/05/2019 to 25/06/2019
28	Ghadge Onkar Dhananjay	Vitthalremouldingpandharpur	24/05/2019 to 23/06/2019
29	Gore Omkar Rajkumar	Leena Engg. Works Asara chowk solapur	25/05/2019 to 25/06/2019
30	Gosavi Dada Prakash	LHP Chincholi MIDC Solapur	24/05/2019 to 24/06/2019
31	Gund Omkar Shahaji	Green Tech. solution pvt.ltd. Wakhari	1/6/2019 to 21/06/2019
32	Honkande Rohan Ramesh	LHP Chincholi MIDC Solapur	24/05/2019 to 24/06/2019
33	Jadhav Ajinkya Arjun	Kisan Agro Tech Pandharpur	24/05/2019 to 24/06/2019
34	Jadhav RushikeshKalyan	Leena Engg. Works Asara chowk solapur	25/05/2019 to 25/06/2019
35	MangruleVedant D.	Leena Engg. Works Asara chowk solapur	25/05/2019 to 25/06/2019
36	Jundale Rahul Rajkumar	TOP Gear Transmission PVT.LTD satara	25/05/2019 to 26/06/2019
37	Kadam ShubhamJaimilind	ASB Alloys MIDC Tembhurni	23/05/2019 to 22/06/2019
38	Kakade ShubhamMadhukar	Green Tech. solution pvt.ltd. Wakhari	24/05/2019 to 24/06/2019
39	Kale Rohan Suresh	Famous Automobile works shivaji work solapur	26/05/2019 to 26/06/2019
40	Kale ShubhamMalashidha	Leena Engg. Works Asara chowk solapur	25/05/2019 to 27/06/2019
41	Kale VaibhavPandurang	Green Tech. solution pvt.ltd. Wakhari	24/05/2019 to 24/06/2019
42	Kambire Pankaj Popat	TOP Gear Transmission PVT.LTD satara	25/05/2019 to 26/06/2019
43	KhadakePrajwal Sunil	Leena Engg. Works Asara chowk solapur	25/05/2019 to 25/06/2019
44	KhapaleSiddheshwar g.	Green Tech. solution pvt.ltd. Wakhari	24/05/2019 to 24/06/2019
45	Khyade Amit Rajendra	Leena Engg. Works Asara chowk solapur	25/05/2019 to 25/06/2019
46	KodagVasudevDattatray	Leena Engg. Works Asara chowk solapur	27/05/2019 to 25/06/2019
47	KoliCharandasAppaso	Green Tech. solution pvt.ltd. Wakhari Pandharpur	24/05/2019 to 24/06/2019
48	Kulkarni Chaitanya Laxmikant	TOP Gear Transmission PVT.LTD Satara	25/05/2019 to 26/06/2019
49	Mane Mahesh Gunvant	Jadhav Industry Kolhapur	23/05/2019 to 22/06/2019
50	NagrasPranil Prakash	TOP Gear Transmission PVT.LTD satara	25/05/2019 to 26/06/2019

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HEAD,
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SVERI's College of Engineering, Pandharpur
Department of Mechanical Engineering
List of Students Those Who have Completed Industrial Training
Academic Year: 2018-19

Sr. No.	Name of Student	Name of Industry / Organization	Duration
51	Pandit Yogesh Dhananjay	LHP Chincholi MIDC Solapur	24/05/2019 to 24/06/2019
52	PangudwalePurvesh Prakash	LHP Chincholi MIDC Solapur	24/05/2019 to 24/06/2019
53	Patil Ganesh Basavaraj	LHP Chincholi MIDC Solapur	24/05/2019 to 24/06/2019
54	PatilAshutosh Sunil	TaysonsFoundary MIDC SangaliMiraj	25/05/2019 to 24/06/2019
55	PawarAniket Santosh	LHP Chincholi MIDC Solapur	25/05/2019 to 25/06/2019
56	PawarDayanandYogesh	Leena Engg. Works Asara chowk solapur	25/05/2019 to 25/06/2019
57	PawarPruthviraj Deepak	Sandwik Asia at Pimpari Chinchwad Pune.	3/6/2019 to 2/7/2019
58	Rode VaibhavBalasaheb	LHP Chincholi MIDC Solapur	24/05/2019 to 24/06/2019
59	SapkalNishklankZumbar	Leena Engg. Works Asara chowk Solapur	25/05/2019 to 25/06/2019
60	Sathe Pradip Shivaji	Jadhav Industry Kolhapur	23/05/2019 to 22/06/2019
61	Sayyad AzamAkram	LHP Chincholi MIDC Solapur	24/05/2019 to 24/06/2019
62	Shaikh Juned Ramjan	LHP Chincholi MIDC Solapur	25/05/2019 to 25/06/2019
63	Sheikh VijasJaylani	LHP Chincholi MIDC Solapur	24/05/2019 to 24/06/2019
64	ShejalSamadhanNagnath	Leena Engg. Works Asara chowk solapur	25/05/2019 to 25/06/2019
65	Shinde Rajkumar Nana	Aditi power equipments LTD. Chakan MIDC Pune	24/05/2019 to 24/06/2019
66	Shinde Saurabh Mahadev	Ashwini Engineering Pimparichinchwad, Pune	26/05/2019 to 24/05/2019
67	Sirsat Anna Yuvraj	LHP Chincholi MIDC Solapur	24/05/2019 to 24/06/2019
68	Sonar Sunil Ravindra	LHP Chincholi MIDC Solapur	24/05/2019 to 24/06/2019
69	Tadmare Swapnil Sanjaykumar	Lakshmi Droken components MIDC Hinjawadi Pune	26/05/2019 to 26/06/2019
70	VibhuteRushikeshNandkumar	NORD Drive system PVT.LTD .Pune	27/05/2019 to 25/06/2019
71	WasnikHarshal Prakash	LHP Chincholi MIDC Solapur	24/05/2019 to 24/06/2019
72	Ghuge Hrushikesh Ravindra	Trimurti stainlinkPVT.ltd.	14/06/2019 to 13/07/2019
73	Gavali Shubham Amol	Satish steel Industry Kurdwadi	29/05/2019 to 27/6/2019
74	Sathe Shubham Bhalchandra	Kalyani forge Mundhawa Pune	28/06/2018 to 28/07/2018
75	/AshtureChandraprabhaBalaji	Precision camshaft chincholi MIDC solapur	3/6/2019 to 17/06/2019

(Coordinator)

HEAD,
Dept. of Mechanical Engg
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SVERI's College of Engineering, Pandharpur
Department of Mechanical Engineering
List of Students Those Who have Completed Industrial Training
Academic Year: 2018-19

Sr. No.	Name of Student	Name of Industry / Organization	Duration
76	/Bhosale PranotiRamchandra	YASH CNC pune	27/06/2019 to 27/07/2019
77	/Deomare Nikita Narayan	PCL chincholi MIDC solapur	3/6/2019 to 17/06/2019
78	/Kambale Pooja Dilip	PCL chincholi MIDC solapur	3/6/2019 to 17/06/2019
79	/Nistane Shweta Shadashiv	Chavan Autowheel PVT.LTD Akkalkot Road solapur	22/05/2019 to 21/06/2019
80	/PatilHarshadaBhausaheb	Precision camshaft chincholi MIDC solapur	3/6/2019 to 17/06/2019
81	Kolekar Vijay Mahadeo	Cooling plant solapur	25/05/2019 to 20/06/2019
82	AdalingeRohitChandrakant	DENASA buildcon Pune	25/05/2019 to 20/06/2019
83	Chavan Dinesh Uttam	Leena industry solapur	24/05/2019 to 26/06/2019
84	DandageVaibhavNagnath	ABS Alloy Tembhurni	23/05/2019 to 23/06/2019
85	Dhage Shantanu Prakash	Shree kartik Engg works solapur	24/05/2019 to 26/06/2019
86	Ingale Pratik Vasantrao	Spintech textile industry kananja	28/05/2019 to 27/06/2019
87	Jadhav Vaibhav Satish	Akshay casting shiroli MIDC kolhapur	1/6/2019 to 25/06/2019
88	Kshirsagar Abhishek Prakash	Advance extrusion PVT.LTD barshi	24/05/2019 to 23/06/2019
89	KumbharPratikeshPramod	Active chromewellexhust Sahaswadi;	29/05/2019 to 27/06/2019
90	Lad Varad Anil	TOP Gear Satara	28/05/2019 to 27/06/2019
91	Kale RavirajYuvaraj	Reliable Industry MIDC ,Baramati	25/04/2019 to 24/05/2019
92	LangoteShubhamSambhaji	Railway Workshop Kuaduwadi,	28/05/2019 to 21/06/2019
93	Magi Prasad Dattatray	VSB steel Pune	1/6/2019 to 30/06/2019
94	MandwalePratiksinh S.	AWATE PVT.LTD. Pune;	10/6/2019 to 28/06/2019
95	Jadhav Ruturaj S.	Skywin IndustryBhosari, MIDC Pune.	1/6/2019 to 28/06/2019
96	MasalSamadhanDadaso	Royal Industry Velapur; Dist;solapur	25/05/2019 to 25/06/2019
97	MulaniAftab Iqbal	Akruti Industry Shirgoan , MIDC Kolhapur;	28/05/2019 to 25/06/2019
98	MulaniShahid Mahammad	LHP PVT.LTD. Solapur.	25/05/2019 to 25/06/2019
99	MulaniVasim Jahangir	Jadhav Foundary Kolhapur.	23/05/2019 to 22/06/2019
100	MuthawatKedar Sanjay	Railway Workshop Kuaduwadi,	28/05/2019 to 21/06/2019

(Coordinator)

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SVERI's College of Engineering, Pandharpur
Department of Mechanical Engineering
List of Students Those Who have Completed Industrial Training
Academic Year: 2018-19

Sr. No.	Name of Student	Name of Industry / Organization	Duration
101	Nagane Amol Mahadeo	Green Tech. Agro solution Wakhari; Pandharpur	25/05/2019 to 25/06/2019
102	NayakuAkshayLaxman	Green Tech. Agro solution Wakhari; Pandharpur	1/6/2019 to 21/06/2019
103	NimgirePiyushDadasaheb	Global Enterprises Pune.	27/05/2019 to 25/06/2019
104	Pandhare Rohan Anil	Royal Industry Velapur; Dist;solapur	25/05/2019 to 25/06/2019
105	ParkamPavanShashikant	Hind Mechanical and Welding work solapur.	25/05/2019 to 25/06/2019
106	PavaseMayur Santosh	Akshay casting shiroli MIDC kolhapur	1/6/2019 to 25/06/2019
107	PophalePratap Ashok	LHP PVT.LTD. Solapur.	24/05/2019 to 24/06/2019
108	Raut Shubham Anil	LHP PVT.LTD. Solapur.	24/05/2019 to 24/06/2019
109	Raut Yogesh Dattatray	LHP PVT.LTD. Solapur.	24/05/2019 to 24/06/2019
110	SalgarLaxmanBalaso	Green Tech. Agro solution Wakhari; Pandharpur	1/6/2019 to 21/06/2019
111	Salgar Ram Balaso	DENASA buildcon Pune	25/05/2019 to 20/06/2019
112	SansareSanketManojkumar	Akshay Metal MIDC Usmanabad	5/5/2019 to 28/06/2019
113	SatheAkshay Sunil	VSB steel PVT.LTD Pune.	1/6/2019 to 30/06/2019
114	Shaikh NihalNaushad	Advance extrusion PVT.LTD barshi	24/05/2019 to 23/06/2019
115	Shinde Abhijeet Ashok	Hind Mechanical and Welding work solapur.	25/05/2019 to 25/06/2019
116	Shinde Abhishek Amar	Green Tech. Agro solution Wakhari; Pandharpur	1/6/2019 to 21/06/2019
117	Shinde Mahesh Vilas	DENASA buildcon Pune	25/05/2019 to 20/06/2019
118	Shrigadi Swamisamarth V.	Chavan workshop pvt.ltd.	25/05/2019 to 25/06/2019
119	Takale Akshay Angad	Leena industry solapur	1/6/2019 to 25/06/2019
120	Tamboli Arbaj Jabbar	DENASA buildcon Pune	25/05/2019 to 20/06/2019
121	Tate Rutvik Bramhadev	Green Tech. Agro solution Wakhari; Pandharpur	1/6/2019 to 21/06/2019
122	Thakare Bhushankumar D.	Leena industry solapur	27/05/2019 to 25/06/2019
123	Thite Prem Ganesh	Green Tech. Agro solution Wakhari; Pandharpur	1/6/2019 to 21/06/2019
124	Tuljapurkar Gaurav Jayant	Railway Workshop Kuaduwadi,	28/05/2019 to 21/06/2019
125	Valsange Akash Somanath	Famous Mechanical Works Solapur	27/05/2019 to 26/06/2019

(Coordinator)

HEAD,
Dept. of Mechanical Engg
C.O.E. Pandharpur.

SVERI's College of Engineering, Pandharpur
Department of Mechanical Engineering
List of Students Those Who have Completed Industrial Training
Academic Year: 2018-19

Sr. No.	Name of Student	Name of Industry / Organization	Duration
126	Vhankalas Avinash Bhaskar	Akshay casting shiroli MIDC kolhapur	1/6/2019 to 25/06/2019
127	Waghmare Dipak Subhash	DENASA buildcon Pune.	25/05/2019 to 20/06/2019
128	Waghmode Pradyumna Dinesh	PCL chincholi MIDC, Solapur	3/6/2019 to 17/06/2019
129	Bhadane Rahul Madhukar	CRB tech. solution pvt.ltd Solapur	18/02/2019 to 18/06/2019
130	Chidrawar Ganesh Pandurang	VED Industries Plot no. 128/2/3, Sec-7, Bhosari, Pune.	30/05/2018 to 30/06/2018

Rashid
(D.T. Rashid)
Coordinator

HEAD,
Dept. of Mechanical Engg
C.O.E. Pandharpur.

Green Tech Solution Industries

Gat No. 83/1, A/P. Wakhari, Tal. Pandharpur, Dist. Solapur Pin - 413304.
Mob. 9096084671

Ref. No. :

Date : 24/06/2019

TO WHOM IT MAY IN CONCERN

This is to certify that **Mr. Gaikwad Swapnil Rajendra** student of **Sveri's College of Engineering Pandharpur** has successfully completed thirteen day inplant training in our Industry from **24/05/2019 to 24/06/2019** during the period his training with us he was found punctual, hardworking and inquisitive. His performance was good during inplant training.

For Green Tech Solution Industries

Authorized Signatory

Green Tech Solution Industries

Gat No. 83/1, A/P. Wakhari, Tal. Pandharpur, Dist. Solapur Pin - 413304.
Mob. 9096084671

Ref. No. :

Date : 24/06/2019.

TO WHOM IT MAY IN CONCERN

This is to certify that **Mr. Gandule Rohan Rajaram** student of **Sveri's College of Engineering Pandharpur** has successfully completed thirteen day inplant training in our Industry from **24/05/2019 to 24/06/2019** during the period his training with us he was found punctual, hardworking and inquisitive. His performance was good during inplant training.

For Green Tech Solution Industries

Authorized Signatory

ASB ALLOYS

ASB ALLOYS

Plot No. : D-1, M.I.D.C., Tembhurni, Tal. Madha, Dist. Solapur - 413 211.
Email : asballoys@gmail.com • Website : www.asballoys.com • Mob. : 7350102000, 8605464455.

Ref. No. :

Date :

ASB/19-20/021

Date: – 23/06/2019

CERTIFICATE

This is certify that **Mr.Ashish Namdev Ganjale** Student of **"SVERI COLLEGE OF ENGINEERING", PANDHARPUR** Studing in S.E.(MECH) has successfully completed "**VOCATIONAL TRAINING** "In our organization during the period from 23th May 2019 to 22 June 2019.

During about Training Period he found to be Sincere, Punctual And Hard Working.

We wish all the Best for his Successful Future Carrier.

Thanking You.

Yours Faithfully

ASB ALLOYS D-1, M.I.D.C., TEMBHURNI

Chavan Auto Wheels Pvt. Ltd.

TATA MOTORS

Commercial Vehicle Dealer

Training Certificate

Date 24/06/2019

This is to certify that Miss.Anjali Pandurang Gavali have successfully completed 30 days Vocational In plant training session in our company naming Chavan Auto Wheels. Pvt. Ltd from 22/05/2019 to 21/06/2019

For Chavan Auto Wheels.Pvt. Ltd

CHAVAN AUTO WHEELS PVT. LTD. SOLAPUR

Authorized Signatory

Head Office : 1147,A/P : Kumbhari, Akkalkot Road, Solapur - 413 006. Tel.: 2280688, 2280699
Branch Office : 87/10, Suman Nagar, Pune Road, Bale Chowk, Solapur - 413 001.
Email : chavanautowheels@gmail.com

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REF :- LHPL/P&A/2019-20/

DATE :- 24TH June 2019

CERTIFICATE

This is to certify that Mr. **Onkar Dhananjay Ghadge** of SVERI College of **Engineering, Pandharpur** (MH) has successfully completed his/her **Inplant Training** from 24th May 2019 to 24th June 2019

in our company. To the best of my knowledge, he/she is sincere, honest & devoted to the work.

He/She bears a good moral conduct. I wish him/her for better future.

FOR LAXMI HYDRAULICS PVT. LTD.

KISAN DADAGE

(HEAD -ADMIN.)

ASB ALLOYS

Plot No. : D-1, M.I.D.C., Tembhurni, Tal. Madha, Dist. Solapur - 413 211.
Email : asballoys@gmail.com • Website : www.asballoys.com • Mob. : 7350102000, 8605464455.

Ref. No. :

Date :

ASB/2019-20/028

Date: – 25/06/2019

CERTIFICATE

This is certify that **Ms.Gauri Ramchandra Gore.** Student of **"Sveris College Of Engineering Pandharpur "** Studding in Degree S.E. (MECH) has successfully completed "**VOCATIONAL TRAINING** "In our organization during the period from 23 May 2019 to 23 June 2019.

During The said Period Training She found good record of attendance and show keen interest in learning.

We wish her all the success in future.

Yours Faithfully.

ASB ALLOYS D-1, M.I.D.C., TEMBHURNI

Leena

ENGINEERING WORKS

Plot No. 156, Industrial Estate, Hotgi Road, Solapur 413 003
Tel : (0217) 2601501 | Email : leenaengwks@yahoo.co.in

Certificate

This is to certify that Mr. Gose Omkar Rajkumar
of SVERI COE Pandharpur *Roll No.* A 17
has completed his In Plant Training in our works from 25/5/2019
to 27/6/2019.

He has taken training on CNC VMC and Conventional Machines.

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ENGINEERING WORKS
CEO

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REF :- LHPL/P&A/2019-20/

DATE :- 24TH June 2019

CERTIFICATE

This is to certify that Mr. **Gosavi Dada Prakash** of **SVERI College of Engineering, Pandharpur (MH)** has successfully completed his/her **Inplant Training** from 24th May 2019 to 24th June 2019 in our company. To the best of my knowledge, he/she is sincere, honest & devoted to the work.

He/She bears a good moral conduct. I wish him/her for better future.

FOR LAXMI HYDRAULICS PVT. LTD.

KISAN DADAGE

(HEAD -ADMIN.)

केसन्स् अॅग्रोटेक

फॅक्टरी : प्लॉट नं. ६७५/१, चंद्रभागा डेअरीजवळ वाखरी ता.पंढरपूर
ऑफिस: गाळा नं. ११/२ मयुरी ट्रेडर्स कृषी उत्पन्न बाजार समिती,के.बी.पी.कॉलेज रोड,पंढरपूर
मोबा. ९७६५२२४३६६

CERTIFICATE

This is to certify that Mr. JADHAV AJINKYA ARJUN student of 'SVERI' College of Engineering, Pandharpur studying in S.E. (MECH) has successfully completed the "VOCATIONAL TRAINING" in our organization during period from 23red May 2019 to 22nd June 2019.

During the above training period he found to be sincere, Punctual and hardworking.

We wish all the best for his successful future carrier.

Kesons Agrotech
Proprietor

Authorised Signatory

AKSHAY CASTINGS

MANUFACTURERS OF ALUMINIUM DIE CASTINGS
C-30, M. I. D. C.,SHIROLI, KOLHAPUR-416 122. Mob.:9422048741
E-mail : akshaycastings@rediffmail.com Web Site : www.akshaycastings.com

Ref. No. *Date :* 25/06/2019.

Letter Of Internship

Your student Mr. Vaibhav Satish Jadhav of SE mechanical engineering of your College Reported for the internship in AKSHAY CASTINGS on 1/6/2019. It is certified that he has completed the internship as trainee engineer in AKSHAY CASTINGS From date 1/6/2019 to 25/6/2019.

He has followed the rules and regulations of the industry during his internship.

Akshay Castings Plot No. C-30 M.I.D.C. Shiroli Kolhapur

Regards,

Akshay Castings,

Kolhapur

Frame - by - Frame

Now a complete range of LT Motors available up to 1000kW / 450 Frame

Lhp MOTORS DRIVES
Driven by Commitment

REF :- LHPL/P&A/2019-20/

DATE :- 24TH June 2019

CERTIFICATE

This is to certify that **Mr. Jundale Rahul Rajkumar of SVERI College of Engineering, Pandharpur (MH)** has successfully completed his/her **Inplant Training** from 24th May 2019 to 24th June 2019 in our company. To the best of my knowledge, he/she is sincere, honest & devoted to the work.

He/She bears a good moral conduct. I wish him/her for better future.

FOR LAXMI HYDRAULICS PVT. LTD.

KISAN DADAGE

(HEAD -ADMIN.)

Laxmi Hydraulics Pvt. Ltd.
Regd. & Corporate Office : B11 & B16, M.I.D.C. Chicholi, Solapur – 413255 INDIA
Tel.:+91 - 217 2357001(5Lines) Fax: +91 - 217 2357006 email : lhpindia@lhpmotor.com Website : www.lhp.co.in

ASB ALLOYS

ASB ALLOYS

Plot No. : D-1, M.I.D.C., Tembhurni, Tal. Madha, Dist. Solapur - 413 211.
Email : asballoys@gmail.com • Website : www.asballoys.com • Mob. : 7350102000, 8605464455.

Ref. No. :

Date :

ASB/19-20/020

Date: – 23/06/2019

CERTIFICATE

This is certify that **Mr.Shubham Jaimilind Kadam** Student of **"SVERI COLLEGE OF ENGINEERING", PANDHARPUR** Studing in S.E.(MECH) has successfully completed "**VOCATIONAL TRAINING** "In our organization during the period from 23th May 2019 to 22 June 2019.

During about Training Period he found to be Sincere, Punctual And Hard Working.

We wish all the Best for his Successful Future Carrier.

Thanking You.

Yours Faithfully

ASB ALLOYS
D-1 M.I.D.C., TEMBHURNI

Green Tech Solution Industries

Gat No. 83/1, A/P. Wakhari, Tal. Pandharpur, Dist. Solapur Pin - 413304.
Mob. 9096084671

Ref. No. :

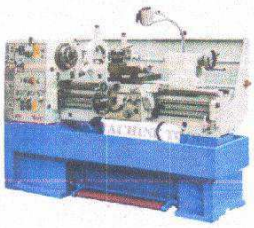
Date : 24/06/2019.

TO WHOM IT MAY IN CONCERN

This is to certify that **Mr. Kakade Shubham Madhukar** student of **Sveri's College of Engineering Pandharpur** has successfully completed thirteen day inplant training in our Industry from **24/05/2019 to 24/06/2019** during the period his training with us he was found punctual, hardworking and inquisitive. His performance was good during inplant training.

For Green Tech Solution Industries

Authorized Signatory



FAMOUS MECHANICAL WORKS

3/2, Murarji Peth, Solapur - 413001

Mob. No. 7038707419

Date : 27/06/2019

CERTIFICATE

It is certified that **Mr. Kale Rohan Suresh** of SVERI's College of Engineering Pandharpur.

Has completed In-plant training of month (30 days) from **27 May 2019 to 26 June 2019** in **M/s Famous Mechanical Works.**

During the period of his internship program with us he was found punctual, hardworking and inquisitive.

We wish him every success in life.

M/s. Famous Mechanical Works

Famous Mechanical Works
3, Murarji Peth, SOLAPUR.

Authorised Signature

Leena

ENGINEERING WORKS

Plot No. 156, Industrial Estate, Hotgi Road, Solapur 413 003
Tel : (0217) 2601501 | Email : leenaengwks@yahoo.co.in

Certificate

This is to certify that Mr. Kale Shubham Malashidha
of SVERI'S COE Pandharpur *Roll No.* SA 68
has completed his In Plant Training in our works from 27/5/2019
to 25/6/2019.

He has taken training on CNC VMC and Conventional Machines.

Leena Engineering Works • Solapur •

Leena
ENGINEERING WORKS

CEO

TOP GEAR TRANSMISSIONS

27th June, 2019

CERTIFICATE

This is to certify that **Mr. Pankaj Popat Kambire**, *B E (II year) student from Shri Vithal Education And Research Institute's College of Engineering, Pandharpur has undergone Industrial Training for* **1 Month** *of " Production Process" with us in Production Department from* **25th May 2019 to 26th June 2019** *and successfully completed it.*

We wish him all the best in his future endeavors.

For Top Gear Transmissions

For TOP GEAR TRANSMISSIONS
27.06.2019
Authorised Signatory

Manager - HRD

M-71, Additional M.I.D.C., Satara - 415 004. Maharashtra (INDIA) Tel.: + 91 - 2162 - 240 493, 240 642 Fax : +91 - 2162 - 240 373
Email : sales@topgeartransmission.com | website : www.topgeartransmission.com

Leena

ENGINEERING WORKS

Plot No. 156, Industrial Estate, Hotgi Road, Solapur 413 003
Tel : (0217) 2601501 | Email : leenaengwks@yahoo.co.in

Certificate

This is to certify that Mr. Khadake Pratjwal Sunil
of SVERI's COE Pandharpur *Roll No.* SA 24
has completed his In Plant Training in our works from 27/5/2019
to 25/6/2019.

He has taken training on CNC VMC and Conventional Machines.

Leena Engineering Works • Solapur •

Leena
ENGINEERING WORKS
CEO

Green Tech Solution Industries

Gat No. 83/1, A/P. Wakhari, Tal. Pandharpur, Dist. Solapur Pin - 413304.
Mob. 9096084671

Ref. No. :

Date : 24/06/2019.

TO WHOM IT MAY IN CONCERN

This is to certify that **Mr. Khapale Siddheshwar Ganpat** student of **Sveri's College of Engineering Pandharpur** has successfully completed thirteen day inplant training in our Industry from **24/05/2019 to 24/06/2019** during the period his training with us he was found punctual, hardworking and inquisitive. His performance was good during inplant training.

For Green Tech Solution Industries

Green Tech Solution Industries Wakhari

Authorized Signatory

Green Tech Solution Industries

Gat No. 83/1, A/P. Wakhari, Tal. Pandharpur, Dist. Solapur Pin - 413304.
Mob. 9096084671

Ref. No. :

Date : 24/06/2019.

TO WHOM IT MAY IN CONCERN

This is to certify that **Mr. Koli Charandas Appaso** student of **Sveri's College of Engineering Pandharpur** has successfully completed thirteen day inplant training in our Industry from **24/05/2019 to 24/06/2019** during the period his training with us he was found punctual, hardworking and inquisitive. His performance was good during inplant training.

For Green Tech Solution Industries

Authorized Signatory

ASB ALLOYS

Plot No. : D-1, M.I.D.C., Tembhurni, Tal. Madha, Dist. Solapur - 413 211.
Email : asballoys@gmail.com • Website : www.asballoys.com • Mob. : 7350102000, 8605464455.

Ref. No. :

Date :

ASB/2019-20/029

Date: – 14/07/2019

CERTIFICATE

This is certify that **Ms.Shivani Sanjay Kothawale.** Student of **"Sveris College Of Engineering Pandharpur "** Studding in Degree S.E. (MECH) has successfully completed **"VOCATIONAL TRAINING** "In our organization during the period from 23 May 2019 to 23 June 2019.

During The said Period Training he found good record of attendance and show keen interest in learning.

We wish her all the success in future.

ASB ALLOYS D-1, M.I.D.C., TEMBHURNI

Yours Faithfully.

AWATE

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41/1B7, Pendse Colony, Vikasnagar, Kiwale, Dehu Road, Pune-412113.

Mobile : 9922438761 to 69

Web Site :- www.awateauto.com Email :- awateauto@yahoo.com

Ref.No.: AA/2019-20/2806/3 Date : 28/06/2019.

CERTIFICATE

This is to certify that **Mr. Pratiksingh Sanjaysingh Mandwale** of B.E. (Mechanical Engineering) of Shri Vithal Education and Research Institute, Pandharpur have Successfully completed their Industrial Training at **Awate Fabricators & Automobile Works, Pune** dated from 24th Jun 2019 to 28th June, 2019 during the academic year 2019-2020 as part of curriculum. During the period of training he was found punctual, hardworking & Inquisitive.

Awate Fabricators & Auto Mobile Works ★ Pune

For Awate Fabricators & Automobile Works.

For Awate Fabricators & Automobile Works

Proprietor

ROYAL

Royal Industries Velapur Gat No. 1391 Akluj Road

Date:- 21-06-2019

CERTIFICATE FOR VOCATIONAL IN – PLANT TRAINING

Name:- Masal Samadhan Dadaso

Qualification:- Mech- Engineering (Second Year)

Name of the Collage:- Shri Vitthal Education And Research institute's College of engineering Pandharpur

Type of Training: - Vocational IN- Plant Training

Period of Training:- 25/05/2019 To 20/06/2019

Nature of Training:- During his training period he has undergone Orientation training in different manufacturing Process, Tool Room, Industrial Engineering , Engineering Services, Quality Assurance, HR Department etc.

During the training period, his attendance and performance was Satisfactory. We wish him bright future.

For Royal Industries

Royal Industries Velapur Gat No. 1391 Akluj Road

Royal Industries
Gat No.1391, Akluj - Velapur Road, Velapur
Tal. Malshiras Dist. Solapur Pin Code - 413113
+91 90750 11112 royalind03@gmail.com

NILKANTHESHWAR ENGINEERING WORKS

25/991,YASHAWANT RESIDENCY,TORNANAGAR, ICHALKARANJ1-416115

Ref no-519/2018-19 Date - 28/06/2019

CERTIFICATE

This is certify that Mis.Shubhada Shantanu Mhetre the student of SY Mechanical engineering from SVERI ENGINEERING COLLAGE OF PANDHARPUR, has successfully completed CNC and lathe machine training from 28/05/2019 to 28/06/2019 in our organization

Mis. Shubhada Shantanu Mhetre is found us smcere hard working and honest m traimng period. This certificate IS issued on his request



Manager

AKRUTI INDUSTRIES

Datta Colony, Madhavnagar, Kaneri, MIDC, Gokul Shirgaon, Kolhapur - 416234.
Mob. No. 9545276969.

Date : 25.06.2019

CERTIFICATE

This is to certify that, **Mr. Mulani Aftab Iqbal**, a student of **SVERI's College of Engineering, Pandharpur** has completed his training in **Machining Section** in our organization from **25 May 2019 to 23 June 2019.**

During the period of training, we found him sincere & hard working.

We wish him all the best for future career.

Thanking you,

For **AKRUTI INDUSTRIES**

Authorised Signatory

Aakruti Industries ★ Kolhapur ★

Aakruti Industries
2071, Madhavnagar, Kaneri,
Tal. Karveer, Dist. Kolhapur

Frame - by - Frame

Now a complete range of LT Motors available up to 1000kW / 450 Frame

Lhp MOTORS DRIVES
Driven by Commitment

REF :- LHPL/P&A/2019-20/

DATE :- 9TH July 2019

CERTIFICATE

This is to certify that **Mr. Mulani Sahil Mahamad. of SVERI College of Engineering, Pandharpur (MH)** has successfully completed his/her **Vacational Training** from 25th May 2019 to 25th June 2019 in our company. To the best of my knowledge, he/she is sincere, honest & devoted to the work. He/She bears a good moral conduct. I wish him/her for better future.

FOR LAXMI HYDRAULICS PVT. LTD.

KISAN DADAGE

(HEAD -ADMIN.)

Laxmi Hydraulics Pvt. Ltd.
Regd. & Corporate Office : B11 & B16, M.I.D.C. Chicholi, Solapur - 413255 INDIA
Tel.:+91 - 217 2357001(5Lines) Fax: +91 - 217 2357006 email : lhpindia@lhpmotor.com Website : www.lhp.co.in

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02-IAO-QMC-01021

JADHAV INDUSTRIES

JADHAV INDUSTRIES

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Aluminium Machined Casting

532/5, Nerli, Near end of the M.I.D.C. Gokul Shirgaon, Main Road, Kolhapur. ☎ : (0231) 2672063, **Fax :** 0231-2672828, Resi. : 2692225
E-mail : jadhavindustries@gmail.com **Website :** www.jadhavindustries.com

Date :

Date: 23/6/2019

CERTIFICATE

This is to certify that **Mr. Vasim Jahangir Mulani** student of " Sveri College of Engineering , Pandharpur " studying in S.E (Mech) has successfully completed the **"VOCATIONAL TRAINING "** in our organization during the period from **23th May 2019 to 22nd June 2019.**

During the above training period he found to be sincere, punctual and hardworking.

We wish all the best for his successful future carrier.

For **JADHAV INDUSTRIES,**

Authorized Signatory.

Green Tech Solution Industries

Gat No. 83/1, A/P. Wakhari, Tal. Pandharpur, Dist. Solapur Pin - 413304.
Mob. 9096084671

Ref. No. :

Date : 25/06/2019.

Certificate

This is to certify that **Mr. Nagane Amol Mahadeo** student of **Shri Vitthal Education & Research Institute's college of Engineering, Pandharpur** studying in **Second year Degree in Mechanical Engineering**. Undergone the Industrial Training in our company 'Green Tech Solution Industries' pandharpur for the period of **25 May 2019 to 25 June 2019**.

Has competed the training successfully.

Thanking You,

For Green Tech Solution Industries Pandharpur

Green Tech Solution Industries Wakhari

Authority Signature

TOP GEAR TRANSMISSIONS

27th June, 2019

CERTIFICATE

This is to certify that **Mr. Pranil Prakash Nagras**, *B E (II year) student from Shri Vithal Education And Research Institute's College of Engineering, Pandharpur has undergone Industrial Training for* **1 Month** *of " Production Process" with us in Production Department from* **25th May 2019 to 26th June 2019** *and successfully completed it.*

We wish him all the best in his future endeavors.

For Top Gear Transmissions

For TOP GEAR TRANSMISSIONS
27.06.2019
Authorised Signatory

Manager - HRD

M-71, Additional M.I.D.C., Satara - 415 004. Maharashtra (INDIA) Tel.: + 91 - 2162 - 240 493, 240 642 Fax : +91 - 2162 - 240 373
Email : sales@topgeartransmission.com | website : www.topgeartransmission.com

GLOBAL ENTERPRISES
Milkat no. 1729, Sai baba chowk,
A/P :kamshet, Tal : Maval, Dist:
Pune – 410405
Email ID :radhe0027@gmail.com
Mob : 9011955516/ 8015223208

Global Enterprises

"Safe, Strong, Fast, Built to Last"

Date: - 28June2019

Industrial Training Certificate

TO WHOMSOEVER IT MAY CONCERN

This is to certify that ***Mr.Piyush Dadasaheb Nimgire*** *Studying Mechanical Engineering (2nd Year) Shree Vitthal Education and Research Institute, Pandharpur, has undergone Industrial Training at our Soalar Hosue Project located at Mahalunde MIDC , district Pune from 27th May to 25th June 2019. The Candidate has taken specific training in Solar House Power Project and overall knowledge about Project Components.*

We have observed that the candidate is having hard working nature and sincere during the training period and wish him for better prospect in studies as well as career.

GLOBAL ENTERPRISES
Milkat No. 1729, Saibaba Chowk,
Kamesht, Tal.Maval, Dist.Pune, 410405.

For Global Enterprises,

28 Jun 2019

Snehal Ramane

Manager HR & Admin

All Industrial safety supplies, Solar Power Project, Sign Board, Road safety Parts, Hand Gloves, Fire and Safety Shoes, etc

Frame - by - Frame

Now a complete range
of LT Motors
available up to
1000kW / 450 Frame

lhp
MOTORS DRIVES
Driven by Commitment

REF :- LHPL/P&A/2019-20/

DATE :- 24TH June 2019

CERTIFICATE

This is to certify that **Mr. Yogesh Dhananjay Pandit of SVERI College of Engineering, Pandharpur (MH)** has successfully completed his/her **Inplant Training** from 24th May 2019 to 24th June 2019 in our company. To the best of my knowledge, he/she is sincere, honest & devoted to the work.

He/She bears a good moral conduct. I wish him/her for better future.

FOR LAXMI HYDRAULICS PVT. LTD.

KISAN DADAGE

(HEAD -ADMIN.)

Laxmi Hydraulics Pvt. Ltd.
Regd. & Corporate Office : B11 & B16, M.I.D.C. Chicholi, Solapur – 413255 INDIA
Tel.:+91 - 217 2357001(5Lines) Fax: +91 - 217 2357006 email : lhpindia@lhpmotor.com Website : www.lhp.co.in

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Lhp MOTORS DRIVES
Driven by Commitment

REF :- LHPL/P&A/2019-20/

DATE :- 24TH June 2019

CERTIFICATE

This is to certify that **Mr. Pangudwale Purvesh Prakash of SVERI College of Engineering, Pandharpur (MH)** has successfully completed his/her **Inplant Training** from 24th May 2019 to 24th June 2019 in our company. To the best of my knowledge, he/she is sincere, honest & devoted to the work.

He/She bears a good moral conduct. I wish him/her for better future.

FOR LAXMI HYDRAULICS PVT. LTD.

KISAN DADAGE

(HEAD -ADMIN.)

Laxmi Hydraulics Pvt. Ltd.
Regd. & Corporate Office : B11 & B16, M.I.D.C. Chicholi, Solapur - 413255 INDIA
Tel.: +91 - 217 2357001(5Lines) Fax: +91 - 217 2357006 email : lhpindia@lhpmotor.com Website : www.lhp.co.in

AKSHAY CASTINGS

MANUFACTURERS OF ALUMINIUM DIE CASTINGS

C-30, M. I. D. C.,SHIROLI, KOLHAPUR-416 122. Mob.:9422048741

E-mail : akshaycastings@rediffmail.com Web Site : www.akshaycastings.com

Ref. No.

Date : 25/06/2019.

Letter Of Internship

Your student Mr. Mayur Santosh Pavse of SE mechanical engineering of your College Reported for the internship in AKSHAY CASTINGS on 1/6/2019. It is certified that he has completed the internship as trainee engineer in AKSHAY CASTINGS From date 1/6/2019 to 25/6/2019.

He has followed the rules and regulations of the industry during his internship.

Akshay Castings Plot No. C-30 M.I.D.C. Shiroli Kolhapur

Regards,

Akshay Castings,

Kolhapur

Frame - by - Frame

Now a complete range of LT Motors available up to 1000kW / 450 Frame

Lhp MOTORS DRIVES
Driven by Commitment

REF :- LHPL/P&A/2019-20/

DATE :- 9TH July 2019

CERTIFICATE

This is to certify that **Mr. Pawar Aniket S. of SVERI College of Engineering, Pandharpur (MH)** has successfully completed his/her **Vacational Training** from 25th May 2019 to 25th June 2019 in our company.

To the best of my knowledge, he/she is sincere, honest & devoted to the work.

He/She bears a good moral conduct. I wish him/her for better future.

FOR LAXMI HYDRAULICS PVT. LTD.

KISAN DADAGE

(HEAD -ADMIN.)

Laxmi Hydraulics Pvt. Ltd.
Regd. & Corporate Office : B11 & B16, M.I.D.C. Chicholi, Solapur – 413255 INDIA
Tel.: +91 - 217 2357001(5Lines) Fax: +91 - 217 2357006 email : lhpindia@lhpmotor.com Website : www.lhp.co.in

Leena

ENGINEERING WORKS

Plot No. 156, Industrial Estate, Hotgi Road, Solapur 413 003
Tel : (0217) 2601501 | Email : leenaengwks@yahoo.co.in

Certificate

This is to certify that Mr. Pawar Dayanand Yogesh
of SVERI COE Pandharpur *Roll No.* A 35
has completed his In Plant Training in our works from 25/5/19
to 25/6/19.

He has taken training on CNC VMC and Conventional Machines.

Leena Engineering Works • Solapur •

Leena
ENGINEERING WORKS
CEO

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Lhp MOTORS DRIVES
Driven by Commitment

REF :- LHPL/P&A/2019-20/

DATE :- 24TH June 2019

CERTIFICATE

This is to certify that **Mr. Pophale Pratap Ashok** of **SVERI College of Engineering, Pandharpur (MH)** has successfully completed his/her **Inplant Training** from 24th May 2019 to 24th June 2019 in our company. To the best of my knowledge, he/she is sincere, honest & *devoted to the work.*

He/She bears a good moral conduct. I wish him/her for better future.

FOR LAXMI HYDRAULICS PVT. LTD.

KISAN DADAGE

(HEAD -ADMIN.)

Laxmi Hydraulics Pvt. Ltd.
Regd. & Corporate Office : B11 & B16, M.I.D.C. Chicholi, Solapur – 413255 INDIA
Tel.:+91 - 217 2357001(5Lines) Fax: +91 - 217 2357006 email : lhpindia@lhpmotor.com Website : www.lhp.co.in

Frame - by - Frame

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of LT Motors
available up to
1000kW / 450 Frame

REF :- LHPL/P&A/2019-20/

DATE :- 24TH June 2019

CERTIFICATE

This is to certify that **Mr. Shubham Anil Raut of SVERI College of Engineering, Pandharpur (MH)** has successfully completed his/her **Inplant Training** from 24th May 2019 to 24th June 2019 in our company. To the best of my knowledge, he/she is sincere, honest & devoted to the work.

He/She bears a good moral conduct. I wish him/her for better future.

FOR LAXMI HYDRAULICS PVT. LTD.

KISAN DADAGE

(HEAD -ADMIN.)

Laxmi Hydraulics Pvt. Ltd.
Regd. & Corporate Office : B11 & B16, M.I.D.C. Chicholi, Solapur – 413255 INDIA
Tel.:+91 - 217 2357001(5Lines) Fax: +91 - 217 2357006 email : lhpindia@lhpmotor.com Website : www.lhp.co.in

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LHP MOTORS DRIVES
Driven by Commitment

REF :- LHPL/P&A/2019-20/

DATE :- 24TH June 2019

CERTIFICATE

This is to certify that **Mr. Vaibhav Balasaheb Rode of SVERI College of Engineering, Pandharpur (MH)** has successfully completed his/her **Inplant Training** from 24th May 2019 to 24th June 2019 in our company. To the best of my knowledge, he/she is sincere, honest & devoted to the work.

He/She bears a good moral conduct. I wish him/her for better future.

FOR LAXMI HYDRAULICS PVT. LTD.

KISAN DADAGE

(HEAD -ADMIN.)

Laxmi Hydraulics Pvt. Ltd.
Regd. & Corporate Office : B11 & B16, M.I.D.C. Chicholi, Solapur – 413255 INDIA
Tel.:+91 - 217 2357001(5Lines) Fax: +91 - 217 2357006 email : lhpindia@lhpmotor.com Website : www.lhp.co.in

DENASA BUILDCON
Engineers, Contractors & Project Management Consultant
www.denasaindia.com

JAS-ANZ
ISO 9001:2008
ISO 14001:2004
OHSAS 18001:2007
Certified Company

INDUSTRIAL TRAINING CERTIFICATE

This is to certify that, **Mr. Salgar Ram Balaso** from **Shri Vithal Education & Research Institute College Of Engineering, Pandharpur** has successfully completed his In Plant Training at **DENASA BUILDCON** Pvt. Ltd.

The duration of the training has been from **25th May 2019** to **20th June 2019.**

We wish him all the success in his future endeavors.

For **DENASA BUILDCON Pvt.Ltd.**

DENASA BUILDCON PUNE

Shridhar Satvekar

Manager – Learning & Development

TUV NORD CERT GmbH
16949-2016
02-IAO-QMC-01021

JADHAV INDUSTRIES

JADHAV INDUSTRIES

Manufactures of graded C.I. Casting
Aluminium Machined Casting

532/5, Nerli, Near end of the M.I.D.C. Gokul Shirgaon, Main Road, Kolhapur. ☎ :- (0231) 2672063, **Fax** : 0231-2672828, Resi. : 2692225
E-mail : jadhavindustries@gmail.com **Website** : www.jadhavindustries.com

Date :

Date: 23/6/2019

CERTIFICATE

This is to certify that **Mr. Pradip Shivaji Sathe** student of " Sveri College of Engineering , Pandharpur " studying in S.E (Mech) has successfully completed the **"VOCATIONAL TRAINING "** in our organization during the period from **23th May 2019 to 22nd June 2019.**

During the above training period he found to be sincere, punctual and hardworking.

We wish all the best for his successful future carrier.

For **JADHAV INDUSTRIES,**

JADHAV INDUSTRIES * KOLHAPUR *

Authorized Signatory.

KALYANI CARPENTER
SPECIAL STEELS

KCSSL/HR

June 28, 2018

Certificate

This is to certify that **Mr. Shubham Bhalchandra Sathe** student of College of Engineering, Pandharpur pursuing B.E. Mech. has successfully completed internship project in our organization during **28th May 2018 to 28th June 2018**.

We wish him all success in future endeavors.

For Kalyani Carpenter Special Steels Pvt. Limited

S A Bhoite
Dy. Manager – HR

KALYANI
GROUP COMPANY
KALYANI CARPENTER SPECIAL STEELS PRIVATE LIMITED, MUNDHWA, PUNE 411 036, INDIA
PHONE : +91 20 66215000, 26715000 FAX: +91 20 26824498, 26819943 WEBSITE : www.kalyanicarpenter.com
C. I. N. U27105PN1998PTC012724

Frame - by - Frame

Now a complete range of LT Motors available up to 1000kW / 450 Frame

Lhp MOTORS DRIVES
Driven by Commitment

REF :- LHPL/P&A/2019-20/

DATE :- 24TH June 2019

CERTIFICATE

This is to certify that **Mr. Shaikh Vijas Jaylani** of **SVERI College of Engineering, Pandharpur (MH)** has successfully completed his/her **Inplant Training** from 24th May 2019 to 24th June 2019 in our company. To the best of my knowledge, he/she is sincere, honest & devoted to the work.

He/She bears a good moral conduct. I wish him/her for better future.

FOR LAXMI HYDRAULICS PVT. LTD.

KISAN DADAGE

(HEAD -ADMIN.)

Laxmi Hydraulics Pvt. Ltd.
Regd. & Corporate Office : B11 & B16, M.I.D.C. Chicholi, Solapur – 413255 INDIA
Tel.: +91 - 217 2357001(5Lines) Fax: +91 - 217 2357006 email : lhpindia@lhpmotor.com Website : www.lhp.co.in

Leena

ENGINEERING WORKS

Plot No. 156, Industrial Estate, Hotgi Road, Solapur 413 003
Tel : (0217) 2601501 | Email : leenaengwks@yahoo.co.in

Certificate

This is to certify that Mr. Shejal Samadhan Nagnath
of SVERI COE Pandharpur *Roll No.* A 43
has completed his In Plant Training in our works from 25/5/19
to 25/6/19 .

He has taken training on CNC VMC and Conventional Machines.

Leena Engineering Works • Solapur •

Leena
ENGINEERING WORKS
CEO

Frame - by - Frame

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Lhp MOTORS DRIVES
Driven by Commitment

REF :- LHPL/P&A/2019-20/

DATE :- 24TH June 2019

CERTIFICATE

This is to certify that **Mr. Sirsat Anna Yuvraj** of **SVERI College of Engineering, Pandharpur (MH)** has successfully completed his/her **Inplant Training** from 24th May 2019 to 24th June 2019 in our company. To the best of my knowledge, he/she is sincere, honest & devoted to the work.

He/She bears a good moral conduct. I wish him/her for better future.

FOR LAXMI HYDRAULICS PVT. LTD.

KISAN DADAGE

(HEAD -ADMIN.)

Laxmi Hydraulics Pvt. Ltd.
Regd. & Corporate Office : B11 & B16, M.I.D.C. Chicholi, Solapur – 413255 INDIA
Tel.:+91 - 217 2357001(5Lines) Fax: +91 - 217 2357006 email : lhpindia@lhpmotor.com Website : www.lhp.co.in

Frame - by - Frame

Now a complete range of LT Motors available up to 1000kW / 450 Frame

lhp MOTORS DRIVES
Driven by Commitment

REF :- LHPL/P&A/2019-20/

DATE :- 24TH June 2019

CERTIFICATE

This is to certify that **Mr. Sonar Sunil Ravindra** of **SVERI College of Engineering, Pandharpur (MH)** has successfully completed his/her **Inplant Training** from 24th May 2019 to 24th June 2019 in our company. To the best of my knowledge, he/she is sincere, honest & devoted to the work.

He/She bears a good moral conduct. I wish him/her for better future.

FOR LAXMI HYDRAULICS PVT. LTD.

KISAN DADAGE

(HEAD -ADMIN.)

Laxmi Hydraulics Pvt. Ltd.
Regd. & Corporate Office : B11 & B16, M.I.D.C. Chicholi, Solapur – 413255 INDIA
Tel.:+91 - 217 2357001(5Lines) Fax: +91 - 217 2357006 email : lhpindia@lhpmotor.com Website : www.lhp.co.in

Leena

ENGINEERING WORKS

Plot No. 156, Industrial Estate, Hotgi Road, Solapur 413 003
Tel : (0217) 2601501 | Email : leenaengwks@yahoo.co.in

Certificate

This is to certify that Mr. Thakare Bhushankumar Dilip
of SVERI COE Pandharpur *Roll No.* B 67
has completed his In Plant Training in our works from 27/5/19
to 25/6/19 .

He has taken training on CNC VMC and Conventional Machines.

Leena Engineering Works • Solapur •

Leena
ENGINEERING WORKS
CEO

Green Tech Solution Industries

Gat No. 83/1, A/P. Wakhari, Tal. Pandharpur, Dist. Solapur Pin - 413304.
Mob. 9096084671

Ref. No. :

Date : 21/06/2019.

Certificate

This is to certify that **Mr. Prem Ganesh Thite** student of **Shri Vitthal Education & Research Institute's college of Engineering, Pandharpur** Studing in **Mechanical 2nd Year**. Undergone the Industrial Training in our company 'Green Tech Solution Industries' Pandharpur for the period of **01 June 2019 to 21 June 2019.**

He has completed the training successfully.

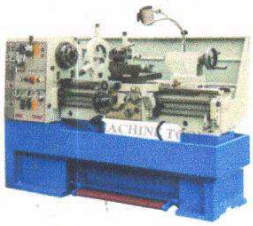
Thanking You,

For Green Tech Solution Industries

Pandharpur

Green Tech Solution Industries Wakhari

Authority Signature



FAMOUS MECHANICAL WORKS

3/2, Murarji Peth, Solapur - 413001

Mob. No. 7038707419

Date : 27/06/2019

CERTIFICATE

It is certified that **Mr. Valsange Akash Somanath** of SVERI's College of Engineering Pandharpur.

Has completed In-plant training of month (30 days) from **27 May 2019 to 26 June 2019** in **M/s Famous Mechanical Works.**

During the period of his internship program with us he was found punctual, hardworking and inquisitive.

We wish him every success in life.

M/s. Famous Mechanical Works

Famous Mechanical Works
3, Murarji Peth, SOLAPUR

Authorised Signature

AKSHAY CASTINGS

MANUFACTURERS OF ALUMINIUM DIE CASTINGS

C-30, M. I. D. C.,SHIROLI, KOLHAPUR-416 122. Mob.:9422048741

E-mail : akshaycastings@rediffmail.com Web Site : www.akshaycastings.com

Ref. No.

Date : 25/06/2019.

Letter Of Internship

Your student Mr. Avinash Bhaskar Vhankalas of SE mechanical engineering of your College Reported for the internship in AKSHAY CASTINGS on 1/6/2019. It is certified that he has completed the internship as trainee engineer in AKSHAY CASTINGS From date 1/6/2019 to 25/6/2019.

He has followed the rules and regulations of the industry during his internship.

Akshay Castings Plot No. C-30 M.I.D.C. Shiroli Kolhapur

Regards,

Akshay Castings,

Kolhapur

DENASA BUILDCON
Engineers, Contractors & Project Management Consultant
www.denasaindia.com

JAS-ANZ
ISO 9001:2008
ISO 14001:2004
OHSAS 18001:2007
Certified Company

INDUSTRIAL TRAINING CERTIFICATE

This is to certify that, **Mr. Waghmare Dipak Subhash** from **Shri Vithal Education & Research Institute College Of Engineering, Pandharpur** has successfully completed his In Plant Training at **DENASA BUILDCON** Pvt. Ltd.

The duration of the training has been from **25th May 2019** to **20th June 2019.**

We wish him all the success in his future endeavors.

For **DENASA BUILDCON Pvt.Ltd.**

DENASA BUILDCON PUNE

Shridhar Satvekar

Manager – Learning & Development

Head Office - C-3, Sant Tukaram Vyapar Sankul, 1st Floor, Sector-24, Pradhikaran, Nigdi, Above Hotel Saval, Pune - 411044
Maharashtra India. +91-20-27656844, admin@denasaindia.com
Regional Office : Office No. S/203, 2 nd floor Aradhya Business Temple, Galla Gym Khina Road, South Bopal, Next to Subo Center, Ahmedabad, Gujarat 380058.

Frame - by - Frame

Now a complete range of LT Motors available up to 1000kW / 450 Frame

Lhp MOTORS DRIVES
Driven by Commitment

REF :- LHPL/P&A/2019-20/

DATE :- 24TH June 2019

CERTIFICATE

This is to certify that **Mr. Harshal Prakash Wasnik of SVERI College of Engineering, Pandharpur (MH)** has successfully completed his/her **Inplant Training** from 24th May 2019 to 24th June 2019 in our company. To the best of my knowledge, he/she is sincere, honest & devoted to the work.

He/She bears a good moral conduct. I wish him/her for better future.

FOR LAXMI HYDRAULICS PVT. LTD.

KISAN DADAGE

(HEAD -ADMIN.)

Laxmi Hydraulics Pvt. Ltd.
Regd. & Corporate Office : B11 & B16, M.I.D.C. Chicholi, Solapur - 413255 INDIA
Tel.:+91 - 217 2357001(5Lines) Fax: +91 - 217 2357006 email : lhpindia@lhpmotor.com Website : www.lhp.co.in

Frame - by - Frame

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Lhp MOTORS DRIVES
Driven by Commitment

REF :- LHPL/P&A/2019-20/

DATE :- 24TH June 2019

CERTIFICATE

This is to certify that **Mr. Azam Akram Sayyed** of **SVERI College of Engineering, Pandharpur (MH)** has successfully completed his/her **Inplant Training** from 24th May 2019 to 24th June 2019 in our company. To the best of my knowledge, he/she is sincere, honest & devoted to the work.

He/She bears a good moral conduct. I wish him/her for better future.

FOR LAXMI HYDRAULICS PVT. LTD.

KISAN DADAGE

(HEAD -ADMIN.)

Laxmi Hydraulics Pvt. Ltd.
Regd. & Corporate Office : B11 & B16, M.I.D.C. Chicholi, Solapur – 413255 INDIA
Tel.:+91 - 217 2357001(5Lines) Fax: +91 - 217 2357006 email : lhpindia@lhpmotor.com Website : www.lhp.co.in

II Shree II

GURUKRUPA ENGINEERING WORKS

Add :- Ram Nagar, Madhvi Compound, Near Mukund Company,Digha, Navi Mumbai – 400 708.
Mob :- 919223820902/9773926864.Email ID : satyavanyadav71@gmail.com

Date: 24/06/2019

"TO WHOMSOEVER IT MAY CONCERN"

This is to certify that Miss. Mansi Dinesh Bhumkar had been under training with our organization from 24'th May to 24'th June 2019

During this period we found that she was very sincere, hardworking and dedicated student. We wish her all the best for her future endeavours.

Head of operation.

For Gurukrupa Engineering Works

Proprietor

Precision Camshafts Limited

(100% EOU Division)
Works : D-5,D-6,7,7-1, M I D C, Chincholi, Solapur 413 255

Date - Tuesday, June 25, 2019

CERTIFICATE FOR VOCATIONAL IN - PLANT TRAINING

Name	Nikita Narayan Deomare
Qualification	B.E (Mech) II
Name of the College	SVERI College of Engineering,Pandharpur
Type of Training	Vocational In - Plant Training
Period of Training	**03/06/2019 To 17/06/2019**
Nature of Training	During her training period she has undergone orientation training in different Manufacturing Process, Tool Room, Industrial Engineering, Engineering Services, Quality Assurance, HR Dept. etc.

During the training period, her attendance and performance was satisfactory.We wish her bright future.

For Precision Camshafts Limited

R K Kashid
GM – HR 4.7.19

PRECISION CAMSHAFTS LTD. (100% EOU DIVISION) SOLAPUR-413255

Phone : +91-9168646531/32/33 • Fax: 91 -217-2357645 • e-mail : info@pclindia.in • Website : www.pclindia.in
Regd. Office E-102/103 M.I.D.C., Akkalkot Road, Solapur-413 006 CIN-L24231PN1992PLC067126

Green Tech Solution Industries

Gat No. 83/1, A/P. Wakhari, Tal. Pandharpur, Dist. Solapur Pin - 413304.
Mob. 9096084671

Ref. No. :

Date : 21/06/2019

Certificate

This is to certify that **Mr. Rushikesh Sanjay Deshmane** student of **Shri Vitthal Education & Research Institute's college of Engineering, Pandharpur** Studing in **Mechanical 2nd Year.** Undergone the Industrial Training in our company 'Green Tech Solution Industries' Pandharpur for the period of **01 June 2019 to 21 June 2019.**

He has completed the training successfully.

Thanking you,

For Green Tech Solution Industries

Pandharpur

Green Tech Solution Industries Wakhari

Authority Signature

Frame - by - Frame

Now a complete range of LT Motors available up to 1000kW / 450 Frame

Lhp MOTORS DRIVES
Driven by Commitment

REF :- LHPL/P&A/2019-20/

DATE :- 24TH June 2019

CERTIFICATE

This is to certify that **Mr. Dhumal Vikas Vitthal** of **SVERI College of Engineering, Pandharpur (MH)** has successfully completed his/her **Inplant Training** from 22nd May 2019 to 20th June 2019 in our company. To the best of my knowledge, he/she is sincere, honest & devoted to the work.

He/She bears a good moral conduct. I wish him/her for better future.

FOR LAXMI HYDRAULICS PVT. LTD.

24/6/19

KISAN DADAGE

(HEAD -ADMIN.)

Laxmi Hydraulics Pvt. Ltd.
Regd. & Corporate Office : B11 & B16, M.I.D.C. Chicholi, Solapur – 413255 INDIA
Tel.:+91 - 217 2357001(5Lines) Fax: +91 - 217 2357006 email : lhpindia@lhpmotor.com Website : www.lhp.co.in

II Shree II

GURUKRUPA ENGINEERING WORKS

Add :- Ram Nagar, Madhvi Compound, Near Mukund Company,Digha, Navi Mumbai – 400 708.
Mob :- 919223820902/9773926864.Email ID : satyavanyadav71@gmail.com

Date:24/06/2019

"TO WHOMSOEVER IT MAY CONCERN''

This is to certify that Miss. Mansi Sanjay Ghogale had been under training with our organization from 24'th May to 24'th June 2019

During this period we found that she was very sincere, hardworking and dedicated student. We wish her all the best for her future endeavours.

Head of operation.

For Gurukrupa Engineering Works

Proprietor

Leena

ENGINEERING WORKS

Plot No. 156, Industrial Estate, Hotgi Road, Solapur 413 003

Tel : (0217) 2601501 | Email : leenaengwks@yahoo.co.in

Certificate

This is to certify that Mr. Khyade Amit Rajendra

of SVERI COE Pandharpur *Roll No.* A 70

has completed his In Plant Training in our works from 27/5/19

to 25/6/19 .

He has taken training on CNC VMC and Conventional Machines.

Leena Engineering Works • Solapur •

Leena
ENGINEERING WORKS
CEO

Leena

ENGINEERING WORKS

Plot No. 156, Industrial Estate, Hotgi Road, Solapur 413 003
Tel : (0217) 2601501 | Email : leenaengwks@yahoo.co.in

Certificate

This is to certify that Mr. Kodag Vasudev Dattatray
of SVERI's COE Pandharpur *Roll No.* SA62
has completed his In Plant Training in our works from 27/5/2019
to 25/6/2019.

He has taken training on CNC VMC and Conventional Machines.

Leena Engineering Works Solapur

Leena
ENGINEERING WORKS
CEO

V.S. STEELS

Nirmalnagar (Bholawade),Tal-Bhor,Dist-Pune,Near-Chintamani Rice Mill,
Bhor, Pune, Maharashtra, 412206.
Email id – vssteels07@gmail.com

Vijaykumar Patil
Mob. No- 9767672428

Shrikant Bhintade
Mob.No- 8605069372

TO WHOMSEVER IT MAY CONCERN

This has certify that **Mr.Magi Prasad Dattatray** has undergone his Internship as a trainee engineer in Production Department From 01/06/2019 To 30/06/2019 at our company.

During the tenure, We found him sincere and hardworking.

We Wish him all success in his future endeavours.

V.S. STEELS PUNE

Mr.Vijaykumar Patil

Authorised Signatory
V.S.STEELS.
PUNE

V.S.STEELS

TUV NORD CERT GmbH
IATF 16949-2016
02-IAO-QMC-01021

JADHAV INDUSTRIES

JADHAV INDUSTRIES

Manufactures of graded C.I. Casting
Aluminium Machined Casting

532/5, Nerli, Near end of the M.I.D.C. Gokul Shirgaon, Main Road, Kolhapur. ☎ : (0231) 2672063, **Fax :** 0231-2672828, Resi. : 2692225
E-mail : jadhavindustries@gmail.com **Website :** www.jadhavindustries.com

Date :

Date: 23/6/2019

CERTIFICATE

This is to certify that **Mr. Mahesh Gunvant Mane** student of " Sveri College of Engineering , Pandharpur " studying in S.E (Mech) has successfully completed the **"VOCATIONAL TRAINING "** in our organization during the period from **23th May 2019 to 22nd June 2019.**

During the above training period he found to be sincere, punctual and hardworking.

We wish all the best for his successful future carrier.

For **JADHAV INDUSTRIES,**

JADHAV INDUSTRIES KOLHAPUR

Authorized Signatory.

Leena

ENGINEERING WORKS

Plot No. 156, Industrial Estate, Hotgi Road, Solapur 413 003
Tel : (0217) 2601501 | Email : leenaengwks@yahoo.co.in

Certificate

This is to certify that Mr. Mangsule Vedant Dnyaneshwar
of SVERI COE Pandharpur *Roll No.* B 55
has completed his In Plant Training in our works from 27/5/19
to 25/6/19.

He has taken training on CNC VMC and Conventional Machines

Leena Engineering Works • Solapur •

Leena
ENGINEERING WORKS
CEO

Chavan Auto Wheels Pvt. Ltd.

Commercial Vehicle Dealer

TATA MOTORS

Training Certificate

Date 24/06/2019

This is to certify that Miss.Shweta Sadashiv Nistane have successfully completed 30 days Vocational In plant training session in our company naming Chavan Auto Wheels. Pvt. Ltd from 22/05/2019 to 21/06/2019

For Chavan Auto Wheels.Pvt. Ltd

CHAVAN AUTO WHEELS PVT. LTD. SOLAPUR

Authorized Signatory

Head Office : 1147,A/P : Kumbhari, Akkalkot Road, Solapur - 413 006. Tel.: 2280688, 2280699
Branch Office : 87/10, Suman Nagar, Pune Road, Bale Chowk, Solapur - 413 001.
Email : chavanautowheels@gmail.com

OSHIN ENGINEERING PVT LTD

All Kinds of Sheet metal components, Welded Assemblies, Fabrication, Press Tools, Jigs and Fixtures
Factory Address :- Plot No- 224, Sector-10, PCNDTA, MIDC, Bhosari, Pune- 411026
E mail- sarodemd@gmail.com

CERTIFICATE

This is to certify that the following student **Omkar Shahaji Gund** TE(Mechanical Engineering) of **SVERI'S COLLEGE OF ENGINEERING PANDHARPUR** have completed their Industrial Training under the mentorship of my firm from 01 June to 23 June **2019** during the academic year **2019-2020** as partial fulfillment of the Mechanical Engineering course

he has completed the training sucessfully

For Oshin Engineering Pvt Ltd

OSHIN ENGINEERING PVT. LTD.

Authorized signatory

Frame - by - Frame

Now a complete range of LT Motors available up to 1000kW / 450 Frame

Lhp MOTORS DRIVES
Driven by Commitment

REF :- LHPL/P&A/2019-20/

DATE :- 24TH June 2019

CERTIFICATE

This is to certify that **Mr. Raut Yogesh Dattatray** of **SVERI College of Engineering, Pandharpur (MH)** has successfully completed his/her **Inplant Training** from 24th May 2019 to 24th June 2019 in our company. To the best of my knowledge, he/she is sincere, honest & devoted to the work.

He/She bears a good moral conduct. I wish him/her for better future.

FOR LAXMI HYDRAULICS PVT. LTD.

KISAN DADAGE

(HEAD -ADMIN.)

Laxmi Hydraulics Pvt. Ltd.
Regd. & Corporate Office : B11 & B16, M.I.D.C. Chicholi, Solapur – 413255 INDIA
Tel.:+91 - 217 2357001(5Lines) Fax: +91 - 217 2357006 email : lhpindia@lhpmotor.com Website : www.lhp.co.in

ADVANCE EXTRUSION
PVT. LTD.
90-94, INDUSTRIAL ESTATE NO.2, BARSI 413 401, DIST :SOLAPUR
☎: (02184) 223363

DATE : 25/06/19

CERTIFICATE

This is to certify that Mr NIHAL NAOUSHAD SHAIKH he was completed his industrial training in the period date 24/05/2019 To 23/06/2019. He performed good while in his training.

For :- ADVANCE EXTRUSION PVT LTD

ADVANCE EXTRUSION PVT. LTD. BARSHI

DIRECTOR / MANAGER

ADITI POWER EQUIPMENTS PVT. LTD.

Manufacturer of Sheet Metal Products & Surface Powder Coating

GAT NO. 417, MIDC Chakan Industrial Area Phase (III) Nighoje Tal.: Khed, Dist.:Pune 410501, Maharashtra
Contact.: +91 7030930711 Email.: pramod@aditipower.com
CIN.: U31100DL2016PTC305292

APEPL/HR/19-20/002 Dated: 24/06/2019

TO WHOM SOEVER IT MAY CONCERN

This is to certify that **Mr. Rajkumar Nana Shinde** has worked as a **"Trainee"** in the department of Production at **Aditi Power Equipments Pvt. Ltd.** From **25th May, 2019** to **24thJune,2019.**

We found him to be a good team player besides being a hard worker.

We wish him all the success in his future endeavours.

For ADITI POWER EQUIPMENTS PVT LTD

Authorized Signatory

ADITI POWER EQUIPMENTS PVT LTD ★ CHAKAN

Manufacturers of :

- Monoblock & Domestic Pumps
- Openwell Submersible Pumps
- Process Pumps
- Tractor & Coolent Pumps

CERTIFICATE

This is to certify that Mr.Swapnil Sanjaykumar Todmare 2nd year student of SVERI's, College of Engg. Pandharpur has successfully completed on job training from 26/05/2019 to 26/06/2019 in our factory.

Our Best wishes for his future career.

For Laxmi Drucken Komponents Pvt.Ltd.

Gundlas
27/6/2019

[S.V.GUNDLA]
MANAGER - P & A

Laxmi Drucken Komponents Pvt. Ltd. Solapur.

PLACE : SOLAPUR
DATE : 27-06-2019

Laxmi Drucken Komponents Pvt. Ltd.
C-45 to 48, MIDC, Chincholi, Solapur 413 255 Maharashtra, India
Tel. : +91 217 - 2357695, 2357110 Fax: +91 217 2357461 mail : ldkindia@ldkpump.com

Leena

ENGINEERING WORKS

Plot No. 156, Industrial Estate, Hotgi Road, Solapur 413 003
Tel : (0217) 2601501 | Email : leenaengwks@yahoo.co.in

Certificate

This is to certify that Mr. Takale Akshay Angad
of SVERI COE Pandharpur *Roll No.* B 21
has completed his In Plant Training in our works from 01/06/2019
to 25/06/2019

He has taken training on CNC VMC and Conventional Machines.

Leena Engineering Works • Solapur •

Leena
ENGINEERING WORKS
CEO

NORD®
DRIVESYSTEMS

Certificate

NORD Drivesystems

takes pleasure in certifying that

Mr. Vibhute Rushikesh

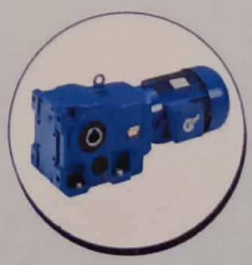


has attended and successfully completed the Internship (Industrial Training) conducted from 27th May to 25th June, 2019

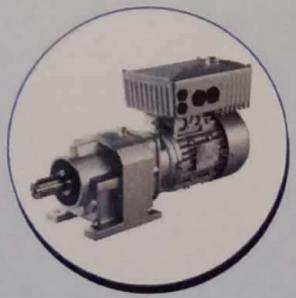


Pradeep Magar
Sr.Manager – Technical Support

Satyen Kumar Das
GM – Finance & Administration







NORD Drivesystems Pvt. Ltd.
Member of the NORD DRIVESYSTEMS Group
282/2, 283/2, Plot No. 15, Village Mann, Taluka Mulshi, Adj. Hinjewadi MIDC Phase II, Pune 411057, Maharashtra, INDIA
Tel. : +91-(0)20 39801221 | Fax : +91-(0)20 39801316 | Toll Free Customer Helpline 1800 200 2042
CIN : U29130PN2005PTC020440 | GST IN : 27AACCN0708R1Z5
E-Mail : India@nord.com | www.nord.com

Precision Camshafts Limited

(100% EOU Division)
Works : D-5,D-6,7,7-1, M I D C, Chincholi, Solapur 413 255

Date - Thursday, June 25, 2019

CERTIFICATE FOR VOCATIONAL IN - PLANT TRAINING

Name	Pradyumna Dinesh Waghmode
Qualification	B.E (Mech) II
Name of the College	SVERI College of Engineering,Pandharpur
Type of Training	Vocational In - Plant Training
Period of Training	**03/06/2019 To 17/06/2019**
Nature of Training	During his training period he has undergone orientation training in different Manufacturing Process, Tool Room, Industrial Engineering, Engineering Services, Quality Assurance, HR Dept. etc.

During the training period, his attendance and performance was satisfactory. We wish him bright future.

For Precision Camshafts Limited

R K Kashid
GM – HR

PRECISION CAMSHAFTS LTD. (100% EOU DIVISION) SOLAPUR-413255

Phone : +91-9168646531/32/33 • Fax: 91 -217-2357645 • e-mail : info@pclindia.in • Website : www.pclindia.in
Regd. Office E-102/103 M.I.D.C., Akkalkot Road, Solapur-413 006 CIN-L24231PN1992PLC067126

DENASA BUILDCON
Engineers, Contractors & Project Management Consultant
www.denasaindia.com

JAS-ANZ
ISO 9001:2008
ISO 14001:2004
OHSAS 18001:2007
Certified Company

INDUSTRIAL TRAINING CERTIFICATE

This is to certify that, **Mr. Adalinge Rohit Chandrakant** from **Shri Vithal Education & Research Institute College Of Engineering, Pandharpur** has successfully completed his In Plant Training at **DENASA BUILDCON** Pvt. Ltd.

The duration of the training has been from **25th May 2019** to **20th June 2019.**

We wish him all the success in his future endeavors.

For **DENASA BUILDCON Pvt.Ltd.**

DENASA BUILDCON PUNE

Shridhar Satvekar

Manager – Learning & Development

Head Office - C-3, Sant Tukaram Vyapar Sankul, 1st Floor, Sector -24, Pradhikaran, Nigdi, Above Hotel Savali, Pune - 411044
Maharashtra India. +91-20 27655844. admin@denasaindia.com
Regional Office : Office No. S/203, 2 nd floor Aradhya Business Temple, Gala Gym Khna Road, South Bopal, Next to Subo Center, Ahmedabad, Gujarat 380058.

Precision Camshafts Limited

(100% EOU Division)
Works : D-5,D-6,7,7-1, M I D C, Chincholi, Solapur 413 255

Date - Tuesday, June 25, 2019

CERTIFICATE FOR VOCATIONAL IN - PLANT TRAINING

Name	Chandraprabha Balaji Ashture
Qualification	B.E (Mech) II
Name of the College	SVERI College of Engineering, Pandharpur
Type of Training	Vocational In - Plant Training
Period of Training	**03/06/2019 To 17/06/2019**
Nature of Training	During her training period she has undergone orientation training in different Manufacturing Process, Tool Room, Industrial Engineering, Engineering Services, Quality Assurance, HR Dept. etc.

During the training period, her attendance and performance was satisfactory. We wish her bright future.

For Precision Camshafts Limited

R K Kashid
GM – HR

PRECISION CAMSHAFTS LTD. (100% EOU DIVISION) SOLAPUR-413255

TOP GEAR
TRANSMISSIONS

27th June, 2019

CERTIFICATE

This is to certify that ***Mr. Shrirang Rajendra Atre****, B E (II year) student from Shri Vithal Education And Research Institute's College of Engineering, Pandharpur has undergone Industrial Training for* ***1 Month*** *of " Production Process" with us in Production Department from* ***25th May 2019 to 26th June 2019*** *and successfully completed it.*

We wish him all the best in his future endeavors.

For Top Gear Transmissions

For TOP GEAR TRANSMISSIONS
27.06.2019
Authorised Signatory

Manager - HRD

M-71, Additional M.I.D.C., Satara - 415 004. Maharashtra (INDIA). Tel.: + 91 - 2162 - 240 493, 240 642 Fax : +91 - 2162 - 240 373
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DATE : 25 /06 /2019

अनुभव प्रमाणपत्र

प्रमाणित करण्यात येते की, चि. मुदस्सर महेबुब बागवान हा मुलगा आमच्या वर्कशॉप मध्ये दि. २५ /०५ /२०१९ पासून दि. २५ / ०६ /२०१९ पर्यंत यशस्वीरीत्या ट्रेनिंग पुर्ण केलेले आहे.

प्रामाणिकपणा व नियमितपणा बद्दल आम्ही त्यास अप्रेंटीसशिप म्हणून कुशलतेचे प्रमाणपत्र देत आहे.

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DATE :- 24TH June 2019

CERTIFICATE

This is to certify that **Mr. Devkate Yogeshwar Arvind** of **SVERI College of Engineering, Pandharpur (MH)** has successfully completed his/her **Inplant Training** from 24th May 2019 to 24th June 2019 in our company. To the best of my knowledge, he/she is sincere, honest & devoted to the work.

He/She bears a good moral conduct. I wish him/her for better future.

FOR LAXMI HYDRAULICS PVT. LTD.

KISAN DADAGE

(HEAD -ADMIN.)

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Email : asballoys@gmail.com • Website : www.asballoys.com • Mob. : 7350102000, 8605464455.

Ref. No. :

Date :

ASB/19-20/021

Date: – 23/06/2019

CERTIFICATE

This is certify that **Mr.Ashish Namdev Ganjale** Student of **"SVERI COLLEGE OF ENGINEERING", PANDHARPUR** Studing in S.E.(MECH) has successfully completed "**VOCATIONAL TRAINING** "In our organization during the period from 23th May 2019 to 22 June 2019.

During about Training Period he found to be Sincere, Punctual And Hard Working.

We wish all the Best for his Successful Future Carrier.

Thanking You.

Yours Faithfully

ASB ALLOYS D-1, M.I.D.C., TEMBHURNI

GHADAGE AUTOMOTIVES

(TATA MOTORS AUTHO. SERVICE STATION)

No. : 08/19-20

Date : 02/07/2019

TO WHOMSOEVER IT MAY CONCERN

THIS IS TO CERTIFY THAT MR.GHADAGE VAIBHAV PRABHAKAR HAD WORKED IN OUR ORGANISATION AS A TRAINY MECHANICAL ENGINEER FROM 20 MAY 2019 TO 19 JUNE 2019.

HE HAS WIDE KNOWLEDGE IN AUTOMOBILE SECTOR.

HE HAS PERFORMED HIS DUTIES IN A DELIGENT & SATISFACTORY MANNER.

HE IS SIINCIERE, HONEST & HARDWORKING.

WE WISH HIM EVERY SUCCESS IN HIS FUTURE,ENDEAVORS.

REGARDS

02/07/2019

GHADAGE AUTOMOTIVES 02186 244444 PANDHARPUR

MR.DATTA GHADAGE
GHADAGE AUTOMOTIVES.

PANDHARPUR - SANGOLA ROAD, NR TOLL TAX, KASEGAON, TAL. PANDHARPUR, DIST. SOLAPUR (MAHARASHTRA)
PH: (02186) 244444, Email-Id : ghadageautomotives@gmail.com

GHADAGE AUTOMOTIVES

(TATA MOTORS AUTHO. SERVICE STATION)

No. : 08/19-20

Date : 02/07/2019

TO WHOMSOEVER IT MAY CONCERN

THIS IS TO CERTIFY THAT MR.GHADAGE VAIBHAV PRABHAKAR HAD WORKED IN OUR ORGANISATION AS A TRAINY MECHANICAL ENGINEER FROM 20 MAY 2019 TO 19 JUNE 2019.

HE HAS WIDE KNOWLEDGE IN AUTOMOBILE SECTOR.

HE HAS PERFORMED HIS DUTIES IN A DELIGENT & SATISFACTORY MANNER.

HE IS SIINCIERE, HONEST & HARDWORKING.

WE WISH HIM EVERY SUCCESS IN HIS FUTURE,ENDEAVORS.

REGARDS

02/07/2019

GHADAGE AUTOMOTIVES 02186 244444 PANDHARPUR

MR.DATTA GHADAGE
GHADAGE AUTOMOTIVES.

PANDHARPUR - SANGOLA ROAD, NR TOLL TAX, KASEGAON, TAL. PANDHARPUR, DIST. SOLAPUR (MAHARASHTRA)
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E-mail : skywin@vsnl.net.

Ref. No. :

Date.

This is to certify that **Mr Ruturaj Satish Jadhav** of Sveri college Of engineering, Pandharpur has completed his implant training in our esteemed industry.

He has completed his training form 2-6-10 to 28 - 6-19 regularly and sincerely. We wish him good luck for his future.

For:- SKYWIN INDUSTRIES

SKYWIN INDUS
PUNE - 411 026

ASB ALLOYS

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Email : asballoys@gmail.com • Website : www.asballoys.com • Mob. : 7350102000, 8605464455.

Ref. No. :

Date :

ASB/19-20/020

Date: – 23/06/2019

CERTIFICATE

This is certify that **Mr.Shubham Jaimilind Kadam** Student of **"SVERI COLLEGE OF ENGINEERING", PANDHARPUR** Studing in S.E.(MECH) has successfully completed "**VOCATIONAL TRAINING** "In our organization during the period from 23th May 2019 to 22 June 2019.

During about Training Period he found to be Sincere, Punctual And Hard Working.

We wish all the Best for his Successful Future Carrier.

Thanking You.

Yours Faithfully

ASB ALLOYS * D-1, M.I.D.C., TEMBHURNI *

ADVANCE EXTRUSION
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90-94, INDUSTRIAL ESTATE NO.2, BARSI 413 401, DIST :SOLAPUR
☎: (02184) 223363

DATE : 25/06/19

CERTIFICATE

This is to certify that Mr ABHISHEK PRAKASH KSHIRSAGAR he was completed his industrial training in the period date 24/05/2019 To 23/06/2019. He performed good while in his training.

For :- ADVANCE EXTRUSION PVT LTD

ADVANCE EXTRUSION PVT. LTD. BARSHI

DIRECTOR / MANAGER

TOP GEAR TRANSMISSIONS

27th June, 2019

CERTIFICATE

This is to certify that **Mr. Chaitanya Laxmikant Kulkarni,** *B E (II year) student from Shri Vithal Education And Research Institute's College of Engineering, Pandharpur has undergone Industrial Training for* ***1 Month*** *of "Production Process" with us in Production Department from* **25th May 2019** *to* **26th June 2019** *and successfully completed it.*

We wish him all the best in his future endeavors.

For Top Gear Transmissions

For TOP GEAR TRANSMISSIONS
27.06.2019
Authorised Signatory

Manager - HRD

M-71, Additional M.I.D.C., Satara - 415 004. Maharashtra (INDIA) Tel.: + 91 - 2162 - 240 493, 240 642 Fax : +91 - 2162 - 240 373
Email : sales@topgeartransmission.com | website : www.topgeartransmission.com

TOP GEAR
TRANSMISSIONS

27th June, 2019

CERTIFICATE

This is to certify that **Mr. Varad Anil Lad** *, B E (II year) student from Shri Vithal Education And Research Institute's College of Engineering, Pandharpur has undergone Industrial Training for* **1 Month** *of " Production Process" with us in Production Department from* **25th May 2019 to 26th June 2019** *and successfully completed it.*

We wish him all the best in his future endeavors.

For Top Gear Transmissions

For TOP GEAR TRANSMISSIONS
27.06.2019
Authorised Signatory

Manager - HRD

M-71, Additional M.I.D.C., Satara - 415 004. Maharashtra (INDIA) Tel.: + 91 - 2162 - 240 493, 240 642 Fax : +91 - 2162 - 240 373
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E-mail : jadhavindustries@gmail.com **Website :** www.jadhavindustries.com

Date :

Date: 23/6/2019

CERTIFICATE

This is to certify that **Mr. Mahesh Gunvant Mane** student of " Sveri College of Engineering , Pandharpur " studying in S.E (Mech) has successfully completed the **"VOCATIONAL TRAINING "** in our organization during the period from **23th May 2019 to 22nd June 2019.**

During the above training period he found to be sincere, punctual and hardworking.

We wish all the best for his successful future carrier.

For **JADHAV INDUSTRIES,**

JADHAV INDUSTRIES KOLHAPUR

Authorized Signatory.

ROYAL

Date:- 21-06-2019

CERTIFICATE FOR VOCATIONAL IN – PLANT TRAINING

Name:- Pandhare Rohan Anil

Qualification:- Mech- Engineering (Second Year)

Name of the Collage:- Shri Vitthal Education And Research institute's College of engineering Pandharpur

Type of Training: - Vocational IN- Plant Training

Period of Training:- 25/05/2019 To 20/06/2019

Nature of Training:- During his training period he has undergone Orientation training in different manufacturing Process, Tool Room, Industrial Engineering , Engineering Services, Quality Assurance, HR Department etc.

During the training period, his attendance and performance was Satisfactory. We wish him bright future.

For Royal Industries

Royal Industries
Gat No.1391, Akluj - Velapur Road, Velapur
Tal. Malshiras Dist. Solapur Pin Code - 413113
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DATE : 26 / 06 /2019

अनुभव प्रमाणपत्र

प्रमाणित करण्यात येते की, चि. पवन शशीकांत परकम हा मुलगा आमच्या वर्कशॉप मध्ये दि. २५/ ५ /२०१९ पासून दि. २५/ ६ /२०१९ पर्यंत यशस्वीरीत्या ट्रेनिंग पुर्ण केलेले आहे.

प्रामाणिकपणा व नियमितपणा बद्दल आम्ही त्यास अप्रेंटीसशिप म्हणून कुशलतेचे प्रमाणपत्र देत आहे.

हे प्रमाणपत्र दिले दि. २६/ ६ /२०१९.

For Hind Mechanical & Welding Works

HIND Mechanical & Welding Works
46-D, Bhavani Peth, Solapur.

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Tel : (0217) 2601501 | Email : leenaengwks@yahoo.co.in

Certificate

This is to certify that Mr. Pawar Dayanand Yogesh
of SVERI COE Pandharpur *Roll No.* A 35
has completed his In Plant Training in our works from 25/5/19
to 25/6/19 .

He has taken training on CNC VMC and Conventional Machines.

Leena Engineering Works Solapur

Leena
ENGINEERING WORKS
CEO

SANDVIK Coromant

Our Date: July 01, 2019

Our Reference: HRCOR/ICC/PP/SD/19

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Mr. Pruthviraj Deepak Pawar,** student of **College of Engineering, Pandharpur** has completed his Internship, for the project titled - **"Pneumatic Fixture Development"** under the guidance of **Mr. Rahul Patil,** for a period from **June 03, 2019 to July 01, 2019** at **Sandvik Coromant.**

During this period, his performance was excellent, and we found him dedicated, hardworking and sincere.

We wish him success in his future endeavors.

Thanking You.

Sandvik Coromant
Sandvik Asia Pvt. Ltd.

Anupama Sinha

SANDVIK ASIA PRIVATE LIMITED * PUNE *

Anupama Sinha
Deputy Manager - HR

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SANDVIK ASIA PVT. LTD.
Mumbai Pune Road,
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India.
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Website : www.coromant.sandvik.com/

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CERTIFICATE OF INDUSTRIAL TRAINING

This is to certify **Mr. SANSARE SANKET MANOJKUMAR**, Mechanical engineering Student From College Of Engineering , Pandharpur successfully completed Industrial Training (From 5th May 2019 To 28th June 2019) long internship at our Industry. His internship activity includes familiarization to all departments and there operations and processes and there management overview involved with the production & managing process of the industry.

During internship program, his candidature was found to be punctual and hardworking. We wish him every success in his life and career.

Akshay Metal Industries.

S. D. Sanket

Proprietor

AKSHAY METAL INDUSTRIES OSMANABAD

Green Tech Solution Industries

Gat No. 83/1, A/P. Wakhari, Tal. Pandharpur, Dist. Solapur Pin - 413304.
Mob. 9096084671

Ref. No. :

Date : 21/06/2019

Certificate

This is to certify that **Mr. Abhishek Amar Shinde** student of **Shri Vitthal Education & Research Institute's college of Engineering, Pandharpur** Studing in **Mechanical 2nd Year.** Undergone the Industrial Training in our company 'Green Tech Solution Industries' Pandharpur for the period of **01 June 2019 to 21 June 2019.**

He has completed the training successfully.

Thanking you,
For Green Tech Solution Industries
Pandharpur

Green Tech Solution Industries Wakhari

Authority Signature

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This is to certify that, **Mr. Shinde Mahesh Vilas** from **Shri Vithal Education & Research Institute College Of Engineering, Pandharpur** has successfully completed his In Plant Training at **DENASA BUILDCON** Pvt. Ltd.

The duration of the training has been from **25th May 2019** to **20th June 2019.**

We wish him all the success in his future endeavors.

For **DENASA BUILDCON Pvt.Ltd.**

DENASA BUILDCON PUNE

Shridhar Satvekar

Manager – Learning & Development

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Certified Company

INDUSTRIAL TRAINING CERTIFICATE

This is to certify that, **Mr. Tamboli Arbaj Jabbar** from **Shri Vithal Education & Research Institute College Of Engineering, Pandharpur** has successfully completed his In Plant Training at **DENASA BUILDCON** Pvt. Ltd.

The duration of the training has been from **25th May 2019** to **20th June 2019.**

We wish him all the success in his future endeavors.

For **DENASA BUILDCON Pvt.Ltd.**

DENASA BUILDCON PUNE

Shridhar Satvekar

Manager – Learning & Development

Head Office - C-3, Sant Tukaram Vyapar Sankul, 1st Floor, Sector -24, Pradhikaran, Nigdi, Above Hotel Savali, Pune - 411044
Maharashtra India. +91-20 27655844. admin@denasaindia.com
Regional Office : Office No. S/203, 2 nd floor Aradhya Business Temple, Gala Gym Khna Road, South Bopal, Next to Subo Center, Ahmedabad, Gujarat 380058.

Green Tech Solution Industries

Gat No. 83/1, A/P. Wakhari, Tal. Pandharpur, Dist. Solapur Pin - 413304.
Mob. 9096084671

Ref. No. :

Date : 21/06/2019

Certificate

This is to certify that **Mr. Rutvik Bramhadev Tate** student of **Shri Vitthal Education & Research Institute's college of Engineering, Pandharpur** Studing in **Mechanical 2nd Year.** Undergone the Industrial Training in our company 'Green Tech Solution Industries' Pandharpur for the period of **01 June 2019 to 21 June 2019.**

He has completed the training successfully.

Thanking you,
For Green Tech Solution Industries
Pandharpur

Green Tech Solution Industries Wakhari

Authority Signature

Precision Camshafts Limited

(100% EOU Division)
Works : D-5,D-6,7,7-1, M I D C, Chincholi, Solapur 413 255

Date - Thursday, June 25, 2019

CERTIFICATE FOR VOCATIONAL IN - PLANT TRAINING

Name	Pradyumna Dinesh Waghmode
Qualification	B.E (Mech) II
Name of the College	SVERI College of Engineering,Pandharpur
Type of Training	Vocational In - Plant Training
Period of Training	**03/06/2019 To 17/06/2019**
Nature of Training	During his training period he has undergone orientation training in different Manufacturing Process, Tool Room, Industrial Engineering, Engineering Services, Quality Assurance, HR Dept. etc.

During the training period, his attendance and performance was satisfactory. We wish him bright future.

For Precision Camshafts Limited

R K Kashid
GM – HR

PRECISION CAMSHAFTS LTD. (100% EOU DIVISION) SOLAPUR-413255

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DATE :- 24TH June 2019

CERTIFICATE

This is to certify that **Mr. Saurabh Mahadev Shinde of SVERI College of Engineering, Pandharpur (MH)** has successfully completed his/her **Inplant Training** from 24th May 2019 to 24th June 2019 in our company. To the best of my knowledge, he/she is sincere, honest & devoted to the work.

He/She bears a good moral conduct. I wish him/her for better future.

FOR LAXMI HYDRAULICS PVT. LTD.

KISAN DADAGE

(HEAD -ADMIN.)

Laxmi Hydraulics Pvt. Ltd.
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Tel. : +91 - 217 2357003(Laxmi) Fax : +91 - 217 2357006 e-mail : lhpmotor@lhpmotor.com Website : www.lhp.co.in

Leena

ENGINEERING WORKS

Plot No. 156, Industrial Estate, Hotgi Road, Solapur 413 003
Tel : (0217) 2601501 | Email : leenaengwks@yahoo.co.in

Certificate

This is to certify that Mr. Jadhav Rushikesh Kalyan
of SVERI COE Pandharpur *Roll No.* A 51
has completed his In Plant Training in our works from 25/5/2019
to 27/6/2019.

He has taken training on CNC VMC and Conventional Machines.

Leena Engineering Works • Solapur •

Leena
ENGINEERING WORKS
CEO

Leena

ENGINEERING WORKS

Plot No. 156, Industrial Estate, Hotgi Road, Solapur 413 003
Tel : (0217) 2601501 | Email : leenaengwks@yahoo.co.in

Certificate

This is to certify that Mr. Gaikwad Suraj Tanaji
of SVERI COE, Pandharpur *Roll No.* A-13
has completed his In Plant Training in our works from 25/5/19
to 25/6/19.

He has taken training on CNC VMC and Conventional Machines.

Leena Engineering Works • Solapur •

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ENGINEERING WORKS
CEO

Leena

ENGINEERING WORKS

Plot No. 156, Industrial Estate, Hotgi Road, Solapur 413 003
Tel : (0217) 2601501 | Email : leenaengwks@yahoo.co.in

Certificate

This is to certify that Mr. Autade Dasharath Madhukar
of SVERI COE Pandharpur *Roll No.* A-57
has completed his In Plant Training in our works from 25/5/2019
to 27/6/2019.

He has taken training on CNC VMC and Conventional Machines.

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CEO

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E-mail : jadhavindustries@gmail.com **Website** : www.jadhavindustries.com

Date :

Date: 23/6/2019

CERTIFICATE

This is to certify that **Mr. Akash Namdev Bhise** student of " Sveri College of Engineering , Pandharpur " studying in S.E (Mech) has successfully completed the **"VOCATIONAL TRAINING "** in our organization during the period from **23th May 2019 to 22nd June 2019.**

During the above training period he found to be sincere, punctual and hardworking.

We wish all the best for his successful future carrier.

For **JADHAV INDUSTRIES,**

JADHAV INDUSTRIES KOLHAPUR

Authorized Signatory.

Leena

ENGINEERING WORKS

Plot No. 156, Industrial Estate, Hotgi Road, Solapur 413 003
Tel : (0217) 2601501 | Email : leenaengwks@yahoo.co.in

Certificate

This is to certify that Mr. Chavan Suraj Baban
of SVERI COE Pandharpur *Roll No.* A10
has completed his In Plant Training in our works from 25/5/19
to 25/6/19 .

He has taken training on CNC VMC and Conventional Machines.

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Leena
ENGINEERING WORKS
CEO

NILKANTHESHWAR ENGINEERING WORKS

25/991,YASHAWANT RESIDENCY,TORNANAGAR, ICHALKARANJ1-416115

Ref no-518/2018-19 Date - 28/06/2019

CERTIFICATE

This is certify that Mis.Sonali Umesh Chavan the student of SY Mechanical engineering from SVERI ENGINEERING COLLAGE OF PANDHARPUR, has successfully completed CNC and lathe machine training from 28/05/2019 to 28/06/2019 in our organization

Mis. Sonali Umech Chavan is found us smcere hard working and honest m traimng period. This certificate IS issued on his request

Manager

ASB ALLOYS

ASB ALLOYS

Plot No. : D-1, M.I.D.C., Tembhurni, Tal. Madha, Dist. Solapur - 413 211.
Email : asballoys@gmail.com • Website : www.asballoys.com • Mob. : 7350102000, 8605464455.

Ref. No. :

Date :

ASB/19-20/021

Date: – 23/06/2019

CERTIFICATE

This is certify that **Mr.Vaibhav Nagnath Dandage** Student of **"SVERI COLLEGE OF ENGINEERING", PANDHARPUR** Studing in S.E.(MECH) has successfully completed "**VOCATIONAL TRAINING** "In our organization during the period from 23th May 2019 to 22 June 2019.

During about Training Period he found to be Sincere, Punctual And Hard Working.

We wish all the Best for his Successful Future Carrier.

Thanking You.

Yours Faithfully

ASB ALLOYS
D-1, M.I.D.C., TEMBHURNI

Leena

ENGINEERING WORKS

Plot No. 156, Industrial Estate, Hotgi Road, Solapur 413 003
Tel : (0217) 2601501 | Email : leenaengwks@yahoo.co.in

Certificate

This is to certify that Mr. Dandwate Rushikesh Prasad
of SVERI COE Pandharpur *Roll No.* A 60
has completed his In Plant Training in our works from 01/06/2019
to 25/06/2019

He has taken training on CNC VMC and Conventional Machines.

Leena Engineering Works • Solapur •

Leena
ENGINEERING WORKS
CEO

Frame - by - Frame

Now a complete range of LT Motors available up to 1000kW / 450 Frame

Lhp MOTORS DRIVES
Driven by Commitment

REF :- LHPL/P&A/2019-20/

DATE :- 24TH June 2019

CERTIFICATE

This is to certify that **Mr. Devkate Sachin Kisan** of **SVERI College of Engineering, Pandharpur (MH)** has successfully completed his/her **Inplant Training** from 24th May 2019 to 24th June 2019 in our company. To the best of my knowledge, he/she is sincere, honest & devoted to the work.

He/She bears a good moral conduct. I wish him/her for better future.

FOR LAXMI HYDRAULICS PVT. LTD.

KISAN DADAGE

(HEAD -ADMIN.)

Laxmi Hydraulics Pvt. Ltd.
Regd. & Corporate Office : B11 & B16, M.I.D.C. Chicholi, Solapur – 413255 INDIA
Tel.:+91 - 217 2357001(5Lines) Fax: +91 - 217 2357006 email : lhpindia@lhpmotor.com Website : www.lhp.co.in

Frame - by - Frame

Now a complete range of LT Motors available up to 1000kW / 450 Frame

lhp MOTORS DRIVES
Driven by Commitment

REF :- LHPL/P&A/2019-20/

DATE :- 24TH June 2019

CERTIFICATE

This is to certify that **Mr. Devkate Yogeshwar Arvind of SVERI College of Engineering, Pandharpur (MH)** has successfully completed his/her **Inplant Training** from 24th May 2019 to 24th June 2019 in our company. To the best of my knowledge, he/she is sincere, honest & devoted to the work.

He/She bears a good moral conduct. I wish him/her for better future.

FOR LAXMI HYDRAULICS PVT. LTD.

KISAN DADAGE

(HEAD -ADMIN.)

Laxmi Hydraulics Pvt. Ltd.
Regd. & Corporate Office : B11 & B16, M.I.D.C. Chicholi, Solapur – 413255 INDIA
Tel.:+91 - 217 2357001(5Lines) Fax: +91 - 217 2357006 email : lhpindia@lhpmotor.com Website : www.lhp.co.in

Frame - by - Frame

Now a complete range of LT Motors available up to 1000kW / 450 Frame

Driven by Commitment

REF :- LHPL/P&A/2019-20/

DATE :- 24TH June 2019

CERTIFICATE

This is to certify that Mr. **Gahirwar Pawansing K.** of SVERI College of **Engineering, Pandharpur** (MH) has successfully completed his/her **Inplant Training** from 24th May 2019 to 24th June 2019 in our company. To the best of my knowledge, he/she is sincere, honest & devoted to the work.

He/She bears a good moral conduct. I wish him/her for better future.

FOR LAXMI HYDRAULICS PVT. LTD.

KISAN DADAGE

(HEAD -ADMIN.)

Frame - by - Frame

Now a complete range of LT Motors available up to 1000kW / 450 Frame

REF :- LHPL/P&A/2019-20/

DATE :- 9TH July 2019

CERTIFICATE

This is to certify that **Mr. Shaikh Juned Ramjan** of **SVERI College of Engineering, Pandharpur (MH)** has successfully completed his/her **Vacational Training** from 25th May 2019 to 25th June 2019 in our company.

To the best of my knowledge, he/she is sincere, honest & devoted to the work.

He/She bears a good moral conduct. I wish him/her for better future.

FOR LAXMI HYDRAULICS PVT. LTD.

KISAN DADAGE

(HEAD -ADMIN.)

Laxmi Hydraulics Pvt. Ltd.
Regd. & Corporate Office : B11 & B16, M.I.D.C. Chicholi, Solapur – 413255 INDIA
Tel.:+91 - 217 2357001(5Lines) Fax: +91 - 217 2357006 email : lhpindia@lhpmotor.com Website : www.lhp.co.in

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Carriage & Wagon Senior Section Engineer		Office of the Senior Section Engineer, C&W, Solapur – 413 001 E-mail-ssecnwsur@gmail.com Land Line. 021724/55416

02.07.2019

Sr.DME/SUR

Sub: Vocational Industrial Training
Ref: NBNSCOE/MECH/2018-19/dated 07.06.19
Ref: COEPR/MECH/W/S/2018-19 dated 08.06.2019

With reference to the above subject, the following students have undergone industrial training for two weeks at coaching C&W depot/Central railway/Solapur.

During this period they have imparted training on Rake Testing, in which its procedure and suggestions of the same by the supervision of Shri. K. S. Kete, SSE/C&W/SUR.

Sr. No.	Name	Institute	Training Period From-To	Topic
1	RUSHIKESH DHULAM	NBNSCOE	07-06-19 To 20-06-19	Rake Testing
2	SHIVARATAN SUNKOJI	NBNSCOE	07-06-19 To 20-06-19	
3	SWAMI SAMARTH SHRIGADI	COEPR	08-06-19 To 22-06-19	

This is for your information please.

SSE/C&W/SUR
सीनिअर सेक्शन इंजीनियर (समाडि)
Senior Section Engineer (C&W)
मध्य रेल, सोलापुर
Central Railway, Solapur

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DENASA BUILDCON
Engineers, Contractors & Project Management Consultant
www.denasaindia.com

JAS-ANZ
ISO 9001:2008
ISO 14001:2004
OHSAS 18001:2007
Certified Company

INDUSTRIAL TRAINING CERTIFICATE

This is to certify that, **Mr. Chavan Dinesh Uttam** from **Shri Vithal Education & Research Institute College Of Engineering, Pandharpur** has successfully completed his In Plant Training at **DENASA BUILDCON** Pvt. Ltd.

The duration of the training has been from **25th May 2019** to **20th June 2019.**

We wish him all the success in his future endeavors.

For **DENASA BUILDCON Pvt.Ltd.**

DENASA BUILDCON PUNE

Shridhar Satvekar

Manager – Learning & Development

Head Office - C-3, Sant Tukaram Vyapar Sankul, 1st Floor, Sector -24, Pradhikaran, Nigdi, Above Hotel Savali, Pune - 411044
Maharashtra India. +91-20 27655844. admin@denasaindia.com
Regional Office : Office No. S/203, 2 nd floor Aradhya Business Temple, Gala Gym Khna Road, South Bopal, Next to Subo Center, Ahmedabad, Gujarat 380058.

VED INDUSTRIES

Plot No 178/2/3, Sec-7
PCNDTA Bhosari Pune

SUMMER TRAINING CERTIFICATE
(2018/19)

Name of Student/Trainee	:	GANESH PANDURANG CHIDREWAR
Name of Institute	:	Shri VItthal Education &Research Institute COE Pandharpur
Trainee's Deputation	:	Letter From SVERI's COE
Initiative Refrence		Pandharpur
Summer Training duration	:	30 MAY – 30 JUNE
Project Guide	:	Prof Mr.S.S.Gaikwad
Project Title	:	Academic Inplant Training
Learning / Performance Rating	:	Very Good
Conduct During Training	:	Very Good
Overall Rating of Trainee	:	Very Good

Seal &Sign



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ACTIVE CHROMEWELL EXHAUST PVT. LTD.

Gat. No 1224/2, Sanaswadi, Taluka – Shirur,
Dist. Pune – 412208, Maharashtra, India.

Ref : ACEPL/HRD/Training Letter/2019/08

Date : 29/06/2019

TO WHOM IT MAY CONCERN

This is to certify that Mr. PRATIKESH PRAMOD KUMBHAR , S/O- Mr. PRAMOD KUMBHAR, a student of Bachelor of Engineering (Major in Mechanical - Summer semester), SVERI's College of Engineering and Research, Pandharpur , Solapur University, Solapur has successfully completed 1 (one) month (From 27 May 2019 to 26 June 2019) inplant training at this Company.

During the period of his internship he was exposed to various manufacturing parts such as muffler and exhaust parts of automotive sector. This period with us he was found punctual, hardworking and inquisitive.

We wish him every success in life.

For, Active Chromewell Exhaust Pvt Ltd.

(JAY DUJARI)
SR VP Operations

Active Chromewell Exhaust Ltd. SANASWADI PUNE

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SHRI VITHAL EDUCATION & RESEARCH INSTITUTE's
COLLEGE OF ENGINEERING, PANDHARPUR
P.B. No. 54, Gopalpur -Ranjani Road, Gopalpur, Tal.- Pandharpur- 413 304,Dist.- Solapur (Maharashtra)
Tel.: 02186-216063, 9503103757, E-mail : coe@sveri.ac.in, Website: www.sveri.ac.in
(Approved by A.I.C.T.E., New Delhi and affiliated to Solapur University, Solapur)
NBA Accredited all Eligible UG Programmes and , NAAC, Accredited Institute,
Accredited by the Institute of Engineers (India), Kolkata and TCS, Pune ISO 9001-2015 Certified Institute

Department of Mechanical Engineering

List of Students those who have completed their Industrial Training / Internship

Academic Year: 2018-2019

Sr. No.	Name of Student	Name of Company / Organization / Industry	Duration of Internship/Industrial Training
1.	Aadarsh Valu Chavan	Skky Rider Institutions for Advanced Skill & Research Pvt. Ltd.in association Gram Tarang Employability & Training Services	15/06/2019 to 29/06/2019
2.	Ganesh Navnath Popale	Skky Rider Institutions for Advanced Skill & Research Pvt. Ltd.in association Gram Tarang Employability & Training Services	15/06/2019 to 29/06/2019
3.	Hrushikesh Ravindra Ghuge	Skky Rider Institutions for Advanced Skill & Research Pvt. Ltd.in association Gram Tarang Employability & Training Services	15/06/2019 to 29/06/2019
4.	Karan Prasana Warkhedkar	Skky Rider Institutions for Advanced Skill & Research Pvt. Ltd.in association Gram Tarang Employability & Training Services	15/06/2019 to 29/06/2019
5.	Pranay Sugriv Surve	Skky Rider Institutions for Advanced Skill & Research Pvt. Ltd.in association Gram Tarang Employability & Training Services	15/06/2019 to 29/06/2019
6.	Sagar Bhimashankar Khade	Skky Rider Institutions for Advanced Skill & Research Pvt. Ltd.in association Gram Tarang Employability & Training Services	15/06/2019 to 29/06/2019
7.	Sagar Balu Khot	Skky Rider Institutions for Advanced Skill & Research Pvt. Ltd.in association Gram Tarang Employability & Training Services	15/06/2019 to 29/06/2019
8.	Shridhar Sidaram Kotyal	Skky Rider Institutions for Advanced Skill & Research Pvt. Ltd.in association Gram Tarang Employability & Training Services	15/06/2019 to 29/06/2019
9.	Suraj Bapu Mahapure	Skky Rider Institutions for Advanced Skill & Research Pvt. Ltd.in association Gram Tarang Employability & Training Services	15/06/2019 to 29/06/2019
10.	Vikram Dadaso Vhanmane	Skky Rider Institutions for Advanced Skill & Research Pvt. Ltd.in association Gram Tarang Employability & Training Services	15/06/2019 to 29/06/2019

(Prof. S. R. Gavali)
Head, Mech. Engg. Dept.

HEAD,
Dept. of Mechanical Engg
C.O.E. Pandharpur.

Certificate No. SRI-00834

ISO 9001:2015 ISO 29990:2000 Certified

www.gramtarang.in

N·S·D·C National Skill Development Corporation

CERTIFICATE *of* COMPLETION

This is to certify that

ADARSH VALU CHAVAN

S/D/W of **VALU** Registration No. **SRI-DSI190421** has successfully participated in summer internship training on **REFRIGERATION AND AIR CONDITIONING** conforming to Skyy Rider Institutions for Advanced Skill & Research Pvt.Ltd. in association Gram Tarang Employability & Training Services located at their Jatani Campus held between **15.06.2019** to **29.06.2019**

Automobile Incharge
Gram Tarang Employability
Training Services

Managing Director
Gram Tarang Employability
Training Services

Certificate No. SRI-00825

ISO 9001:2015 ISO 29990:2000 Certified

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N·S·D·C National Skill Development Corporation

CERTIFICATE *of* COMPLETION

This is to certify that

GANESH NAVNATH POPALE

S/D/W of **NAVNATH** Registration No. **SRI-DSI190359** has successfully participated in summer internship training on **AERO DESIGNING AND MANUFACTURING** conforming to Skyy Rider Institutions for Advanced Skill & Research Pvt.Ltd. in association Gram Tarang Employability & Training Services located at their Jatani Campus held between **15.06.2019** to **29.06.2019**

Automobile Incharge
Gram Tarang Employability
Training Services

Managing Director
Gram Tarang Employability
Training Services

Certificate No. SRI-00827

ISO 9001:2015 ISO 29990:2000
Certified

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National
Skill Development
Corporation

CERTIFICATE
of COMPLETION

This is to certify that

HRUSHIKESH GHUGE

S/D/W of **RAVINDRA GHUGE** Registration No. **SRI-DSI190364** has successfully participated in summer internship training on **AERO DESIGNING AND MANUFACTURING** conforming to Skyy Rider Institutions for Advanced Skill & Research Pvt.Ltd. in association Gram Tarang Employability & Training Services located at their Jatani Campus held between **15.06.2019** to **29.06.2019**

Automobile Incharge
Gram Tarang Employability
Training Services

Managing Director
Gram Tarang Employability
Training Services

Certificate No: SRI-00758

ISO 9001:2015 ISO 29990:2010 Certified

www.gramtarang.in

NSDC National Skill Development Corporation

CERTIFICATE *of* COMPLETION

This is to certify that

KARAN PRASANNA WARKHEDKAR

S/D/W of P. CHANDRAKANT WARKHEDKAR Registration No. SRI-DSH00358 has successfully participated in summer internship training on AUTOMOTIVE COMPONENTS OVERHAULING conforming to Skyy Rider Institutions for Advanced Skill & Research Pvt.Ltd. in association Gram Tarang Employability & Training Services located at their Jatani Campus held between 15.06.2019 to 29.06.2019

Automobile Incharge
Gram Tarang Employability
Training Services

Managing Director
Gram Tarang Employability
Training Services

Certificate No SRI-00844

ISO 9001:2015 ISO 29990:2000
Certified

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National
Skill Development
Corporation

CERTIFICATE
of COMPLETION

This is to certify that

PRANAY SURVE

S/D/W of **SUGRIV SURVE** Registration No. **SRI-DSI190422** has successfully participated in summer internship training on **REFRIGERATION AND AIR CONDITIONING** conforming to Skyy Rider Institutions for Advanced Skill & Research Pvt.Ltd. in association Gram Tarang Employability & Training Services located at their Jatani Campus held between **15.06.2019** to **29.06.2019**

Automobile Incharge
Gram Tarang Employability
Training Services

Managing Director
Gram Tarang Employability
Training Services

Certificate No. SRI-00848

ISO 9001:2015 ISO 29990:2000 Certified

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N·S·D·C National Skill Development Corporation

CERTIFICATE *of* COMPLETION

This is to certify that

SAGAR BHIMASHANKAR KHADE

S/D/W of **BHIMASHANKAR** Registration No. **SRI-DSI190365** has successfully participated in summer internship training on **REFRIGERATION AND AIR CONDITIONING** conforming to Skyy Rider Institutions for Advanced Skill & Research Pvt.Ltd. in association Gram Tarang Employability & Training Services located at their Jatani Campus held between **15.06.2019** to **29.06.2019**

Automobile Incharge
Gram Tarang Employability
Training Services

Managing Director
Gram Tarang Employability
Training Services

Certificate No. SRI-00776

ISO 9001:2015 ISO 29990:2000 Certified

www.gramtarang.in

N·S·D·C National Skill Development Corporation

CERTIFICATE *of* COMPLETION

This is to certify that

SAGAR BALU KHOT

S/D/W of **BALU PRALHAD KHOT** Registration No. **SRI-DSI190357** has successfully participated in summer internship training on **AUTOMOTIVE COMPONENTS OVERHAULING** conforming to Skyy Rider Institutions for Advanced Skill & Research Pvt.Ltd. in association Gram Tarang Employability & Training Services located at their Jatani Campus held between **15.06.2019** to **29.06.2019**

Automobile Incharge
Gram Tarang Employability
Training Services

Managing Director
Gram Tarang Employability
Training Services

Certificate No. SRI-00781

ISO 9001:2015 ISO 29990:2000 Certified

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N·S·D·C National Skill Development Corporation

CERTIFICATE *of* COMPLETION

This is to certify that

SHRIDHAR SIDRAM KOTYAL

S/D/W of **SIDRAM DHUNDAPPA KOTYAL** Registration No. **SRI-DSI190361** has successfully participated in summer internship training on **AUTOMOTIVE COMPONENTS OVERHAULING** conforming to Skyy Rider Institutions for Advanced Skill & Research Pvt.Ltd. in association Gram Tarang Employability & Training Services located at their Jatani Campus held between **15.06.2019** to **29.06.2019**

Automobile Incharge
Gram Tarang Employability
Training Services

Managing Director
Gram Tarang Employability
Training Services

Certificate No. SRI-00783

ISO 9001:2015 ISO 29990:2000 Certified

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N·S·D·C National Skill Development Corporation

CERTIFICATE *of* COMPLETION

This is to certify that

SURAJ

S/D/W of **BAPU** Registration No. **SRI-DSI190360** has successfully participated in summer internship training on **AUTOMOTIVE COMPONENTS OVERHAULING** conforming to Skyy Rider Institutions for Advanced Skill & Research Pvt.Ltd. in association Gram Tarang Employability & Training Services located at their Jatani Campus held between **15.06.2019** to **29.06.2019**

Automobile Incharge
Gram Tarang Employability
Training Services

Managing Director
Gram Tarang Employability
Training Services

Certificate No. SRI-00786

ISO 9001:2015 ISO 29990:2000 Certified

www.gramtarang.in

N·S·D·C National Skill Development Corporation

CERTIFICATE *of* COMPLETION

This is to certify that

VIKRAM DADASO VHANMANE

S/D/W of **DADASO JANARDHAN VHANMANE** Registration No. **SRI-DSI190362** has successfully participated in summer internship training on **AUTOMOTIVE COMPONENTS OVERHAULING** conforming to Skyy Rider Institutions for Advanced Skill & Research Pvt.Ltd. in association Gram Tarang Employability & Training Services located at their Jatani Campus held between **15.06.2019** to **29.06.2019**

Automobile Incharge
Gram Tarang Employability
Training Services

Managing Director
Gram Tarang Employability
Training Services

SVERI's
College of Engineering, Pandharpur

Department of Mechanical Engineering

Industrial Training

Sample Report

A.Y.: 2018-19

A

Report on

Internship

(Under Industry Internship & Project Track)

At

Sandvik Asia Pvt. Ltd, Pune

Submitted

in partial fulfilment of the requirements for the degree of

Bachelor of Engineering

in

Mechanical Engineering

by

Mr. Pruthviraj Deepak Pawar

Under the Guidance of

Mr. S. M. Khomane



DEPARTMENT OF MECHANICALENGINEERING

SVERI's COLLEGE OF ENGINEERING, PANDHARPUR

Academic Year: -2018-19

Internship / Industrial training Certificate

SANDVIK Coromant

Our Date	Our Reference
July 01, 2019	HRCOR/ICC/PP/SD/19

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Mr. Pruthviraj Deepak Pawar,** student of **College of Engineering, Pandharpur** has completed his Internship, for the project titled - **"Pneumatic Fixture Development"** under the guidance of **Mr. Rahul Patil,** for a period from **June 03, 2019 to July 01, 2019** at **Sandvik Coromant.**

During this period, his performance was excellent, and we found him dedicated, hardworking and sincere.

We wish him success in his future endeavors.

Thanking You.

Sandvik Coromant
Sandvik Asia Pvt. Ltd.

Anupama Sinha

SANDVIK ASIA PRIVATE LIMITED • PUNE •

Anupama Sinha
Deputy Manager - HR

Postal Address :
SANDVIK COROMANT
SANDVIK ASIA PVT. LTD.
Mumbai Pune Road,
PUNE - 411 012.
India.
H.O. & Regd. Office : Mumbai Pune Road, Dapodi, Pune.
Website : www.coromant.sandvik.com/

ACKNOWLEDGEMENT

It is with great sense of gratitude that I acknowledge the support given to me by number of individuals in the preparation of this report.

I thank to the staff of the company for their kind support and help which proved to be a source of knowledge and addition to the learning of engineering in a better way.

I take this opportunity to thank all who have contributed in the successful completion of an Internship under Industry Internship & Project Mentor Mr. Rahul Patil for full support, expert guidance, and encouragement and kind cooperation throughout the Internship Work. I am greatly indebted to him for his help throughout project work. I express my sincere gratitude towards Prof. S.R.Gavali Sir, Head of Department, Mechanical Engineering, for providing necessary facilities and support.

I respect and thank Mr. Swapnil Deshmukh (Dept. Profile Grinding) for providing me an opportunity to do Internship in Sandvik Asia Pvt Ltd, Pune and giving support and guidance which made me complete the Internship duly. I am extremely thankful to him for providing support and guidance, although they had busy schedule managing the corporate affairs.

I am thankful to and fortunate enough to get constant encouragement, support and guidance from all Teaching staffs of Mechanical Engineering Department, which helped me in successfully completing Internship.

Mr. Pruthviraj Deepak Pawar

B.E. (MECH) (BB-50)

ABSTRACT

This report is a short description of my one-month Internship carried out as component of the BE Degree. The Internship is carried out within the organization Sandvik Asia Pvt Ltd, Pune. At the beginning of the Internship I formulated several learning goals, which I wanted to achieve. This internship report contains my activities that have contributed to achieve a number of my stated goals. In the introductory chapter, company's background, history, mission, vision, Business areas and strategy are given. After this a reflection on my functioning, the activities/tasks/projects that I have handled and the learning goals achieved during the internship descried.

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2	**Company Background and Structure**	7
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Company Background and Structure

Company's Background:

Sandvik Asia Pvt. Ltd. is a Swedish company was founded in 1862 by Goran Fredrik Goransson, it is high technology engineering group with advanced products and world leading position in selected areas of tools for metal working machinery and tools for rock excavation, stainless steel specialty alloys a resisting heating material and process system.
Today organization operates in 130 countries, 37000 employees and annual sales of SEK 55 billion, also company got certified by ISO 9001 and ISO 14001 in October 2000.it is customer focused company and their customers are active in many areas such as automotive, aerospace industries, mining and construction, chemical industries, paper pulp, household appliances, electronics, media technology, pharmaceuticals etc.
Also its business concept is to contribute actively in various ways to improve productivity and profitability of the customers. Products & services offered by the group have maximum value in terms of performance, quality, speed, safety, flexibility and total economy. Thus Sandvik may prove to be the first choice as a business partner for customers worldwide.

Company's vision and core values:

Vision:

Sandvik Asia Pvt. Ltd, striving to be a technology leader in the areas in which we operate, we invest extensively in product innovation and R&D based on the challenges our customers face. Working closely with them, we continuously develop our offering of products and services making industrial processes more efficient and safer while often also reducing the environmental impact. and Vision is to set the industry standard – the benchmark for others to follow.

Core values:

1. Customer focus.
2. Innovation.

3.Fair Play

4.Passion to Win

Operating Strategy:

Since Sandvik was established more than 150 years ago, so their business concept has been based on innovation, technology leadership and close, long-term customer relationships. To ensure future leadership and value creation for customers and shareholders we have the following strategic agenda:

1. Focus on our core capabilities and ensure to be number one or two in our chosen segments and markets.

2. Maintain strong technology leadership and innovation capabilities.

3.Assure high accountability and decisions close to customers.

4.Ensure stability and profitability and thereafter growth.

5.Strive for efficiency and continuous improvements.

6. Ensure a culture of doing things right – ethically and responsibly.

7.Attract, develop and retain exceptional people.

Departments:

1. Human Resource.

2. Production.

3. Research and development.

4. Design & Engineering.

5. Project.

6. Purchase.

7.Finance.

8.Sales.

Business Areas:

The Sandvik Group conducts operations in three business areas with responsibility for research and development (R&D), production and sales of their respective products and services.

Machining Solutions:

1. Business area Sandvik Machining Solutions is a market-leading manufacturer of tools and tooling systems for advanced industrial metal cutting, optimizing customers' machining operations**.**
2. Products are manufactured in cemented carbide and other hard materials such as diamond, cubic boron nitride and special ceramics. Services include, for example, logistic solutions and productivity improvement programs.

3. During the last few years, Sandvik Machining Solutions has expanded into the areas of additive manufacturing and digital manufacturing. These are areas where Sandvik is uniquely positioned due to its extensive industrial experience and expertise in advanced materials, materials shaping and digital solutions.

Sandvik Mining and Rock Technology:

1. Business area Sandvik Mining and Rock Technology is a leading supplier in equipment and tools, service and technical solutions for the mining and construction industries.
2. Applications include rock drilling, rock cutting, crushing and screening, loading and hauling, tunneling, quarrying and breaking and demolition.
3. The focus lies on bringing value to customers through high-performing products that increase productivity and safety as well as to provide services and flexible maintenance programs that extend uptime and cut costs.

4. A fast-growing part of the business area's offering is solutions for automation and remote monitoring of equipment, which increases operational efficiency and process reliability. The mine automation systems cover all aspects of automation, from single equipment to full fleet control.
5. Business area Sandvik Mining and Rock Technology is a leading supplier in equipment and tools, service and technical solutions for the mining and construction industries.
6. Applications include rock drilling, rock cutting, crushing and screening, loading and hauling, tunneling, quarrying and breaking and demolition.
7. A fast-growing part of the business area's offering is solutions for automation and remote monitoring of equipment, which increases operational efficiency and process reliability. The mine automation systems cover all aspects of automation, from single equipment to full fleet control.

Sandvik Materials Technology:

8. Business area Sandvik Materials Technology is a world-leading manufacturer of advanced stainless steels and special alloys for the most demanding industries.
9. The offering covers a large variety of product forms, such as tube, pipe, bar and strip steel as well as products for industrial heating.
10. With a unique expertise in materials technology and extensive insight into industrial processes and applications, products and services are continuously developed to increase customer productivity and safety, while often reducing the environmental impact.

Types of inserts manufactured:

Below are the variety of inserts manufactured in the company.

- Hockey stick inserts
- Special inserts
- U-lock inserts
- Grooving inserts
- Coro-cut inserts
- Standard TM inserts
- Standard Q-cut inserts

Grinding Department

Grinding is an abrasive machining process that uses a grinding wheel as a cutting tool. A wide variety of machines are used for grinding. Grinding is a subset of cutting, as grinding a true metal-cutting process. Grinding is used to finish work pieces that must show high surface quality and high accuracy of shape and dimension. It has some roughing applications in which grinding removes high volumes of metal very rapidly. Grinding machines remove material from the work piece by abrasion, which can generate substantial amounts of heat. To cool the work piece so that it does not overheat and go outside it's tolerance, grinding machines incorporate a coolant.

In this department I am working i.e.; grinding Department. But there are sub department of this grinding they are, profile grinding, periphery grinding, and last is edge grinding.

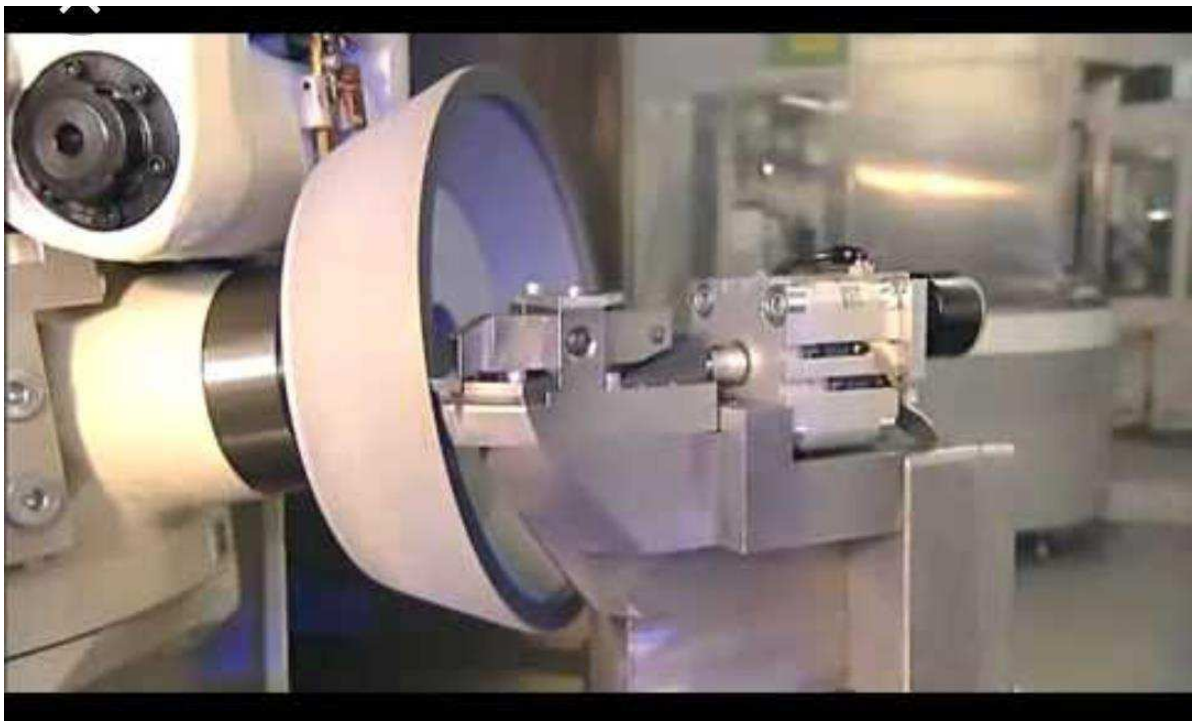


Fig: Grinding Machine

Tooling System

Coromant Capto is a modular quick change tooling concept offering three systems in one:

- Quick change tool holders reduce set-up tool change time, leading to significantly increased machine utilization.
- Coromant Capto directly integrated in the spindle increases stability and versatility in e.g. multi task machines, machining centers with turning capability and vertical lathes.
- Coromant Capto as a modular system for machining centers offers a large variety of extension and reduction adaptors.
- Features are as follows:
- High torque transmission
- High bending strength
- Quick-change and automated tool change
- Balanced and concentric
- Advanced nozzle and tool technology for process security even at low pressure
- Self-centering
- Through tool delivery of high pressure coolant, from machine to cutting edge.

5S System

I learn following system firstly in the company, which are very useful as well as important to all aspects in the company.

1. 5S System.
2. Kaizen System

5S is a workplace organization method that uses a list of five Japanese words, they are seiri, seiton, seiso, seiktsu and shitsuke. These have been translated as, “Sort”, “Set in order”, “Shine”, “Standardize”, ”Sustain”. It describes how to organize work space for efficiency and effectiveness by identifying and storing the items used, maintaining the areas and items, and sustaining the new order. The decision making process usually comes from dialogue about standardization, which builds among employees of how they should do the work. In some quarters, 5S has become 6S, the sixth element being safety.



Fig: 5S System

KAIZEN System

"KAIZEN means improvement. Moreover, it means continuing in personal life, home life, social life, and working life. When applied to workplace KAIZEN means continuing improvement involving everyone-managers and workers alike." Masaaki Imai, founder of KAIZEN institute. KAIZEN is a lean manufacturing tool that improves quality, productivity, safety, and workplace culture. KAIZEN consisting of 5 founding element.

1.Teamwork

2.Personal Discipline

3. Improved moral

4. Quality circles and

5. Suggestion for Improvement

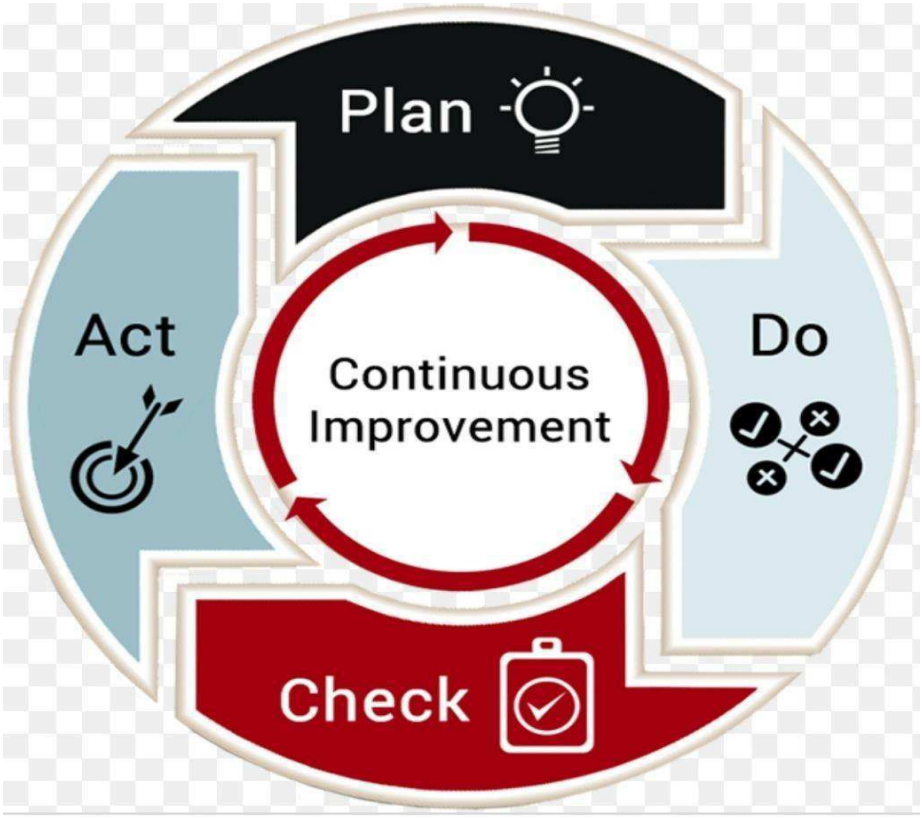


Fig: KAIZEN System

Study of Project

Pneumatic Fixture Development & Change in manual fixture holder

Fixture:

Fixtures are used for holding the work piece in a correct location for mass production. Fixtures are used to securely locate and support the work, ensuring that all parts produced using the fixture will maintain conformity and interchangeability. Using a fixture improves the economy of production by allowing smooth operation and quick transition from part to part. The most valuable function of fixture is to reduce labor cost.

Manual Fixture:

Manual fixture is nothing but clamping of work piece in the holder which is support with fixture by using human efforts. It is time consuming for clamping the work piece. It is complex in nature. When one work piece is grind in the CNC machine then it has to remove and another job is to be hold. This all removing the work piece by using T-key which is mounting on the holder. There may be no mass production done in the manual fixture.

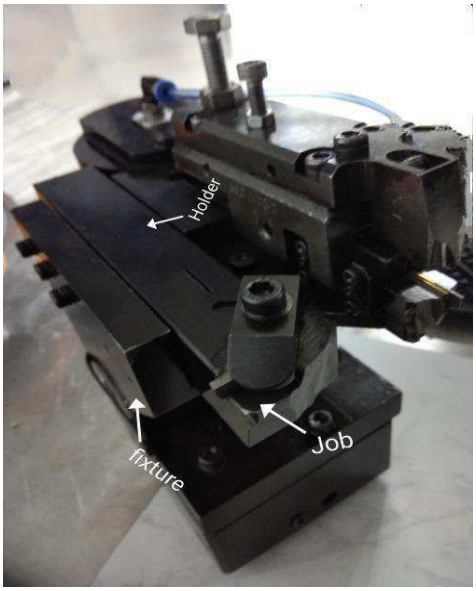


Fig: Manual Fixture



Fig: Holder used in manual fixture

For a particular profile shape work piece, we must use manual fixture. In this fixture there is a holder used which is required for clamping the work piece. The holder which is used is a long horizontal shape. It is heavy, it requires a more metal for manufacture, the cost for manufacturing is also more, hence it can have replaced by an another holder which is shown below.

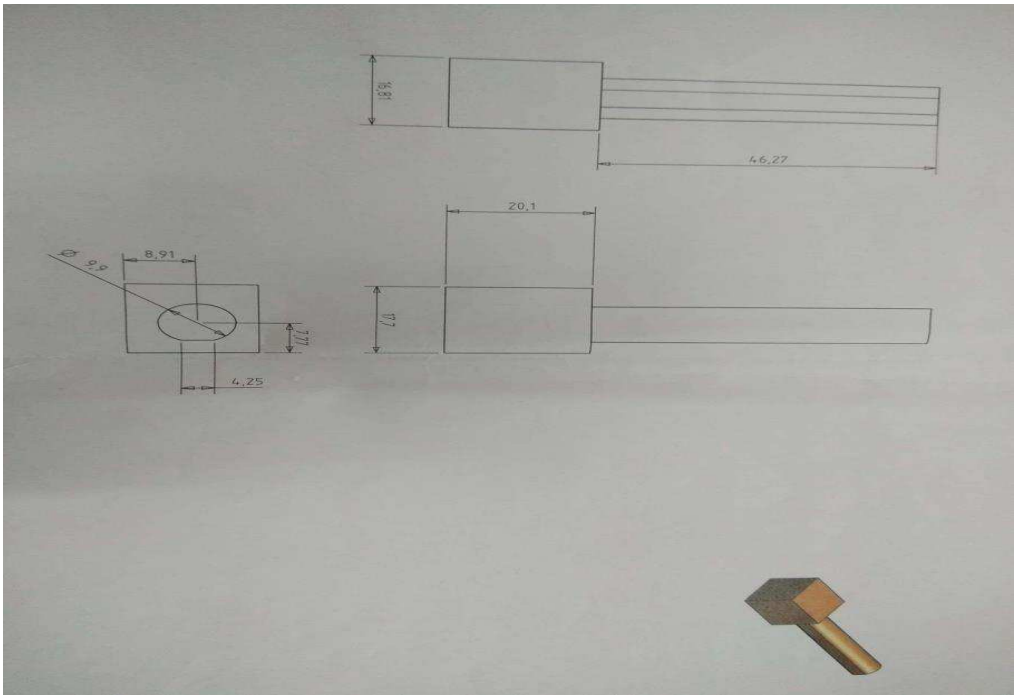


Fig: Drawing of designed holder

Pneumatic Fixture:

In the pneumatic system compressed air is used to transmit the power. In pneumatic fixture development the air required for operating that can available very easily in the atmosphere which is surrounded to us. It can save our time. The air is passed through the clamping, hence there is no requirement of manual clamping for work piece. In the pneumatic fixture there is mass production happens. Any number of these clamps can be operated instantly at the touch of a switch and where required they can be arranging to operate in any desired clamping sequence. It has very high clamping forces, automated actuation of the clamping systems. The holder which is designed is we use in pneumatic as well as manual fixture, this is one of the advantage of this holder.

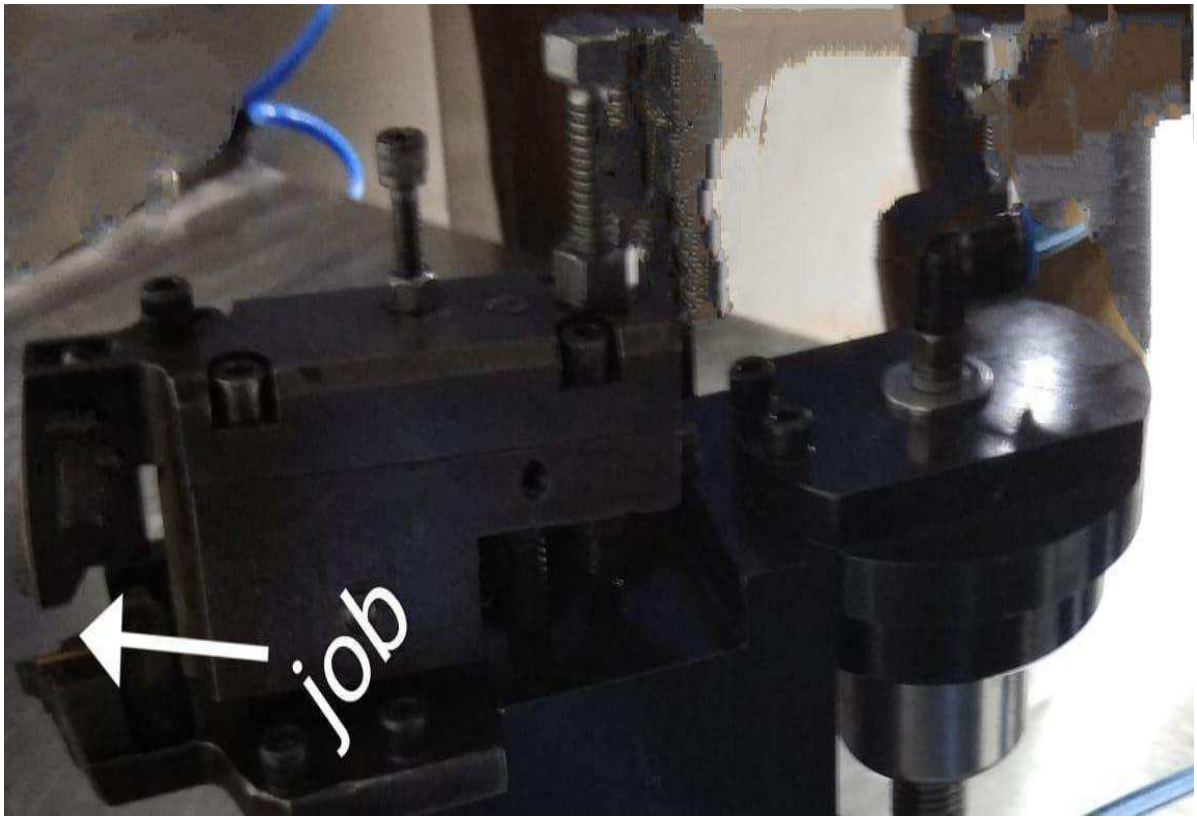


Fig: Pneumatic Fixture

Conclusion

In Sandvik, this internship has been an excellent and rewarding experience. I have been able to meet and network with so many people that I am sure will be able to help with opportunities in the future. I achieved several of my learning goals.

I got insight into professional practice. Related to my study, I learned more about design, maintenance, project development. There is still lot of discover and to improve. During internship I learnt how maintenance of CNC machine is carried out.

The internship was also good to find my strengths contribute fully, weakness is. This helped me to define what skills and knowledge level of the language is to contribute fully to projects. At last this internship has given me new insights and motivation to pursue a better career. This was an excellent experience.

References

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2.www.Silvent.com

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4.www.tachwmgroup.com

5. Design of machine element by V. B. Bhandari

6. https://www.sandvik.coromant.com/en-gb/knowledge/machining-formulas-definitions/pages/milling.aspx

7. https://www.engineeringtoolbox.com/

SVERI's
College of Engineering, Pandharpur

Department of Mechanical Engineering

Sponsored Project Record

A.Y.: 2018-19

SHRI VITHAL EDUCATION & RESEARCH INSTITUTE's
COLLEGE OF ENGINEERING, PANDHARPUR
P.B. No. 54, Gopalpur -Ranjani Road, Gopalpur, Tal.- Pandharpur- 413 304,Dist.- Solapur (Maharashtra)
Tel.: 02186-216063, 9503103757, E-mail : coe@sveri.ac.in, Website: www.sveri.ac.in
(Approved by A.I.C.T.E., New Delhi and affiliated to Solapur University, Solapur)
NBA Accredited all Eligible UG Programmes and , **NAAC**, Accredited Institute,
Accredited by the Institute of Engineers (India), Kolkata and TCS, Pune ISO 9001-2015 Certified Institute

Department of Mechanical Engineering

List of Sponsored Projects

Academic Year: 2018-19

Sr. No.	Name of Project	Name of Project Guide	Name of Industry
1.	Design and develop system to reduce welding rejection	Prof. A. A. Shinde	Accrete Electromech, Aurangabad
2.	Design and development of helical gear box (3 stage & 4 stage)	Dr. S. S. Wangikar	Vijay Gears, Aurangabad
3.	Develop innovative mechanism for material storage	Prof. S. S. Kakade	Shri Samarth Industries, Aurangabad
4.	Design of tool/system for straightening of hot die steel after hardening	Prof. S. B. Bhosale	JIJAI Industries, Aurangabad
5.	Design and Analysis of Spur Gear	Prof. U. L. Anuse	AVIRAJ Industries, Kolhapur
6.	Design and Analysis of E-Rickshaw Chassis Frame	Prof. K .S. Pukale	SPARTAN Technologies Pvt. Ltd. Machnur
7.	Material Handling Device for L.P.G. Godown	Prof. V. G. Kalebag	Tambe HP Gas Agency
8.	Design of tool for improving accuracy at high speed for crimping machine	Prof. K. V. Chandan	Coretech Aurangabad Pvt.Ltd. Aurangabad
9.	Test rig design for gear box oil level detection	Prof. D. T. Kashid	Vijay Gears, Aurangabad
10.	Develop a mechanism to measure rpm variation in test rig	Prof .S.Y. Salunkhe	Vijay Gears, Aurangabad
11.	Process improvements and development of new method to improve the output of industry	Prof. C. K. Vhare	Shubhneel Industries, Aurangabad

(Prof. D.T. Kashid)
Project Coordinator

(Prof. S. R. Gavali)
Head, Mech. Engg. Dept.

HEAD,
Dept. of Mechanical Engg
C.O.E. Pandharpur

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"Manufacturers of Tubular and Machined Auto-Components & Welded Assemblies"

Regd. Office & Works : H-26, M.I.D.C., Waluj, Aurangabad - 431 136.
Tel.: 7875511199, **E-mail :** modaniabhishek@accrete.in, **www.accrete.in**
CIN No. U28990MH2010PTC211437, GSTIN : 27AAJCA5057D1ZS

Date: 16/04/2019

Project Completion Certificate

This is to certify that a sponsored project titled **"Design and development of a system to reduce welding rejection"** was offered under Students Innovation Projects by MSME and MASSIA.

Following students have worked on the project and successfully completed the project under the guidance of Prof. A. A. Shinde:

1. Mr. Jokare Mayur Manik (B. E. - Mechanical)
2. Mr. Surwase Balaji Zumbar (B. E. - Mechanical)
3. Mr. Sayyad Faruk Husen (B. E. - Mechanical)
4. Mr. Pawar Rajendra Darasing (B. E. - Mechanical)

The student's performance during project completion found satisfactory and we wish them all the best for their future.

For Accrete Electromech Private Limited

Anuj Sharma
Assistant Manager – HR, IR & Admin.

ACCRETE ELECTROMECH PVT. LTD. H-26, Building B, MIDC Waluj AURANGABAD

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TUV NABCB QM 002
QM03 00333

Date: 09/03/2019

To,

The Principal,
SVERI's College of Engineering Pandharpur

Subject: Project completion certificate

Respected Sir,

With reference industry visit of Mr. S. S. Kakadeon 4th December 2018,a sponsored project titled**"Design of Vertical Multi-Story Storage System to Reduce Storage Space"** was offered under Students Innovation Projects by MSME and MASSIA.

Following students have worked on the project and successfully completed the project as per our requirements.

1. Mr. Ganesh Dubewar (BE Mechanical)
2. Mr. Ram Patil (BE Mechanical)
3. Mr. Akash Koli(BE Mechanical)
4. Mr. Vishal Gawade (BE Mechanical)
5. Mr. Dipak Kale (BE Mechanical)

The student's performance during project completion found satisfactory and we wish them all the best for their future.

Thanking you.

Regards,

For Shree Samarth Industries

SHREE SAMARTH INDUSTRIES ★L-46★

(Mr. Shripad Sawargaonkar)
Managing Director

Plot No. L-46, MIDC Waluj, Aurangabad - 431 136. (M.S.) Mo.: 9325216413
E-mail : shreesamarth12@rediffmail.com

unique mechanical solution

VIJAY GEARS

Date: 26/04/2019

To,

The Principal,
SVERI's College of Engineering Pandharpur

Subject: Project Completion Certificate

Respected Sir,

With reference industry visit of Mr. S. Y. Salunkhe & Mr. D. T. Kashid on 8th August 2018, a sponsored project titled **"Develop a mechanism to measure output rpm & current variation in test rig"** was offered under Students Innovation Projects by MSME and MASSIA.

Following students have worked on the project and given solution to the project as per our requirements.

1 Jagadish Milind Pise (BE-MECH)
2 Vishal Mahadev Kolekar (BE-MECH)

The student's performance during project completion found satisfactory and we wish them all the best for their future.

Thanking you.

Regards,

Mr. D S Muley
CEO,
Vijay Gears

M-106 / 6, MIDC Area, Waluj, Aurangabad-431 136 (MS), India.
Ph. : +91 240 2555540, Email : sales@vijaygears.com

www.vijaygears.com

JIJAI INDUSTRIES

C-252/2B/P-23, MIDC, WALUJ, AURANGABAD - 431 136
Telefax: 0240 - 2553561 E-mail: jijaiindustries@gmail.com

Date: 21/04/2019

To,

The Principal,
SVERI's College of Engineering Pandharpur

Subject: Project completion certificate

Respected Sir,

With reference industry visit of Mr. S. B. Bhosaleon7th March 2019, a sponsored project titled**"Design of Tool/System for strengthening of hot die steel after hardening"** was offered under Students Innovation Projects by MSME and MASSIA.

Following students have worked on the project and successfully completed the project as per our requirements.

1. Mr.Akshaykumar G Kore (BE Mechanical)
2. Mr.Vishal S Bhosale (BE Mechanical)
3. Mr.Sudarshan S Maradkar (BE Mechanical)
4. Mr.Vivek M Bhosale (BE Mechanical)

The students' performance during project completion found satisfactory and we wish them all the best for their future.

Thanking you.

Regards,

JIJAI INDUSTRIES WALUJ

(Mr. Arjun Gaikwad)
CEO
JIJAI Industries, Aurangabad

unique mechanical solution

VIJAY GEARS

Date: 26/04/2019

To,

The Principal,
SVERI's College of Engineering Pandharpur

Subject: Project Completion Certificate

Respected Sir,

With reference industry visit of Mr. S. Y. Salunkhe & Mr. D. T. Kashid on 8th August 2018, a sponsored project titled **"Design of Three Stage Helical Gear Box"** was offered under Students Innovation Projects by MSME and MASSIA.

Following students have worked on the project and given solution to the project as per our requirements.

1 Tupe Shashikant Tanaji (BE-MECH)
2 Shaikh Touhid Rashid (BE-MECH)
3 Jaware Pranav Sunil (BE-MECH)
4 Mali Shriram Nagnath (BE-MECH)

The student's performance during project completion found satisfactory and we wish them all the best for their future.

Thanking you.

Regards,

Mr. D S Muley
CEO,
Vijay Gears

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Date: 20/04/2019

TO WHOM SO EVER IT MAY CONRCERN

This is to certify that following students of 'SVERI'S College of Engineering', Pandharpur have successfully completed the project on 'Design and analysis of Spur Gear'.

1) **Mast.Ashutosh Shantanu Mhetre. (BE Mechanical)**
2) **Mast.Rahul Arun Patil. (BE Mechanical)**
3) **Mast.Vinod Shantinath Kshirsagar. (BE Mechanical)**
4) **Mast.Pratap Dnyaneshwar Bhosale. (BE Mechanical)**

We wish a very Successful Journey ahead.

For,

Aviraj Industries

M/s. Aviraj Industries

Plot No. D-15, M.I.D.C., GOKUL SHIRGAON, KOLHAPUR 416234, MAHARASHTRA, INDIA.
Ph: (0231) 2672307 Mobile: +91 7030939262, 9370040189.
Email: sales.avirajd15@gmail.com,avirajd15@gmail.com.

SPARTAN TECHNOLOGIES PVT LT

(An ISO 9001:2015 Certified Company)

Opposite to Hotel Venktesh,A-Machnur,P-Bramhpuri,Mangalwedha 413305,D. Solapur,Maharashtra.M:8806442443

E.mail-spartantechnosltd@gmail.com ,Website-www.spartantechnos.com

To,

Date : 10/03/2019

The Principal,

SVERI's College of Engineering Pandharpur

Subject: Project completion certificate

Respected Sir,

With reference industry visit of Mr. K. S. Pukale on 4th December 2018, a sponsored project titled **" Design And Analysis of E-Rickshaw Chassis Frame"** was offered by **Spartan Tech. Pvt. Ltd.**

Following student have worked on project and successfully completed the project as per our requirements.

1. Mr. Balasaheb Chaugule (BE Mechanical)
2. Mr. Sachin Bhosale (BE Mechanical)
3. Mr. Rajesh More (BE Mechanical)
4. Mr. Umesh Bhakte (BE Mechanical)
5. Mr. Krishna Shendge (BE Mechanical)

The student's performance during project completion found satisfactory and we wish them all the best for their future.

Thanking you.

Regards,

Spartan Technologies Pvt.Ltd.
Near Airtel Tower, A/p Machanur,
Tal. Mangalwedha,
Dist. Solapur - 413 305 (MS)

MR.SURAJ DOKE

unique mechanical solution
VIJAY
GEARS

Date: 26/04/2019

To,

The Principal,
SVERI's College of Engineering Pandharpur

Subject: Project Completion Certificate

Respected Sir,

With reference industry visit of Mr. S. Y. Salunkhe & Mr. D. T. Kashid on 8th August 2018, a sponsored project titled **"Test rig design for gear box oil level detection"** was offered under Students Innovation Projects by MSME and MASSIA.

Following students have worked on the project and given solution to the project as per our requirements.

1 Ashutosh Mahadev Potdar (BE-MECH)
2 Nitin Kisan Kadam (BE-MECH)

The student's performance during project completion found satisfactory and we wish them all the best for their future.

Thanking you.

Regards,

Mr. D S Muley
CEO,
Vijay Gears

M-106 / 6, MIDC Area, Waluj, Aurangabad-431 136 (MS), India.
Ph. : +91 240 2555540, Email : sales@vijaygears.com

www.vijaygears.com

HP GAS

TAMBE HP GAS AGENCY

TO,
The Principal,
SVERI's college of engineering, Pandharpur

Subject : Project Completion Certificate.

Respected Sir,

With reference industry visit of Mr. SUSHANT S. TAMBE. (TAMBE HP GAS AGENCY, OSMANABAD) 25TH MARCH 2019. A sponsored project titled **" MATERIAL HANDLING DEVICE FOR L.P.G. GODOWN"** was offered under students innovation projects .

Following students have worked on the project and successfully completed the project as per our requirements.

1. Ms. Vaishnavi C. Ghodake
2. Ms. Rajnandini N. Patil
3. Ms. Madhuri L. Bhosale
4. Ms. Sneh K. Ranveke

The students performance during project completion found satisfactory and we wish them all the best for their future.

Thanking you,
Regards,

For TAMBE HP GAS AGENCY,

TAMBE HP GAS Agency Osmanabad

Mr. SUSHANT S. TAMBE
(Partner -TAMBE HP GAS AGENCY, OSMANABAD)

सही सुशांत, टी. गॅस एजन्सी
PARTNER

जहाँ!

House No.265/B/2, Survey No.169/2, Plot No.07, Vikas nagar, Osmanabad - 413501
Tel.: 02472-229533, 9404047733,9404041755
email: tambe.osmanabad@hpgas.hpcl.co.in
Website:www.hindustanpetroleum.com

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SVERI's College of Engineering, Pandharpur

DEPARTMENT OF MECHANICAL ENGINEERING

Project Group List for B.E. (Mechanical) Academic Year – 2018-2019

Group No.	Name of Student	Name of Guide	Project Title
1.	/Gund Komal Shahaji /Kazi Kulsum Habibulla / Fund Bhairavi Sunildatta /Gaikwad Priyadarshani Vasudev	Dr. P. S. Kachare	Hydraulic operated wood cutter & press machine
2.	/Pangavkar prajakta Vardhaman /Kale Snehal Saudagar /Raut Mayuri Ankush	Prof. S. J. Shinde	Design and fabrication of heat sink
3.	Jokare Mayur Manik Surwase Balaji Zumbar Sayyad Faruk Husen Pawar Rajendra Darasing	Prof. A. A. Shinde	Design & develop system to reduce welding rejection
4.	Bhosale Shubham Somnath Badave Guruprasad Vivek Khajepawar Sumit Sunil Telang Dnyanraj Suresh	Dr. N. D. Misal	To achieve stepped structure by varying photo tool thikness
5.	Pawar Prashant Nitin Gaikwad Kiran Gorakh Gaikwad Rohan Dipakraj Kshirsagar Sushant Sunil	Prof. B. D. Gaikwad	Enhancing breaking load of conveyor chain by improving bearing area of hole of conveyor chain link
6.	Bankar Rohit Dattatray Gaikwad Nikhil Navanath Mule Ashok Bhimrao Godase Ajay Laxman	Dr. R. R. Gidde	Study and fabrication of piezoelectrically actuated micropump used in microfluidic applications
7.	Patil Pankaj Vitthal Pawar Digambar Sukhadev Deshmukh Ashutosh Bhagwat Mote Chetan Sukhadev	Prof. S. V. Jadhav	Design and development of miniature pump
8.	Kadam Nitin Kisan Potdar Ashutosh Mahadev Kolekar Vishal Mahadev Pise Jagdish Milind	Prof. D. T. Kashid	Analysis of Drag and Lift Forces with Different Angle of Attacks on Airfoil used in Aircraft Wings
9.	Khandekar Akshay Mahdev Mote Gopal Ravsaheb Vastre Nagesh Shankar Mosalgi Shrikant Amashiddh	Prof. S. B. Bhosale	Study, manufacturing and analysis of conveyor chain pin by using carbon fiber
10.	Miskin Sunil Sudam Vedpathak Abhishek Hari Dudhane Onkar Pravin Barkul Yogesh Ramesh	Prof. S. M. Kale	Design and analysis of solar air conditioner

(Project Coordinator)

HEAD,
Dept. of Mechanical Engg
S.O.E. Pandharpur.

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Project Group List for B.E. (Mechanical) Academic Year – 2018-2019

Group No.	Name of Student	Name of Guide	Project Title
11.	Chaugule Balasaheb Dilip	Prof. K. S. Pukale	Design and manufacturing of E-rickshaw
	Shendge Krishna Vitthalrao		
	More Rajesh Dagduba		
	Bhakte Umesh Balasaheb		
	Bhosale Sachin Audumbar		
12.	Mhamane Prathamesh Guruling	Prof. S. B. Bhosale	Weight reduction of automobile by using metal matrix composite
	Kadam Shubham Suresh		
	Phanse Viraj Avinash		
13.	Mete Akash Rajendra	Prof. L. B. Raut	Enhancement of damping capacity of shock absorber using MR fluid Approach
	Kothawale Rajdeep Rameshwar		
	Mane Shubham Sanjay		
	Abhangrao Chaitanya Rajendra		
14.	Kharade Ketan Dattatraya	Prof. V. R. Chavan	Air side performance and characteristics of wavy fin heat exchanger
	Merwade Shivprasad Ganpatsa		
	Yadav Abhishek Shivaji		
	Salunkhe Yashraj Appa		
	Bhosale Chandrakant Vishnu		
15.	Jadhao Akshay Ananda	Prof. K. S. Pukale	Design, construction and experimentation of portable solar dryer
	Chavan Rohit Bharat		
	Moholkar Kshitij		
	Bhosale Ravindra Babaso		
16.	Lotake Aditya Atul	Prof. Y. M. Khedkar	Hydraulic spring stiffness testing machine
	Meshram Rajratna Dharmarakshak		
	Mulani Sohel Mehbub		
	Mulani Shakir Mahamdh		
17.	Kulkarni Hrushikesh Dhananjay	Dr. S. S. Wangikar	Experimental analysis of hydrodynamic journal bearing with different parameters
	Mali Vishal Hanumant		
	Atkale Sagar Audumbar		
	Rasal Ashish		
	Bidkar Onkar Hemant		
18.	Dhumal Vishal Maruti	Prof. K. V. Chandan	Increasing accuracy of a crimping machine through automation crimping operation
	Kanade Shivam Ramling		
	Bandagar Samadhan Uttam		
	Ghule Kiran Shrimant		
19.	Gaikwad Darshan Ramhari	Prof. D. T. Kashid	Analysis of composite patch on air plane wing
	Mane Sudhakar Vasant		
	Paricharak Hrushikesh Nitin		
	Vastre Rushikesh Haribhau		

HEAD,
Dept. of Mechanical Engg
C.O.E. Pandharpur.

(Project Coordinator)

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Project Group List for B.E. (Mechanical) Academic Year – 2018-2019

Group No.	Name of Student	Name of Guide	Project Title
20.	Karatkar Onkar Vishnu Jadhav Sourabh Madhukar Choudhari Deepak Baliram Bangale Kamesh Nana	Dr. A. A. Utpat	Analysis of photo resist material used in PCM to find relation between phtoresist and other parameters
21.	Jadhav Sushant Yashwant Shinde Hrushikesh Murlidhar Patale Avinash Bharat Mule Atul Kale Akshay Vitthal	Prof. S. M. Khomane	Mechanical behavior of banana hybrid composite reinforced with epoxy resin
22.	Mali Shriram Nagnath Tupe Shashikant Tanaji Pranav Jaware Shaikh Touhid	Dr. S. S. Wangikar	Design of three stage helical gearbox
23.	Kshirsagar Vinod Shantinath Mhetre Ashutosh Shantanu Patil Rahul Arun Bhosale Pratap Dnyaneshwar	Prof. U. L. Anuse	Design and analysis of spur gear
24.	Dubewar Ganesh Vinodrao Koli Akash Gopal Kale Dipak Popat Patil Ram Gavade Vishal Rama	Prof. S. S. Kakade	Vertical stacking system
25.	Buradkar Yogesh Balaji Bhosale Mangesh Ramesh Motkule Shailesh Arun	Dr. S. B. Salunkhe	Design and simulation of grow nut shelling machine
26.	/Bhusare Madhuri Laxman /Ghodake Vaishnavi Chandrakant /Ramteke Sachi Kishor /Fand Rajnandini Namdev	/Prof. K.G. Kalebag	Material Handling Device for L.P.G. Godown
27.	/Kashid Ankita Appasaheb /Olekar Monika Ram /Patil Pallavi Mohan /Jadkar Sonali Somnath Deshmane Priyadarshani	/Prof. P. K. Bhuse	Optimization of 316 stainless steel weld joint characteristic by taguchi method
28.	Kokil Raviraj Bharat Dongare Vaibhav Vishnu Khandekar Ajit Machhindra Waghmare Rushikesh Bhoi Sagar Shankar	Prof. S. J. Shinde	Intelligence braking system
29.	Swami Sonal Rajendra Warad Sidharam Shrimanth Reshame Akash Vishwanath Hadapad Rahul Ambanna Mahajan Virendra Vilas	Prof. S. D. Bhosale	Pneumatic car
30.	Bile Rajkumar Prakash Burande Somesh Haribhau Bawale Aakash Lakshmikant Jagtap Akash	Prof. A. K. Parkhe	Design and development of microchannels by co2 laser machine and their experimentation using soft lithography approach

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31.	Chitrav Dashrath Popat Thalkari Vaibhav Kalyanrao Lokhande Somanath Gurudeo Koshti Vaibhav Rajkumar	Prof. S. S. Jadhav	Moped acceleration control system
32.	Kumbhare Sachin V. Bandgar Rupesh Balasaheb Bagewadi Sagar Mallikarjun Kachare Pravin Ramchandra	Dr. N. D. Misal	Design and manufacturing of microgripper for compliant mechanism
33.	Maske Dadasaheb Uttam Waghamare Sachin Gopal Bhosale Vishal Dilip Waghmare Pratik	Prof. S. R. Gavali	Bench top injection molding machine
34.	Pawar Vaibhav Dattakumar Shirke Ganesh Laxman Pawar Akash Vilas Kale Devanand	Prof. N. S. Shaikh	Hybrid power generation using solar & wind
35.	Thengil Prasad Vijaykumar Bansode Karan Aradhey Shripad Dange Shubham T Shinde Makarand	Prof. D. T. Kashid	Modification of milking machine by using milk property measurement devices
36.	Joshi Laxmikant D. Hiremath Rahul D. Rajgole Amar	Prof. S. M .Khomane	Experimental investigation of natural fiber (banana & sisal) with epoxy resin
37.	Bhosale Vishal Shahaji Bhosale Vivek Manik Maradkar Sudahrshan Akshaykumar kore	Prof. S. B. Bhosale	Design of tool/system for straightening of hot die steel after hardening
38.	Patange Shriyash Dattatraya Kadam Jaykumar Jagannath Shahane Shubham Burud Makarand Kamble Rahul	Prof. B. D. Gaikwad	Design and development hydraulic attachment on lathe machine for drilling spacer used in planetary gearbox.
39.	Kokate Vijay Kalel Vikas Randive Prafullkumar Nakate Ghyansham	Prof. C. C. Jadhav	Automatic tilting of solar panel using hydraulics

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PROJET REPORT

ON

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SUBMITTED TO

PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY

IN PARTIAL FULLFILMENT OF THE REQUIREMENT

FOR THE AWARD OF

BACHELOR'S DEGREE IN

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ABSTRACT

Metal Matrix Composites (MMC) have wide applications in industry as they have light weight and various properties. Composite materials are widely used in industry as they have the less weight with high strength. In this study we have used the Aluminium which is the most common material used in engineering applications. Fly ash is one of the most inexpensive industrial waste materials which can be successfully turned as industrial wealth by adding in the Aluminium to form Al-Fly Ash Metal Matrix Composite with lesser weight and higher strength. To produce Al matrix cast particle composites, wettaility of the ceramic particles by liquid Al is essential.

To improve wettabilty, elements such as Mg and Si are added into Al melt to incorporate the ceramic particles. These composites were observed with the help of optical micrography. Aluminium with varying the weight percentage of fly ash were successfully added by using the Stir Casting method to form Metal Matrix Composite. The present investigation has been focused on the utilization abundant available industrial waste fly ash in useful manner by dispersing it into aluminium/aluminium-magnesium/aluminium-silicon matrix to produced composites by liquid metallurgy routeIn this investigation we have studied the different Mechanical properties of the Al-Fly Ash Metal Matrix Composite. From our study we found that this Al-Fly Ash Metal Matrix Composite can be used in Aerospace, Automobile and other Engineering applications where lesser weight with higher strength is expected

Keywords: Aluminium, Fly Ash, Industrial waste as wealth, Stir Casting.

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Chapter 1

INTRODUCTION

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Conventional monolithic materials have limitations with respect to achievable combinations of strength, stiffness, and density. In order to overcome these shortcomings and to meet the ever-increasing engineering demands of modern technology, metal matrix composites are gaining importance. Metal Matrix Composite (MMC) is grabbing engineers attention as it is having various properties like durability and high strength to weight ratio. In MMCs the metal matrix is used with the reinforcement to achieve the desired property with the lesser weight and cost. Aluminium is one of the common metals which are used in various engineering applications. As Aluminium is having less weight, it comes with lesser strength. Fly Ash is the industrial waste with low density produced by the thermal power plants as well as many industries. In India 1100 lacks tons of Fly Ash per year is produced by the burning of 2500 lacks tons of coal per year for power generation. In recent years, discontinuously reinforced aluminum based metal matrix composites have attracted world wide attention as a result of their potential to replace their monolithic counterparts primarily in automobile and energy sector. [1]

The basic idea is that continuous fiber reinforced composite has better strength but the processing methods is highly expensive which hinders their adoption. The continuous fiber reinforced composites do not allow secondary forming such as rolling, forging and extrusion. As results of these limitations new efforts on the research of discontinuous reinforcements have been used. [2, 3] At early stages of development of metal matrix composite emphasis was given on the preparation of fiber reinforced composite only. But due to the high cost associated with the process of production, anisotropic properties of the resultant composite and difficulties associated with the fabrication process, production of this type of composites has been limited. Now a days the particulate reinforced Al matrix composite are gaining importance because of their low cost with advantage like isotropic properties. The strengthening of aluminum alloys with dispersion of fine ceramic particulate composite materials were developed as an alternative of unreinforced alloy, for obtaining materials with high stiffness (high strength/modulus and low density) with special interest for the wear resistant and structural applications. [4, 5] The dispersion strengthened alloys can be classified, based on the size and volume of particles uniformly dispersed in the matrix. Aluminum alloys reinforced with ceramic particles exhibit superior mechanical properties to unreinforced Al alloys and hence are candidate for engineering applications. The aluminum metal matrix composites are produced either by casting route or by power metallurgy. The former has the advantages of producing the composites as lower cost of production and possibility of producing larger components. However, the inherent difficulties of casting route are non wettability of ceramic particles by liquid aluminum [6], segregation of particles, higher porosity level and extensive inter-facial reaction due to higher processing temperature. Wettabilty of the particles can be improved by coating the particles with metals such as Ni and Cu, addition of active elements such as Mg into liquid aluminum or preheating of the f particles before addition into liquid aluminium [6]. The most conventional method of production of composites by casting route is vortex method, where the liquid aluminum containing 2-5percent Mg is stirred with an impeller and ceramic particles are incorporated into vortex formed by stirring of the liquid metals. Addition of Mg into the liquid metal reduces the surface tension [7] and there by avoids the rejection of the particles from the melts. With out addition of Mg recovery of the particles into the melt is quite low. Hence 2-5percent Mg is generally added into the Al melts before incorporation of the particles. However, the chemistry of the particles of an Al alloy is changed with addition Mg that can be deleterious to the mechanical properties of the composites. The present investigation has been focused on utilization of waste fly ash in useful manner by dispersing it in aluminum matrix to produce

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composite. In the present work, fly-ash which mainly consists of refractory oxides like silica, alumina, and iron oxides, was used as the reinforcing phase and to increase the wetabbility magnesium and silicon were added

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Chapter 2

LITERATURE SURVEY

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2.1 Defination of Composite Material

The composite material can be characterized as the arrangement of material comprising of a blend of mix of at least two miniaturized scale constituents insoluble in one another and contrasting in structure as well as in material creation .These materials can be set up by putting at least two different material in such way that they work precisely as a solitary unit. The properties of such materials vary from those of their constituents. These materials may have a hard stage inserted in a delicate stage or the other way around. Typically in the composite material have a hard stage in the delicate pliable grid where the hard stage go about as a strengthening specialist increment the quality and modulus, and delicate stage go about as framework material. The prerequisite for fulfilling the previously mentioned condition is

a. The composite material has to be man-made

b. The composite material must be a combination of at least two chemically distinct materials with an interface separating the components.

c. The properties of composite should be three dimensionally combined.

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2.2 Previous studies

As Metal Matrix Composite (MMC) is having the high degree for research and advancements, numerous analysts have done work in the improvement and utilization of Aluminum Fly Ash Metal Matrix Composite. We have recorded underneath a portion of the examinations done by the scientists in the field of Aluminum and Fly Ash MMC. Aluminum - Fly Ash Metal Matrix Composite is reinforce composite with great wear obstruction utilized in different applications, for example, aviation, car and different fields [2]. Aluminum is generally utilized in industry as usually material with different valuable properties. Utilizing Aluminum fly cinder MMC diminishes the interest of serious vitality by Aluminum, it results in vitality investment funds [3]. Fly ash is one of the cheapest and with low density reinforcement in large quantities as it is solid waste produced during coal combustion in thermal power plants has been successfully used into cast and wrought aluminium alloys for making aluminium-alloyfly ash composites [4]. Beforehand Metal Matrix Composite concentrated on the arrangement of fiber strengthened composite as it were. Because of the surprising expense required for the creation and anisotropic properties of the resultant composite, nudge uction of such composite materials was restricted. In current days the MMCs with lighter materials as fortification snatching significance as a result of ease with isotropic properties. The reinforcing of aluminum amalgams with composite materials utilized for acquiring materials with high solidness (high quality/-modulus and low thickness) with wear obstruction. The Aluminum Metal Matrix Composites are delivered by throwing or power metallurgy. The natural challenges of throwing course are non-wettability, isolation, higher porosity. Wettability of the particles can increment by expansion of dynamic components, for example, Mg into fluid aluminum. The customary technique for generation of composites by throwing course is vortex strategy, in which the liquid aluminum with 2 to 5 percent Mg is mixed with an impeller. Mg lessens the surface pressure and therefore evades the partition of particles from liquefy

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2.3 Classification of Composites

2.3.1 On the basis of Matrix composite can be classified in the following:

Polymer-matrix composites (PMC)

The most common matrix materials for composites are polymeric. Polyester and viny esters are the most widely used and least expensive polymer resins. These matrix materials are basically used for fiber glass reinforced composites. For mutations of a large number resin provide a wide range of properties for these materials .The epoxies are more expensive and in addition to wide range of ranging commercials applications ,also find use in PMCs for aerospace applications. The main disadvantages of PMCs are their low maximum working temperature high coefficients of thermal expansion and hence dimensional instability and sensitivity to radiation and moisture. The strength and stuffiness are low compared with metals and ceramics. [9, 10]

Metal-matrix composites (MMC)

The matrix in these composites is a ductile metals .These composites can be used at higher service temperature than their base metal counterparts. These reinforcements in these materials may improve specific stuffiness specific strength, abrasion resistance, creep resistance and dimensional stability. The MMCs is light in weight and resist wear and thermal distortion, so it mainly used in automobile industry. Metal matrix composites are much more expensive those PMCs and, therefore, their use is somewhat restricted. [9, 10]

Ceramic-matrix composites (CMC)

One of the main objectives in producing CMCs is to increase the toughness. Ceramics materials are inherent resistants to oxidation and deterioration at elevated temperatures; were it not for their disposition to brittle fracture, some of these materials would be idea candidates for use in higher temperature and serve- stress applications, specifically for components in automobile an air craft gas turbine engines .The developments of CMCs has lagged behind mostly for remain reason, most processing route involve higher temperature and only employed with high temperature reinforcements[9].

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2.3.2 On the basics of reinforcement can be classified into three types:

Particle reinforced composites

Particulate reinforcements have dimensions that are approximately equal in all directions.

The shape of the reinforcing particles may be spherical, cubic, platelet or any regular or irregular geometry. These composite can classified under two sub groups [8]:

a.Large particle composites

b.Dispersion strengthened composites

Fiber reinforced composites

A fibrous reinforcement is characterized by its length being much greater than its cross-sectional dimension .However the ratio of length to the cross sectional dimension know as the aspect ratio, can vary considerably .In single layer composite long fibers with high aspect ratios give that are called continuous fiber reinforced composites whereas discontinuous fiber reinforced composites are fabricated using short fibres of low aspect ratio .The orientation of the discontinuous fibres may be random or preferred .The frequently encountered preferred orientation in the case of continuous fibre composite is termed unidirectional and the corresponding random situation can be approximated to by bidirectional woven reinforcement [10].

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2.4 Strengthening mechanism of composite

2.4.1 Strengthening mechanism of fiber reinforced composite Rule-Of-Mixture

Most studies concerned with the evaluation of mechanical behavior of fiber reinforced composites use what is called a "Rule-Of-Mixtures"(ROM) to predict and/or to compare the strength properties of the composite The ROM is nothing but an operational tool that uses weighted volume average of the component properties in isolation to obtain the magnitude of the property for the composite. Specifically, in the case of composite containing uniaxially aligned, continuous fibers, the composite stress is written as

$c = f Vf + m Vm$ (1)

Where is the axial stress, V is the volume fraction of the component and the subscripts c, f and m refer to the composite, fiber and matrix, respectively. It is to be noted that

$Vf + Vm = 1$

Under conditions of isostatic, i.e, the longitudinal strain in the components being equal, one may write another ROM relationship for the elastic moduli,

$Ec = Ef\ vf + Em\ Vm$ (2)

Where E is the elastic modulus and the subscripts represent the components as before. Eq. (2) neglects any transverse strain arising because of the different contractile tendencies of the components (i.e, vf = v, where v is Poisson's ratio). However, for metallic systems, the difference in Poisson's ratio of the two components is generally insignificant and the ROM values are generally found to be within the limits of the experimental error. Another example of a property for which ROM works very well is the density . One can write as

$c = f\ vf + m\ vm$

It would appear from these studies that the ROM as applied conventionally to the strength properties of composites with metallic matrices is not valid. The whole is more than the sum of individual components in isolation [11].

2.4.2 Strengthening mechanism of particulate composite

Large-particle composite

Particle-Reinforced Composites can be large-particle and dispersion-strengthened composites are the two subclassifications of particle-reinforced composites. The distinction between these is based upon reinforcement or strengthening mechanism. The term large is used to indicate that particlematrix interactions cannot be treated on the atomic or molecular level; rather, continuum mechanics is used. For most of these composites, the particulate phase is harder and stiffer than the matrix. These reinforcing particles tend to restrain movement of the matrix phase in the vicinity of each particle. In essence, the matrix transfers some of the applied stress to the particles, which bear a fraction of the load. The degree of reinforcement or improvement of mechanical behavior depends on strong bonding at the matrixparticle interface.

Dispersion strengthened composite

For dispersion-strengthened composites, particles are normally much smaller, with diameters between 0.01 and 0.1 m (10 and 100 nm). Particlematrix interactions that lead to strengthening occur on the atomic or molecular level. The mechanism of strengthening is similar to that for precipitation hardening. Whereas the matrix bears the major portion of an applied load, the

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small dispersed particles hinder or impede the motion of dislocations. Thus, plastic deformation is restricted such that yield and tensile strengths, as well as hardness, improve.

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2.5 Interfacial bonding Mechanisms

Once the matrix has wet the reinforcement, and is therefore in intimate contact with reinforcement, bonding will occur A number of different types of bond may formed .The type of bonding varies from system to system and dependent on fine details such as the presence of surface contaminates or of added surface active agents .

2.5.1 Adsorption and wetting

Wettability is another significant problem when producing cast metal matrix composites. Wettability can be defined as the ability of a liquid to spread on a solid surface. Good wettability means that the liquid (matrix) will flow over the reinforcement covering every bump and dip of the rough surface of the reinforcement and displacing air. It also describes the extent of intimate contact between liquid and a solid.

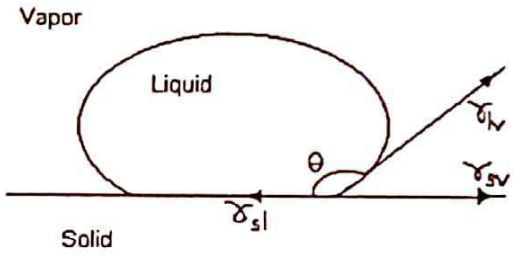


Figure 2.1: Schematic diagram showing the contact angle that describes wettability

Wettability will not occur if the viscosity of the matrix is not too high and if wetting result in a decrease in the free energy of the system. Successful incorporation of solid ceramic particles into casting requires that the melt should wet the solid ceramic phase. The problem of the wetting of the ceramic by molten metal is one of surface chemistry and surface tension. The chemistry of the particle surface, including any contamination, or oxidation, the melt surface and oxide layer must be considered. All the surfaces have associated with the free energy (per unit area)

sl= free energy per unit area of solid- liquid interfaces, sv= free energy per unit area ofsolid-vapor interfaces,lv= free energy per unit area of liquid- vapor interfaces The spreading coefficient can be defined as

SC= sv (sl + lv)

The bonding force between the liquid and solid phases can be expressed in terms of contact angle referred to in the Young-Dupres equation [12].

sv= sl +lvCos

Cosa= (sv- sl)/ lv

a may be used as a measure of the degree of wettability.

(i) a =180 degree , no wettability

(ii)a =0 degree , perfect wettability

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2.5.2 Inter-diffusion

Various types of diffusion process which promote the adhesion can take place at the interface. The diffusion of free chain ends at the interface between two polymers, which leads to chain entanglements and a rise in the adhesive strength. Inter diffusion can take place in non-polymeric systems, particularly if it is accompanied by a chemical reaction. The adhesive strength dependent on the nature of the resultant inters atomic bonds. Inter-diffusion plays only a minor role at low temperatures, but at elevated temperatures approaching the melting point of the matrix, inter-diffusion and chemical reaction can result in the formation of brittle inter metallic which are detrimental to the mechanical properties of MMCs.

2.5.3 Chemical bonding

Various types of chemical reaction may occur at the interface, either deliberately or inadvertent. These bonds may be covalent, ionic, metallic, etc. and in many cases very strong. These are many examples of inter facial bond strength being raised by localized chemical reactions. For strong chemical bonding between the reinforcement and matrix a controlled amount of chemical reaction at the interface is always desirable. However, too thick an inter- facial zones adversely the mechanical properties of the composites and leads to premature failure.

2.5.4 Mechanical adhesion

Mechanical interlocking or keying of two surfaces can be lead to reasonable bond. Clearly the interlocking is greater and hence the mechanical bonding more effective, the rougher the interface. Also any concentration of the matrix onto the reinforcement is favorable to bonding. Mechanical bonding plays a major role in load transfer by shear. Two separate factors affect mechanical adhesion namely (1) Surface roughness, which control the amount of mechanical interlocking that can occur, and (2) The presence of residual stresses in the matrix as a result of fabrication. In most cases a purely mechanical bond is not encountered and mechanical bonding operates in conjunction with another bonding mechanism.

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2.6 Metal matrix composite

Metal-matrix composites (MMCs) are engineered combinations of two or more materials (one of which is a metal) where tailored properties are achieved by systematic combinations of different constituents. Conventional monolithic materials have limitations in respect to achievable combinations of strength, stiffness and density .Engineered MMCs consisting of continuous or discontinuous fibres, whiskers, or particles in a metal achieve combinations of very high specific strength and specific modulus. Furthermore, systematic design and synthesis procedures allow unique combinations of engineering properties in composites like high elevated temperature strength, fatigue strength, damping property, electrical and thermal conductivities, friction coefficient, wear resistance and expansion coefficient. Structurally, MMCs consist of continuous or discontinuous fibres, whiskers, or particles in an alloy matrix which reinforce the matrix or provide it with requisite properties not achievable in monolithic alloys. In a broader sense, cast composites, where the volume and shape of phase is governed by phase diagrams, for example, cast iron and aluminum-silicon alloys, have been produced by foundries for a long time. The modern composites differ in the sense that any selected volume, shape and size properties in composites like high elevated temperature of reinforcement can be artificially introduced in the matrix. The modem composites are non equilibrium combinations of metals and ceramics, where there are fewer thermodynamic restrictions on the relative volume percentages, shapes and size of ceramic phases. Composite materials are attractive since they offer the possibility of attaining property combinations which are not obtained in monolithic materials and which can result in a number of significant service benefits. These could include increased strength, decreased weight, higher service temperature, improved wear resistance, higher elastic modulus, controlled coefficients of thermal expansion and improved fatigue properties. The quest for improved performance has resulted in a number of developments in the area of MMC fabrication technology .These includes both the preparation of the reinforcing phases and the development of fabrication techniques [13]

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2.7 Fabrication techniques for metal matrix composites

A number of composite fabrication techniques have been developed that can be placed into four broad categories. These are: (i) powder metallurgical techniques, (ii) liquid metallurgy. The liquid metallurgy techniques include unidirectional solidifications to produce directionally aligned MMCs, suspension of reinforcement in melts followed by solidification, compocasting, squeeze casting, spray casting, and pressure infiltration. The liquid metallurgy techniques are the least expensive of all, and the multi-step diffusion bonding techniques may be the most expensive [14].

2.7.1 Powder metallurgical techniques

Powder blending followed by consolidation (PM processing), diffusion bonding and vapor deposition techniques come under solid state processing Powder metallurgy techniques offer the following three advantages over liquid metallurgy techniques for fabricating MMCs.[15]
(a) Lower temperatures can be used during preparation of a PM-based composite compared with preparation of a liquid metallurgy-based composite. The result is lesser interaction between the matrix and the reinforcement when using the' PM technique. By minimizing undesirable inter-facial reactions, improved mechanical properties are obtained.
(b) In some cases, PM techniques will permit the preparation of composites that cannot be prepared by the liquid metallurgy. For instance, fibres or particles of silicon carbide will dissolve in melts of several metals like titanium, and such composites will be difficult to prepare using liquid metallurgy techniques.
(c) However, PM techniques remain expensive compared to liquid metallurgy techniques for the composites like AI-SiC particle composites. In addition, only small and simple shape can be produced by PM techniques.

2.7.2 Power blending and consolidation

Blending of metallic power and ceramic fibers or particulate has the advantage of close control over the ceramic content. Blending can be carried out dry or in liquid suspension. Blending is usually followed by cold compaction, canning, degassing and high temperature consolidation stage such as hot isostatic pressing (HIP) or extrusion. PM processed AMCs, contain oxide particles in the form of plate-like particles of few tens of nm thick and in volume fractions ranging from 0-05 to 0-5 vol depending on powder history and processing conditions.[16]

2.7.3 Diffusion bonding

Mono filament-reinforced AMCs are mainly produced by the diffusion bonding (foil-fibre-foil) route or by the evaporation of relatively thick layers of aluminum on the surface of the fibre. 6061 Al-boron fibre composites have been produced by diffusion bonding via the foil-fibre-foil process [17]. However, the process is more commonly used to produce Ti based fibre reinforced composites. The process is cumbersome and obtaining high fibre volume fraction and homogeneous fibre distribution is difficult. The process is not suitable to produce complex shapes and components.

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2.7.4 Stir casting

This involves incorporation of ceramic particulate into liquid aluminum melt and allowing the mixture to solidify. Here, the crucial thing is to create good wetting between the particulate reinforcement and the liquid aluminum alloy melt. The simplest and most commercially used technique is known as vortex technique or stir-casting technique. The vortex technique involves the introduction of pretreated ceramic particles into the vortex of molten alloy created by the rotating impeller. Lloyd (1999) has reports that vortex-mixing technique for the preparation of ceramic particle dispersed aluminum matrix composites was originally developed by Surappa Rohatgi (1981) [19] at the Indian Institute of Science, Bangalore. Subsequently several aluminum companies further refined and modified the process which are currently employed to manufacture a variety of aluminum metal matrix composites on commercial scale [20].

The vortex method is one of the better known approaches used to create and maintain a good distribution of the reinforcement material in the matrix alloy. In this method, after the matrix material is melted, it is stirred vigorously to form a vortex at the surface of the melt, and the reinforcement material is then introduced at the side of the vortex. The stirring is continued for a few minutes before the slurry is cast. There are different designs of mechanical stirrers. Among them, the turbine stirrer is quite popular. During stir casting for the synthesis of composites, stirring helps in two ways: (a) transferring particles into the liquid metal, and (b) maintaining the particles in a state of suspension. Micro structural inhomogeneities can cause notably particle agglomeration and sedimentation in the melt and subsequently during solidification. Inhomogeneity in reinforcement distribution in these cast composites could also be a problem as a result of interaction between suspended ceramic particles and moving solid-liquid interface during solidification. Generally it is possible to incorporate up to 30percent ceramic particles in the size range 5 to 100 m in a variety of molten aluminum alloys .The process is not suitable for the incorporation of sub-micron size ceramic particles or whiskers. Another variant of stir casting process is compocasting. Here, ceramic particles are incorporated into the alloy in the semi solid state.

2.7.5 Inflitration Process

Liquid metal is injected into the interstices of the porous preforms of continuous fibre/short fibre or whisker or particle to produce MMCs. Depending on the nature of reinforcement and its volume fraction preform can be infiltrated, with or without the application of pressure or vacuum. MMCs having reinforcement volume fraction ranging from 10 to 70percent can be produced using a variety of infiltration techniques. In order for the preform to retain its integrity and shape, it is often necessary to use silica and alumina based mixtures as binder. Some level of porosity and local variations in the volume fractions of the reinforcement are often noticed in the MMCs processed by infiltration technique. The process is widely used to produce aluminum matrix composites having particle/whisker/short fibre/continuous fibre as reinforcement.

2.7.6 Spray deposition

Spray deposition techniques fall into two distinct classes, depending whether the droplet stream is produced from a molten bath (Osprey process) or by continuous feeding of cold

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metal into a zone of rapid heat injection (thermal spray process). The spray process has been extensively explored for the production of MMCs by injecting ceramic particle/whisker/short fibre into the spray. MMC's produced in this way often exhibit inhomogeneous distribution of ceramic particles. Porosity in the as sprayed state is typically about 510percent Depositions of this type are typically consolidated to full density by subsequent processing. Spray process also permit the production of continuous fibre reinforced aluminum matrix composites. For this, fibres are wrapped around a mandrel with controlled inter fibre spacing, and the matrix metal is sprayed onto the fibres. A composite mono type is thus formed; bulk composites are formed by hot pressing of composite mono types. Fibre volume fraction and distribution is controlled by adjusting the fibre spacing and the number of fibre layers. MMCs processed by spray deposition technique are relatively inexpensive with cost that is usually intermediate between stir cast and PM processes

2.7.7 In-situ processing (reactive processing)

There are several different processes that would fall under this category including liquid-gas, liquid-solid, liquid-liquid and mixed salt reactions. In these processes refractory reinforcement are created in the aluminium alloy matrix. One of the examples is directional oxidation of aluminium also known as DIMOX process. In this process the alloy of AlMg is placed on the top of ceramic preform in a crucible. The entire assembly is heated to a suitable temperature in the atmosphere of free flowing nitrogen bearing gas mixture. AlMg alloy soon after melting infiltrates into the preform and composite is formed.

MartinMariettas exothermic dispersion process or the XDTm process is another in-situ technique for composite processing. XDTm process is used to produce TiB2 reinforced aluminium matrix composites. The process is flexible and permits formation of both hard and soft phases of various sizes and morphologies that includes whiskers, particles and platelets in aluminium alloy matrices.

Gasliquid reaction is also utilized to produce TiC reinforced aluminium matrix composites. For example, by bubbling carbonaceous gas like methane into AlTi melt kept at elevated temperature it is possible to produce AlTiCp composites [22]. London and Scandinavian Metallurgical Company has developed an in-situ technique, which utilities reaction between mixed salts to produce a dispersion of fine TiB2 particles in an aluminium matrix. A major limitation of in-situ technique is related to the thermodynamic restrictions on the composition and nature of the reinforcement phase that can form in a given system, and the kinetic restrictions on the shape, size and volume fraction of the reinforcement that can be achieved through chemical reactions under a given set of test conditions.

2.8 Role of magnesium in cast aluminiurn alloy matrix composites

Wettabilty is a most significant problem when producing cast metal matrix composites. Particle matrix interface have important effect on the mechanical properties of the composites, as good bonding promote load transfer to the higher strength ceramic particles

.On the other hands, extensive inter facial reactions may deteriorate the mechanical properties of the composites. B. C. Pai et al. [23] reported that magnesium played an important

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role during the synthesis of aluminum alloy matrix composites with dis-persoids such as zircon (ZrSiO4), zirconia (ZrO2), titania (TiO2), silica (SiO2), graphite, alurninium oxide (Al203) and silicon carbide (SiC). Magnesium is one of the important alloying elements in aluminium. In A1-Si casting alloys Mg2Si is the key phase for alloy strengthening. Magnesium addition to aluminium reduces its casting fluidity at the same time as it reduces the surface tension of the aluminium sharply [24]. The presence of magnesium in aluminium alloy matrix during composite fabrication not only strengthens the matrix but also scavenges the oxygen from the surface of the dis-persoid, leading to an increase in the surface energy, of the dis-persoids. It can reduce Al2O3, either to form A1, MgA1204 or MgO depending upon its concentration. Hence there are three important role of magnesium in alumiunm melt.

1)Increasing the surface energies of the ceramics

2)Decreasing the surface tension of the liquid matrix alloy

3)Decreasing the solid/liquid interracial energy at the dispersoid matrix interface.

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2.9 Particulate reinforced metal matrix composites

The other tendency in the research of Al matrix composites is to develop more inexpensive production techniques especially for discontinuously reinforced MMCs. The large consumption of monolithic aluminium alloys has enabled the development of production technology to very efficient and reliable level. Many of these technologies can be applied to production of aluminium matrix composites as well. For instance, standard shaping methods, such as extrusion, forging and rolling, can be used. Traditionally, liquid state processes [25- 26, 6], such as various casting methods, and powder metallurgical methods are used in production of particulate reinforced Al matrix composites. However, new deposition and in situ processes are potentially very efficient and economical and, therefore, they are actively studied. Powder metallurgical route is difficult to be automated and, thus it is very probably not the right answer for economical production of Al matrix composites. Hence, the most promising processes are found among on the liquid state, deposition and in situ processes.

The most simple, inexpensive and widely used methods for monolithic Al parts are various casting techniques. It is therefore natural that a lot of emphasize is put on developing these techniques for Al matrix composites as well. In order to ensure homogenizes distribution of reinforcement particles in the matrix metal stirring my using mechanical, electromagnetic or gas mixing is necessary. Especially, semi-solid slurry mixing methods, such as compocasting or rheocasting [27], have gathered increasing interest. Because of the high viscosity of the slurry higher volume fractions of reinforcement can be processed than in normal casting and the particles are more homogeneously distributed as well. It is even possible to use non- wetting particles, which are entrapped in the slurry. Moreover, the reactions between the matrix and reinforcements are reduced.

The SiC particles are the most common discontinuous reinforcements in Al matrix composites although the density of SiC is slightly higher than that of Al. This is because it is inexpensive and readily available but still gives the composite high strength and elastic modulus. The improved wear resistance is often the primary feature as well. In the same way as in the case of continuous SiC fibres the possibility of chemical reactions limits the high temperature applications and may cause problems in production. Excess Si reduces the reactivity of SiC in Al remarkably. Another widely used particulate reinforcement in Al matrix composites is Al203. In comparison to SiC it is much more inert in Al and it is also oxidation resistant. Accordingly, it is much more suitable for high temperature fabrication and use. In order to overcome the problem of poor wettability of A1203 by A1, which disturbs especially the liquid stirring production routes, the matrix is alloyed or the reinforcement is surface coated. As described previously, Li is found to be a beneficial alloying element. MgO on the surfaces of A1203 is also improving the wettability. On the other hand, in squeeze casting the wettability is not as large problem as in liquid stirring. Therefore, this efficient technique has been often utilized in production of particulate A1203 reinforced Al matrix composites. In fact, this combination of production method and composite material Al is currently the most promising candidate for large scale production of relatively inexpensive MMCs for general Al applications. In the early stage of development of the cast particulate composite, the particles are injected in molten Al through carrier gas[28], to achieve greater recovery, the coating of the particles has been suggested than the uncoated one e.g. Nickel coating with graphite particles in case of Al matrix composites. Ni improves the wettability of the particle by Al melt. Not only Ni but also the

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addition of Mg, Li, Si Ca, in Al melt improves wettability either by changing the interface energy through some interracial reaction or by modifying the oxide layers in the metal surface Detailed investigation of Pai et al. and P.K.Rohatgi [6] and co workers have observed that magnesium increases the wettability of the fly ash in the Al melt. In a recent study it has been demonstrated that the addition of Ca improves the wettability of Al 4.5cu melt by its effects on improvement of retention of particles is less that with Mg addition. To ensure the uniform distribution of particles, stirring of the melt are suggested.

To ensure the uniform distribution of particles, stirring of the melt are suggested. Pellet methods are developed to incorporate ceramic particles into Al melt by Pai and Mc Donald and co workers [29, 30]. In this method the coarser particles of base alloy and reinforcing ceramic particles are mixed and pressed to form pellets. These pellets were subsequently plunged into the melt followed by slow stirring manually or mechanically. But the distribution of particles of the cast particulate composite was not satisfactory uniform when it is prepared by injection technique or pallet method without stirring. To over come such difficulty Vortex method was developed [19, 31]. This the most common method used at present for cast metal matrix particulate composite. In this method molten metal in a crucible is stirred with a available impeller to form a vortex in the melt. Required amount of ceramic particles are added into the vortex at a predetermined rate. The particles get entrapped in the melt and distribute uniformly in it during stirring. The development of SiO2 coating on fly ash particles is demonstrated as an effective way to improve matrix-reinforcement bonding during the manufacturing by a liquid route of Al matrix composite [32]

Heat treatment of the particles before dispersion into the melt aids their transfer by causing desorption of adsorbed gases from the particle surface. Heating silicon carbide particles to 9008C, for example, assists in removing surface impurities and in the desorption of gases, and alters the surface composition by forming an oxide layer on the surface[33].The addition of pre-heated alumina particles in Al-Mg melt has been found to improve the wetting of alumina [34]. A clean surface provides a better opportunity for melt-particles interaction, and thus, enhances wetting. Ultrasonic techniques, various etching techniques, and heating in a suitable atmosphere can be used to clean the particle surface. Ultrasonic vibration has been applied to molten aluminium in order to improve the wettability of alumina particles [35]. S. Sarkar and S. C. panigrahi have worked on the Effect of Particle Distribution on the properties of Aluminum Matrix In-situ Particulate Composites [36] and conclude that discontinuously reinforced aluminum matrix composites are fast emerging materials that compete with conventional metallic materials. In-situ particulate composites in comparison with conventional cast particulate composites produced by external addition, promote cleaner interfaces, eliminate interface incompatibility of the matrices with the reinforcements, help to achieve greater thermodynamic stability of reinforcement particles in the matrix at elevated temperature, and also increase the possibility of developing coherency between the matrix and particles formed in-situ. The morphology and the distribution of particles strongly influence the physical and mechanical properties of the composites. In the present study, illuminate was added to molten aluminum, aluminummagnesium and aluminumsilicon alloys by vortex method. The oxides present in ilumenite are observed to react with aluminum, magnesium and resulting in production of Al2O3, MgO and metallic Fe and Ti, which dissolved in liquid aluminum. The strength and hardness value showed considerable improvement. The resulting composites also show appreciable ductility

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Chapter 3

MATERIAL STUDY

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3.1 Aluminium -fly ash particulate reinforced composite

M. Ramachandra K. Radhakrishna [37] has worked on the Effect of reinforcement of fly ash on sliding wear, slurry erosive wear and corrosive behavior of aluminium matrix composite. Al (12 wt Si) as matrix material and up to 15 wt of fly ash particulate composite was fabricated using the stir casting rote and came forward into following conclusions

1) Fly ash improves abrasive wear resistance (20-30) of Al. and reduces the coefficient of friction.

2)Increase in normal load and sliding velocity increases magnitude of wear and frictional force.

3)Different wear mechanisms were studied under varying different parameter such as normal load, of fly ash content and sliding velocity. Four different mechanisms are found that are abrasion, oxidation, delamination, thermal softening and adhesion.

4)Corrosion resistance of reinforced composite has decreased with increase in flyash content.

Sudarshan, M.K. Surappa [38, 39] have synthesized A356 Alfly ash particle composites

5).They studied mechanical properties and dry sliding wear and come into brief idea that Fly ash with narrow size range (53106m) show better properties compared with the wider size range (0.5400m) particles.

6)The damping capacity of composite increases with the increase in volume fraction of fly ash.

7)Fracture surface of composites show mixed mode (ductile and brittle) fracture.

The 6percent of fly ash particles into A356 Al alloy shows low wear rates at low loads (10 and 20 N) while 12 percent of fly ash reinforced composites show lower wear rates compared to the unreinforced alloy in the load range 2080 N.

8) The types of wear dominant in unreinforced alloy are adhesive wear, whereas abrasive wear is predominant in composites. At higher load, subsurface delamination is the main mechanism in both the alloy as well in composites.

R.Q. Guoa and P.K. Rohatgi, while studding the changes of chemical reaction between the Al and the fly ash during synthesis or reheating [40] of fly ash found out that

1) The chemical reactions do occur between the fly ash an Al melts. The SiO2and Fe2O3 present in the fly ash is reduced to Si and Fe .The melt oxidized to Al2O3

2)The above mentioned reactions do occur rapidly at the temperature more than 8500C

3)The reaction between Al and fly ash complete after10 hours P. K. Rohatgia, J. K. Kima, [41] and co workers have worked on Compressive characteristics of A356/fly ash cenosphere composites synthesized by pressure infiltration technique and conlude that

4)Using gas pressure infiltration up to 20 to 65percent volume percentage of fly ash can be reinforced.

5) The various factors affecting the densities of the composites melt temperature, applied pressure, and the size of particles

P. K. Rohatgi, N. Gupta, and Somon Alaraj [42] have studied the coefficient of thermal expansion of pure Al containing 65 percent vol of hollow fly ash particles and suggested that

1)Composites with a lower coefficient of thermal expansion can be made by incorporating cenospheres under controlling the processing parameter for a given volume fraction of reinforcement.

2) Composite synthesized at different pressure for different infiltration time (min) and came to conclude tha increase in the infiltration pressure and temperature improves the infiltration and decreases the entrapped air voids, as a result of which lower the coefficient of thermal expansion.

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J. Sobczak, J. Bienias and co workers [43] have synthesized fly ash particles as reinforcement in metal matrix composites by squeeze casting technology and gravity casting and compared between them and have come to following conclusion

1) Squeeze casting technology is much useful in comparison with gravity casting. Because it has structural homogeneity with less porosity and good interracial bonding.

2) Due to presence of fly ash particle in the composite the corrosion is pitting type corrosion.

S. Sarkar, S. sen and S. C. Mishra and co workers has studied on Aluminum fly ash composite produced by impeller mixing[7] and came into a brief idea that Up to 17 percent wt fly ash reinforcement can be reinforced by liquid metallurgy route.

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3.2 Fly Ash

Fly ash is one of the residues generated in the combustion of coal. It is an industrial byproduct recovered from the flue gas of coal burning electric power plants. Depending upon the source and makeup of the coal being burned, the components of the fly ash produced vary considerably, but all fly ash includes substantial amounts of silica (silicon dioxide, SiO2) (both amorphous and crystalline) and lime (calcium oxide, CaO). In general, fly ash consists of SiO2, Al2O3, and Fe2O3 as major constituents and oxides of Mg, Ca, Na, K etc. as minor constituent. Fly ash particles are mostly spherical in shape and range from less than 1 m to 100 m with a specific surface area, typically between 250 and 600m2/kg.

The specific gravity of fly ash vary in the range of 0.6-2.8 gm/cc. Coal fly ash has many uses including as a cement additive, in masonry blocks, as a concrete admixture, as a material in lightweight alloys, as a concrete aggregate, in flow able fill materials, in roadway/runway construction, in structural fill materials, as roofing granules, and in grouting. The largest application of fly ash is in the cement and concrete industry, though; creative new uses for fly ash are being actively sought like use of fly ash for the fabrication of MMCs.



Figure 3.1: Fly Ash-1

3.3 Fly Ash Analysis

Compounds	SiO_2	Al_2O_3	Fe_2O_3 +Fe_3O_4	MgO+ CaO+ SO_4	Other
% of Weight	60.32	20.47	8.14	4.11	7.2

Figure 3.2: Composition Of Fly Ash

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Properties	Values	Units	Conditions (°C)
Density	0.61	g/cm3	25
Melting Point	>1000	°C	25
Poisson's Ratio	0.17	-	25
Tensile Strength	140	MPa	25
Elastic Limit	145	MPa	25
Young's Modulus	71	GPa	25
Bulk Modulus	34.2	GPa	25
Compressive Strength	1300	MPa	25
Hardness	6700	MPa	25
Shear Modulus	30.2	GPa	25

Figure 3.3: Properties of Fly Ash

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3.4 Aluminium

Aluminium is one of the most common materials used in engineering applications. It is highly useful in the automobile and aerospace sector. In this experiment, we have used the Aluminium A1100 to make Metal Matrix Composite.

Aluminium is remarkable for its low density and its ability to resist corrosion through the phenomenon of passivation. Aluminium and its alloys are vital to the aerospace industry and important in transportation and building industries, such as building facades and window frames. The oxides and sulfates are the most useful compounds of aluminium.

Despite its prevalence in the environment, no known form of life uses aluminium salts metabolically, but aluminium is well tolerated by plants and animals. Because of these salts' abundance, the potential for a biological role for them is of continuing interest, and studies continue.

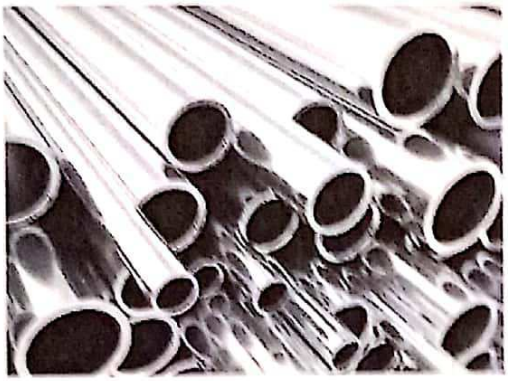


Figure 3.4: Aluminium-1100

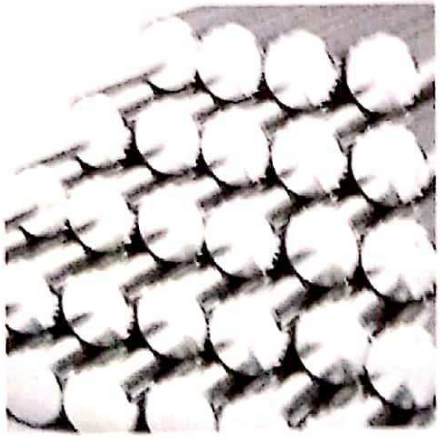


Figure 3.5: Aluminium-6061

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On basis of size, shape and structure

1. Precipitator fly ash It is spherical in nature, the spheres are solid and the density is in the range of 2.02.5 g cm-3.

2. Cenosphere fly ash It is also spherical in shape but these spheres are hollow, so the density of this kind of fly ash is very less as compared to the precipitator fly ash. Here density is less than 1 gm cm-3 (0.3- 0.6gm/cc)Despite its prevalence in the environment, no known form of life uses aluminium salts metabolically, but aluminium is well tolerated by plants and animals. Because of these salts' abundance, the potential for a biological role for them is of continuing interest, and studies continue.

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3.5 Why Fly Ash

The preference to use fly ash as a filler or reinforcement in metal and polymer matrices is that fly ash is a byproduct of coal combustion, available in very large quantities at very low costs since much of this is currently land filled. Currently, the use of manufactured glass micro spheres has limited applications due mainly to their high cost of production. Therefore, the material costs of composites can be reduced significantly by incorporating fly ash into the matrices of polymers and metallic alloys. However, very little information is available on to aid in the design of composite materials, even though attempts have been made to incorporate fly ash in both polymer and metal matrices. Cenosphere fly ash has a lower density than talc and calcium carbonate, but slightly higher than hollow glass.It is one of the cheapest industrial waste which is produced by thermal power plants and other manufacturing industries. Fly Ash has of two classes as Class F and Class C. We have used Fly Ash of F class as a reinforcement for the MMC. The particle size of Fly Ash is less than 53 m. The cost of cenosphere is likely to be much lower than hollow glass .Cenosphere may turn out to be one of the lowest cost fillers in terms of the cost per volume.

1. The high electrical resistivity, low thermal conductivity and low density of fly-ash may be helpful for making a light weight insulating composites.
2. Fly ash as a filler in Al casting reduces cost, decreases density and increase hardness, stiffness, wear and abrasion resistance. It also improves the maintainability, damping capacity, coefficient of friction etc. which are needed in various industries like automotive etc.
3. As the production of Al is reduced by the utilization of fly ash. This reduces the generation of green house gases as they are produced during the bauxite processing and alumina reduction.

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3.6 Chemical reaction between Al and fly ash

The thermodynamic analysis indicates that there is possibility between the reaction of Al melt and the fly ash particles. The particles contain alumina, silica and iron oxide which during solidification process of Al fly ash composites or during holding such composites at temperature above 8500 C, are likely to undergo chemical reactions,

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Chapter 4

EXPERIMENTAL WORK

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4.1 Experimental Methedology

a. Form the different materials distribution for different percentage of Fly Ash.

b. Heat the furnace up to 720C i.e. more than melting temperature of Aluminum.

c. To remove moisture, preheat the Fly Ash powder at 350C for two hours.

d. Insert chips of Aluminium setup of Stir Casting furnace for melting.

e. At 720C add the particles of Fly Ash in the furnace and start stirring process.

f. Stir the melt with mild Steel turbine stirrer at an impeller speed of 250 rpm for 10 to 15 minutes.

g. Pour the melt at a maintained temperature of 700C into the mould.

h. Allow melt to solidify in the mould in natural solidification.

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4.2 Raw materials

The matrix material used in the experiment investigation was commercially aluminium.-1100.The fly ash was collected from Sugar industry, India. The particle size of the fly as received condition lies in the range from (0.1-150 m)

4.3 Melting and casting

The aluminum fly ash metal matrix composite was prepared by stir casting route. For this we took 3kg of commercially pure aluminum and desired amount of fly ash particles. The fly ash particle was preheated to 3000C for three hour to remove moisture. Commercially pure aluminum was melted in a resistance furnace. The melt temperature was raised up to 7200C and it was degassed by purging hexa chloroethane tablets. Then the melt was stirred with the help of a mild steel turbine stirrer. The stirring was maintained between 5 to 7 min at an impeller speed of 200 rpm .The melt temperature was maintained 7000C during addition of fly ash particles. The melt with reinforced particulates were poured into the preheated permanent metalic mold. The pouring temperature was maintained at 6800C.The melt was then allow to solidify the moulds. The composites were made with a different amount of fly-ash (i.e.5, 10, 15,percentage of wt)Magnesium was added to increase the wettability of fly ash particles.



Figure 4.1: Experimental Setup

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4.4 Specimen Formation



Figure 4.2: ALuminium Fly-Ash Specimen

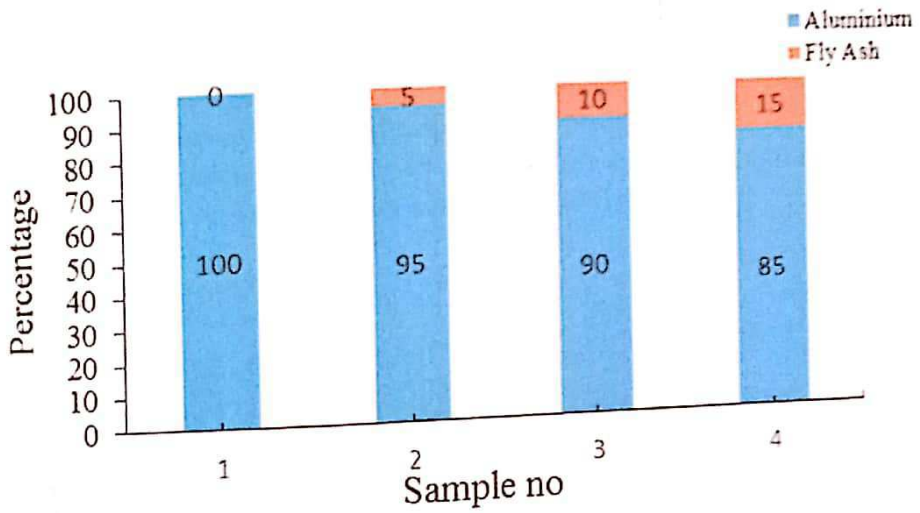


Figure 4.3: Fly ash variation in specimen

As we are taking the various percentage of Fly ash for mixing in aluminium -1100. The percentage variation will be 0,5,10,15 respectively

The above figure shows the various percentage of fly ash with aluminium-1100

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4.5 Mechanical properties observation.

4.5.1 Hardness

Bulk hardness measurements were carried out on the base metal and composite samples by using standard Brinnel hardness test. Brinnel hardness measurements were carried o" ut in order to investigate the influence of particulate weight fraction on the matrix hardness. Load applied was 750kgs and indenter was a steel ball of 5 mm diameter.
Hardness is dependent on ductility, elastic stiffness, plasticity, strain, strength, toughness, viscoelasticity, and viscosity.Common examples of hard matter are ceramics, concrete, certain metals, and superhard materials, which can be contrasted with soft matter.

4.5.2 Tensile Test

Tensile testing, also known as tension testing,[1] is a fundamental materials science and engineering test in which a sample is subjected to a controlled tension until failure. Properties that are directly measured via a tensile test are ultimate tensile strength, breaking strength, maximum elongation and reduction in area.[2] From these measurements the following properties can also be determined: Young's modulus, Poisson's ratio, yield strength, and strain-hardening characteristics.[3] Uniaxial tensile testing is the most commonly used for obtaining the mechanical characteristics of isotropic materials. Some materials use biaxial tensile testing.

The tensile testing of the composite was done, on Instron testing machine. The samplerate was 9.103pts/sec and cross-head speed 5.0 mm/min. Standard specimens with 30mm guge length were used to evaluate ultimate tensile strength. The comparison of the properties of the composite material was made with the commercially pure Al.

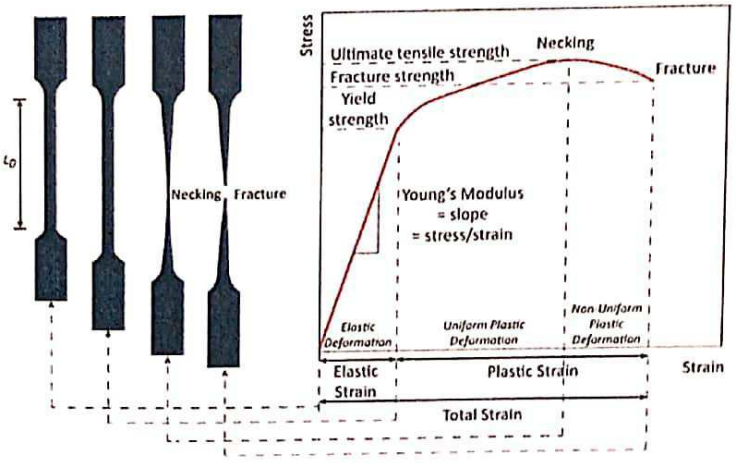


Figure 4.4: stress vs strain graph

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The shoulders of the test specimen can be manufactured in various ways to mate to various grips in the testing machine (see the image below). Each system has advantages and disadvantages; for example, shoulders designed for serrated grips are easy and cheap to manufacture, but the alignment of the specimen is dependent on the skill of the technician. On the other hand, a pinned grip assures good alignment. Threaded shoulders and grips also assure good alignment, but the technician must know to thread each shoulder into the grip at least one diameter's length, otherwise the threads can strip before the specimen fractures.

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Chapter 5

RESULT AND DISCUSSION

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5.1 Mechanical properties of cast composites

5.1.1 Hardness Test

Hardness test is carried by using Rockwell cum Brinnel Hardness Tester (Model-TRB250) on all the composites of Aluminium and Fly Ash produced by a stir casting method. Following is the result of Brinell Hardness Test of each specimen respect to the various amount of Fly Ash

Variation in Fly Ash	Hardness (BHN)
Al	55
Al + 5 % Fly Ash	62
Al + 10 % Fly Ash	68
Al + 15 % Fly Ash	66

Figure 5.1: Fly ash variation in specimen

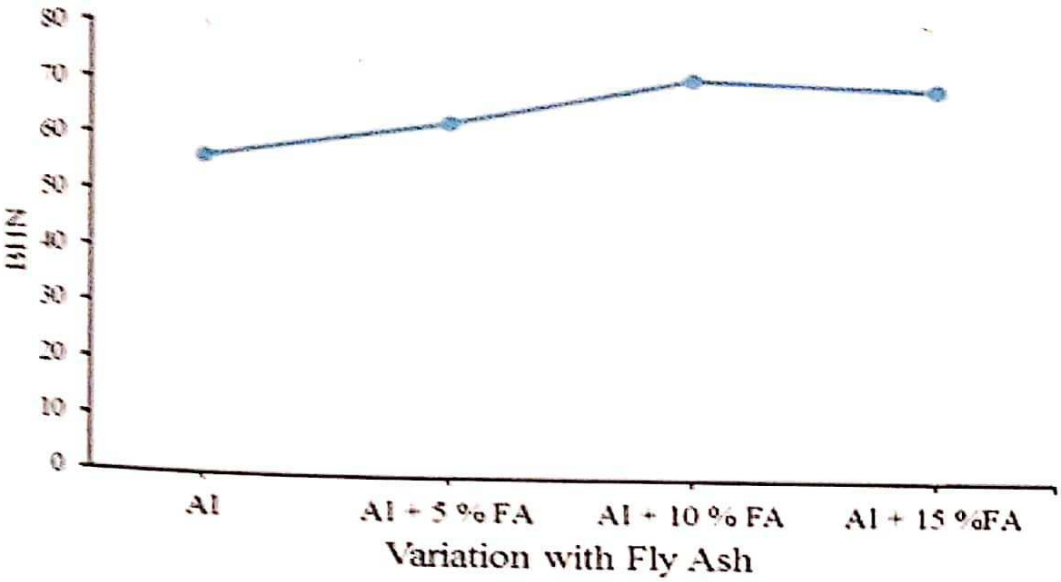


Figure 5.2: . Effect of fly ash on Hardness

The above table shows that incorporation of fly ash particles in Aluminum matrix causes reasonable increase in hardness. The strengthening of the composite can be due to dispersion strengthening as well as due to particle reinforcement. Thus, fly ash as filler in Al casting reduces cost, decreases density and increase hardness which are needed in various industries like automotive etc..

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5.1.2 Tensile Test

The tensile test is carried by using (make-UTK 100E) of 1000 KN capacity for all the composites of Aluminium and Fly Ash made by a stir casting method. Following is the result of tensile test of each specimen respect to the various percentage of Fly Ash.

Variation in Fly Ash	Tensile Strength (MPa)
Al	108.20
Al + 5 % Fly Ash	119.85
Al + 10 % Fly Ash	131.23
Al + 15 % Fly Ash	127.25

Figure 5.3: Measurement of tensile test

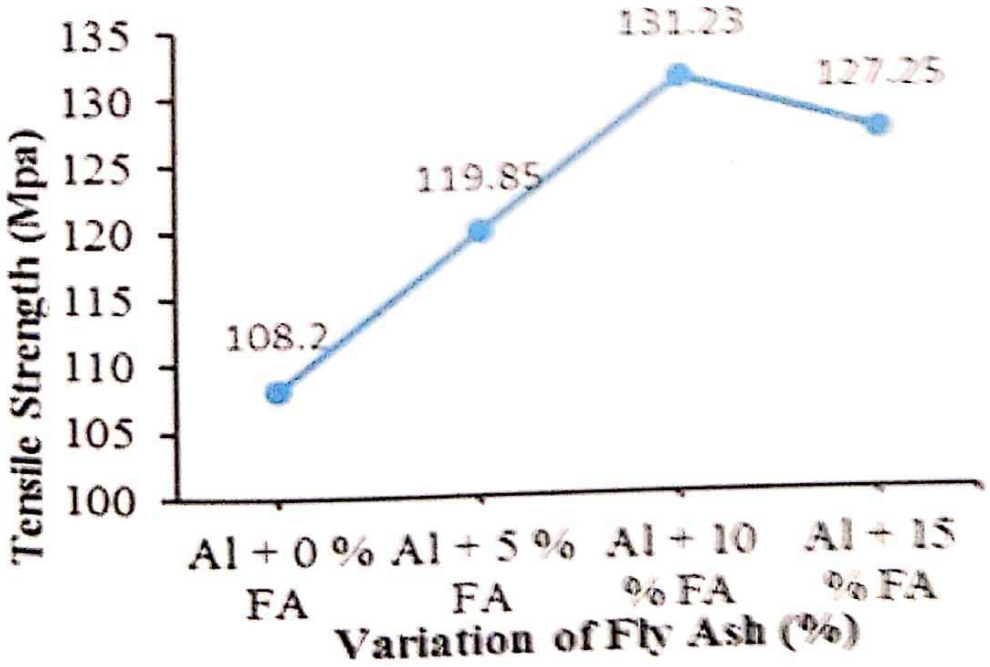


Figure 5.4: Effect of fly ash on Tensile strength

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5.1.3 Weight Reduction Test

Fly Ash is lighter than commercially pure Aluminium hence the prepared composite is lighter than conventional material. For this testing, we have made blocks of material with dimensions of length, width and thickness of 100 mm, 100 mm, 30 mm respectively.

Sr.No.	Al + Fly Ash (%)	Weight (gm)
1.	100 – 0	810.04
2.	95 – 5	791.5
3.	90 – 10	773.04
4.	85 – 15	754.56

Figure 5.5: Weight reduction testing of composite

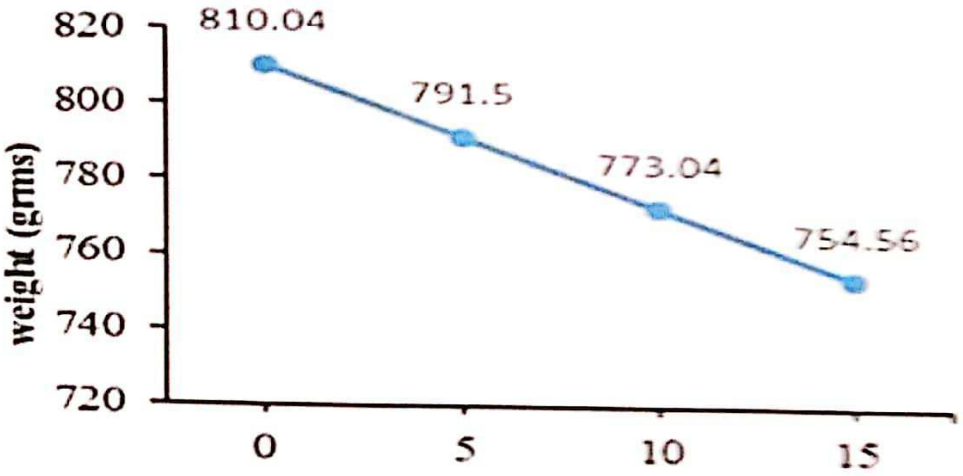


Figure 5.6: weight reduction with variation in fly ash

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Chapter 6

CONCLUSION AND FUTURE SCOPE

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6.1 Conclusion

The flowing conclusion may be drawn form the present work:
The manufacturing of Aluminium-Fly ash composite and analysis of mechanical properties has been carried out. This work contributes the following remarks.

1. We have successfully added up to 15 percent Fly Ash in commercially pure Aluminium to form Metal Matrix Composite which helps to turn industrial waste as industrial wealth.

2. We have observed that Hardness and Tensile Strength of Aluminium Fly Ash MMC are more than commercially pure Aluminium.

3. Fly Ash can be used in metals to improve strength to weight ratio of materials.

4. This prepared composite may be used in Aerospace and Automotive applications instead of conventional materials.

5. The Ultimate tensile strength has improved with increase in fly ash content. Where as ductility has decreased with increase in fly ash content.

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6.2 Future Scope

A Globally, recycling of aluminium products is being emphasized as a facilitator of future growth of the industry.

B Fuel-cell powered cars are promising applications that can potentially become a high growth segment for the industry. This is because aluminium-fly ash material could be used to improve efficiently, which would help in the growth of fuel-cell powered cars and thereby arrest greenhouse emissions.

C Fly Ash can be used in metals to improve strength to weight ratio of materials.

D Fly ash is industrial Waste product Which We are converting into a wealth product or usable material

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APPENDIX
[Paper Published]

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materialstoday: PROCEEDINGS

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Materials on a Diet: Study and Investigation of Aluminium – Fly Ash Metal Matrix Composite

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Abstract

Metal Matrix Composite (MMC) have wide applications in industry as they have lightweight and various properties. Composite materials are widely used in industry as they have less weight with high strength. In this study, we have used the Aluminium which is the most common material used in engineering applications. One of the cheapest industrial waste materials is Fly Ash, which can be successfully turned as industrial wealth by adding in the Aluminium to form Al-Fly Ash as Metal Matrix Composite with lesser weight and higher strength. Aluminium with varying percentage of fly ash (5%, 10% and 15%) were successfully added by using the Stir Casting method to form Metal Matrix Composite. In this investigation, we have studied the different properties of the Aluminium - Fly Ash as Metal Matrix Composite. From our study, we found that this Metal Matrix Composite which contains Fly Ash can be used in Automobile, Aerospace and other applications in Engineering where lesser weight with higher strength is expected.

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Keywords: Aluminium; Fly Ash; Industrial waste as wealth; Stir Casting;

1. Introduction

Metal Matrix Composite (MMC) is grabbing engineers' attention as it is having various properties like durability and high strength to weight ratio. In MMCs the metal matrix is used with the reinforcement to achieve the desired property with the lesser weight and cost. Aluminium is one of the common metals which are used in various engineering applications. As Aluminium is having less weight, it comes with lesser strength. Fly Ash is the industrial waste with low density produced by the thermal power plants as well as many industries. In India 1100 lacks ton Fly Ash per year is produced by the burning of 2500 lacks tons of coal per year for power generation.[1] It is one of the cheapest reinforcements we can use. Also, this can convert industrial waste into industrial wealth. Aluminium and Fly Ash Metal Matrix Composite is a composite material with higher strength as soft and ductile Aluminium is mixed with brittle and hard particles of Fly Ash. Use of Fly Ash in various materials can reduce pollution as well as increase strength and reduce the weight of the material. To form the Al-Fly Ash as MMC, the Stir Casting method is used. For investigation of the performance of MMCs we have added Fly Ash in different proportion (5%, 10%, 15%). This composite has many applications in Automotive and Aerospace sector.

2. Previous Studies

As Metal Matrix Composite (MMC) is having a high scope for research and innovations, many researchers have done work in the development and use of Aluminium – Fly Ash Metal Matrix Composite. We have listed below some of the studies done by the researchers in the field of Aluminium and Fly Ash MMC. Aluminium - Fly Ash Metal

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Matrix Composite is strengthened composite with good wear resistance used in various applications such as aerospace, automotive and other fields [2]. Aluminium is widely used in industry as it is common material with various useful properties. Using Aluminium fly ash MMC decreases the demand for intensive energy by Aluminium, it results in energy savings [3]. Fly Ash is having low density and available in major quantities as it is a waste product of thermal power plant when coal combustion. It has been successfully added into aluminium to make alloys and composites [4]. Previously Metal Matrix Composite was concentrated along the preparation of only FRC. As the cost of production is high, the use of such useful composite material is less. In current days the MMCs with lighter reinforcement grabbing importance because of less cost and higher strength properties. The strengthen aluminium alloy can have better stiffness as it has high strength and low density [5]. The Aluminium with Fly Ash Metal Matrix Composites are prepared by Stir Casting. Wettability of the particles can increase by the addition of active elements such as Mg into liquid Aluminium. The conventional method of production of composites by casting route is the vortex method, in which the Aluminium with 2% to 4% Mg is added and stirred. Mg helps to reduce the surface tension and avoid the dispersion of particles from casting [6,7]. Machinability is also increased with addition of Fly Ash in Aluminium with effect of lesser weight [8].

3. Materials and Experimental Study

3.1. Materials

In this experiment, we have used pure Aluminium as it is one of the common metals used in the aerospace and automotive industry as well as many other industries. Aluminium is soft in nature and have wide applications in every sector of engineering. Pure Aluminium is used to form the Metal Matrix Composite. For the reinforcement, we have used Fly Ash which is collected from the thermal power plant. As Fly Ash is waste for many industries and thermal power plants, it is beneficial for society and nature to use it in such engineering applications.

3.2. Aluminium

Aluminium is one of the most common materials used in engineering applications. It is highly useful in the automobile and aerospace sector. In this experiment, we have used the Aluminium A1100 to make Metal Matrix Composite. The composition and properties of A1100 are listed below in table 1 and 2 respectively.

Table 1. Composition of Aluminium

Elements	Weight (%)
Al	99
Si	0.45
Cu	0.15
Mg	0.05
Fe	0.30
Zn	0.05

Table 2. Properties of Aluminium

Properties	Values	Units	Conditions (°C)
Density	2.72	g/cm^3	25
Poisson's Ratio	0.32	-	25
Melting Point	648	°C	25
Tensile Strength	108	MPa	25
Elastic Modulus	75	GPa	25
Yield Strength	106	MPa	25
Elongation	11	%	25

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Hardness	30	HB500	25
Fatigue Strength	40	MPa	25
Shear Strength	70	MPa	25
Thermal Conductivity	210	W/m-K	25

3.3. Fly Ash

It is one of the cheapest industrial waste which is produced by thermal power plants and other manufacturing industries. Fly Ash has of two classes as Class F and Class C. We have used Fly Ash of F class as a reinforcement for the MMC. The particle size of Fly Ash is less than 100 µm. Composition and properties of Fly Ash are given below in table 3 and 4 respectively.

Table 3 Composition of Fly Ash

Compounds	Weight (%)
SiO_2	60.32
Al_2O_3	20.41
$Fe_2O_3 + Fe_3O_4$	8.14
$MgO + CaO + SO_4$	4.11
Other	7.02

Table 4. Properties of Fly Ash

Properties	Values	Units	Conditions (°C)
Density	0.61	g/cm³	25
Poisson's Ratio	0.17	-	25
Melting Point	>1000	°C	25
Tensile Strength	140	MPa	25
Elastic Limit	145	MPa	25
Young's Modulus	71	GPa	25
Bulk Modulus	34.2	GPa	25
Hardness	6700	MPa	25
Compressive Strength	1300	MPa	25
Shear Modulus	30.2	GPa	25

3.4. Experimental Setup

Stir Casting method was used to form this composite of Aluminium and Fly Ash. Aluminium is in the chips where the Fly Ash is in powder form with size 0.1 to 100 µm. Stir Casting Setup includes the furnace with mild steel turbine stirrer. The furnace can achieve a maximum temperature of 1000°C which is sufficient for melting of Aluminium. Different percentage of Fly Ash is reinforced into the Metal Matrix to form a composite. We have taken Fly Ash at 0%, 5%, 10%, and 15%. Accordingly, we have made each sample with a different percentage of Fly Ash and Aluminium.

4. Methodology

- Form the different materials distribution for different percentage of Fly Ash.

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- Heat the furnace up to 720°C i.e. more than melting temperature of Aluminium.
- To remove moisture, preheat the Fly Ash powder at 350°C for two hours.
- Insert chips of Aluminium setup of Stir Casting furnace for melting.
- At 720°C add the particles of Fly Ash in the furnace and start stirring process.
- Stir the melt with mild Steel turbine stirrer at an impeller speed of 250 rpm for 10 to 15 minutes.
- Pour the melt at a maintained temperature of 700°C into the mould.
- Allow melt to solidify in the mould in natural solidification.

5. Results and Discussion

The prepared Aluminium-Fly ash composite specimens were tested for different mechanical properties like hardness and tensile strength. Also it is tested for weight reduction. Hardness test is carried by using Rockwell cum Brinnel Hardness Tester (Model-TRB250) and tensile strength is measured using (make-UTK 100E) of 100-ton capacity. Table 5 shows the measured hardness, tensile strength and weight reduction with variation in fly ash percentage.

Table 5. Test results of Aluminium Fly Ash Metal Matrix Composite

Variation of Fly Ash	Hardness (BHN)	Tensile Strength (MPa)	Weight (gm)
Al	55	108.20	810.04
Al + 5 % Fly Ash	62	119.85	791.5
Al + 10 % Fly Ash	68	131.23	773.04
Al + 15 % Fly Ash	66	127.25	754.56

5.1. Hardness Test

Hardness test is carried by using Rockwell cum Brinnel Hardness Tester (Model-TRB250) for all the composites of Aluminium and Fly Ash produced by a stir casting method. Following is the result of Brinell Hardness Test of each specimen respect to the various amount of Fly Ash.

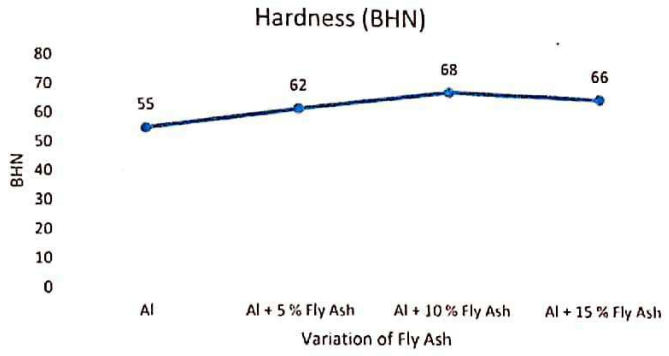


Figure 1. Hardness Test Results

The hardness of Aluminium-Fly ash composite has been found to increase with increased fly ash percentage up to 10%. But further at 15% fly ash, the hardness found to reduce due to less wetting of fly ash particles and improper mixing. The maximum hardness has been noted as 68 BHN at 10% fly ash percentage.

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5.2 Tensile Test

The tensile test is carried by using make UTE 100KN of 100KN capacity for all the composites of Aluminium and Fly Ash made by a stir casting method. Following is the result of tensile test of each specimen respect to the various percentage of Fly Ash

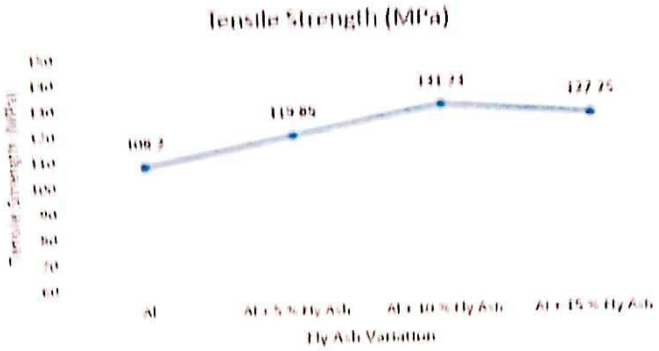


Figure 3 Tensile Test Results

The tensile strength of Aluminium Fly ash composite has been found to increase with increased fly ash percentage up to 10%. But further at 15% fly ash, the hardness found to reduce due to less wetting of fly ash particles and improper mixing. The maximum tensile strength has been noted as 131.34 MPa at 10% fly ash percentage.

5.3 Weight Reduction Test

Fly Ash is lighter than commercially pure Aluminium hence the prepared composite is lighter than conventional material. For this testing, we have considered blocks of material with dimensions of length, width and thickness of 100 mm, 100 mm, 30 mm respectively.

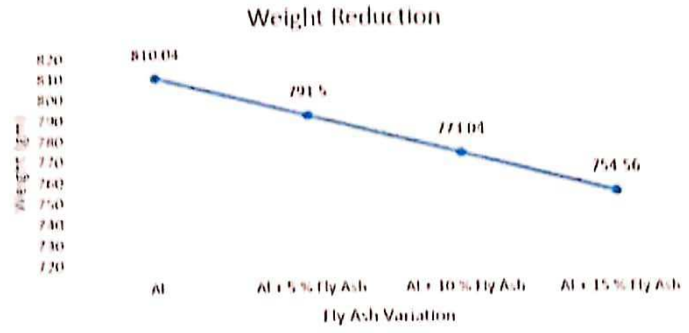


Figure 4 Weight Reduction Test Results

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The weight of material gets decreased as the fly ash is added in it. As fly ash is lighter material, weight will be gradually decreased with addition of fly ash.

6. Conclusion

- We have successfully added up to 15 % Fly Ash in commercially pure Aluminium to form Metal Matrix Composite which helps to turn industrial waste as industrial wealth.
- We have observed that Hardness and Tensile Strength of Aluminium Fly Ash MMC are more than commercially pure Aluminium.
- Fly Ash can be used in metals to improve strength to weight ratio of materials.
- This prepared composite may be used in Aerospace and Automotive applications instead of conventional materials.

Acknowledgements

The authors of this paper would like to thank Dr. S. G. Kulkarni, SKN COE Korti, for providing the setup of Stir Casting and necessary arrangements. We also thank Dr. N. D. Misal, COE Poly. Engineering, Pandharpur for providing necessary equipment for testing and analysis. Also, authors thanks to readers and investigators of this paper and would happy to receive any comments.

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SVERI's
College of Engineering, Pandharpur

Department of Mechanical Engineering

Industrial Visit Record

A.Y.: 2018-19

Shri Vithal Education & Research Institute's
COLLEGE OF ENGINEERING, PANDHARPUR
P.B. No. 54, Gopalpur -Ranjani Road, Gopalpur, Pandharpur- 413 304, District: Solapur (Maharashtra)
Tel.: 02186-216063, 9503103757, Toll Free No.: 1800-3000-4131, E-mail: coe@sveri.ac.in, Web: www.sveri.ac.in
(Approved by A.I.C.T.E., New Delhi and Affiliated to Solapur University, Solapur)
NBA Accredited all eligible UG Programmes, **NAAC** Accredited Institute, Accredited by The Institution of Engineers (India), Kolkata and TCS, Pune. ISO 9001-2015 Certified Institute

Ref No: COEPR/2018-19/mech/1131 Date: 18/03/2019

To,
The Director,
Top Gear Transmissions Pvt.Ltd,
W 41 Additional MIDC Satara-412801.

Sub: -About Industrial Visit

Dear Sir,

Hope this letter finds you in good health and pleasant mood.

First of all, we wish to put forth few words regarding our College. Ours is NBA accredited and an ISO 9001:2008 certified Engineering College located in Pandharpur, the "South Kashi" of India and "Spiritual capital" of Maharashtra. "Shri Vitthal Education & Research Institute", Pandharpur, the trust established by group of qualified and experienced Technocrats. We offer the following four-year degree courses in engineering viz. Mechanical Engg., Civil Engg., Electronics & Tele communication Engg. and Computer Science & Engg.

As per our S.E. (Mechanical Engg.) syllabus for Machine Tools and Processes subject, we want to organize industrial visit to your well reputed Sugar industry for getting knowledge about Boiler. Our Second year Mechanical students are nearly about 150, who are willing to visit to your estimated organization. So you are requested to permit us to visit your esteemed organization for our S.E. Mechanical students along with few Staff members, probably in the period of 04/04/2019 to 05/04/2019.

We will remain grateful to you, if we get a chance to visit your well reputed Gear Manufacturing industry.

Thanking you.

Yours faithfully,

(Prof.S.R.Gavali)
Head, Mech, Dept.

SVERI

Mr. Sachin Gavali <srgavali@coe.sveri.ac.in>

W: About Industrial Visit Permission.

messages

HRAdmin - Top Gear <hradmin@topgeartransmission.com> Thu, Mar 21, 2019 at 10:54 AM
To: srgavali@coe.sveri.ac.in

Good Morning,

Dear Sir,

Ok , from us.

Best Regards,

HR

From: Top Gear [mailto:ho@topgeartransmission.com]
Sent: Tuesday, March 19, 2019 5:55 PM
To: HRAdmin - Top Gear
Subject: FW: About Industrial Visit Permission.

From: Mr. Sachin Gavali [mailto:srgavali@coe.sveri.ac.in]
Sent: 18 March 2019 12:27
To: Top Gear <ho@topgeartransmission.com>
Subject: About Industrial Visit Permission.

Respected Sir,

Please find Attachment.

--

(Prof.Sachin.R.Gavali)

Head,

Department of Mechanical Engineering.

SVERI's College of Engineering,

Gopalpur - Ranjani Road,

SVERI's COLLEGE OF ENGINEERING PANDHARPUR
DEPARTMENT OF MECHANICAL ENGINEERING
A.Y. 2018-19 SEM: II
Industrial Visit Attendance
CLASS: S. E. (MECH) DIV: A 05/04/2019

Roll No.	Name of Student	Sign	Roll No.	Name of Student	Sign
SA 01	/Bhumkar Manasi Dinesh		SA 42	Sheikh VijasJaylani	
SA 02	/Chavan Sonali Umesh		SA 43	Shejal Samadhan Nagnath	
SA 03	/Ghogale Mansi Sanjay		SA 44	Shinde Rajkumar Nana	
SA 04	/Attar Muskan Mukthar		SA 45	Shinde Saurabh Mahadev	
SA 05	/Mhetre Shubhada Shantanu		SA 46	Sirsat Anna Yuvraj	
SA 06	/Gavali Anjali Pandurang		SA 47	Tadmare Swapnil Sanjaykumar	
SA 07	/Gore Gauri Ramchandra		SA 48	Vibhute Rushikesh Nandkumar	
SA 08	/Kothawale Shivani Sanjay		SA 49	Wasnik Harshal Prakash	
SA 09	/Nikate Pornima Milind		SA 50	Gavali Parit Pavan Ankush	
SA 10	Chavan Suraj Baban		SA 51	Jadhav Rushikesh Kalyan	
SA 11	Devkate Sachin Kisan		SA 52	Devkate Yogeshwar Arvind	
SA 12	Gahirwar Pawansing Kiransing		SA 53	Sonar Sunil Ravindra	
SA 13	Gaikwad Suraj Tanaji		SA 54	Atre Shrirang Rajendra	
SA 14	Ganjale Ashish Namdev		SA 55	Bhise Akash Namdev	
SA 15	Ghadage Vaibhav Prabhakar		SA 56	Dhumal Vikas Vitthal	
SA 16	Ghadge Onkar Dhananjay		SA 57	Autade Dashrath Madhukar	
SA 17	Gore Omkar Rajkumar		SA 58	Bagwan Mudaser Mahebob	
SA 18	Gosavi Dada Prakash		SA 59	Bandai Prathamesh M.	
SA 19	Honkande Rohan Ramesh		SA 60	Dandwate Rushikesh Prasad	
SA 20	Mane Mahesh Gunvant		SA 61	Deshmane Rushikesh Sanjay	
SA 21	Kadam Shubham Jaimilind		SA 62	Kodag Vasudev Dattatray	
SA 22	Kale Vaibhav Pandurang		SA 63	Gaikwad Swapnil Rajendra	
SA 23	Kambire Pankaj Popat		SA 64	Gandule Rohan Rajaram	
SA 24	Khadake Prajwal Sunil		SA 65	Gund Omkar Shahaji	
SA 25	Kulkarni Chaitanya Laxmikant		SA 66	Kakade Shubham Madhukar	
SA 26	PatilAshutosh Sunil		SA 67	Kale Rohan Suresh	
SA 27	Jadhav Ajinkya Arjun		SA 68	Kale Shubham Malashidha	
SA 28	Jadhav Ruturaj Satish		SA 69	Khapale Siddheshwar g.	
SA 29	Jundale Rahul Rajkumar		SA 70	Khyade Amit Rajendra	
SA 30	Nagras Pranil Prakash		SA 71	Koli Charandas Appaso	
SA 31	Pandit Yogesh Dhananjay				
SA 32	Pangudwale Purvesh Prakash				
SA 33	Patil Ganesh Basavaraj				
SA 34	Pawar Aniket Santosh				
SA 35	Pawar DayanandYogesh				
SA 36	Pawar Prathviraj Deepak				
SA 37	Rode Vaibhav Balasaheb				
SA 38	Sapkal Nishklank Zumbar				
SA 39	Sathe Pradip Shivaji				
SA 40	Sayyad Azam Akram				
SA 41	Shaikh Juned Ramjan				

(Prof. K. S. Pukale)
Class Coordinator

(Prof. S. R. Gavali)
Head, Mech. Engg. Dept.

SVERI'S College of Engineering Pandharpur

Mechanical Engineering Department

Industrial Visit

Roll No	Name of Student	Sign	Roll No	Name of Student	Sign
1	/Ashture Chandraprabha Balaji		41	Kshirsagar Abhishek Prakash	
2	/Bhosale Pranoti Ramchandra		42	Waghmare Dipak Subhash	
3	/Deomore Nikita Narayan		43	Tuljapurkar Gaurav Jayant	
4	/Kambale Pooja Dilip		44	Pophale Pratap Ashok	
5	/Nistane Shweta Shadashiv		45	Salgar Rohit Adinath	
6	/Nagtilak Rohini Dadasaheb		46	Shendage Siddhanath Shahaji	
7	/Patil Harshada Bhausaheb		47	Vardole Ashutosh Ganesh	
8	Magi Prasad Dattatray		48	Walujkar Hrushikesh Santosh	
9	Ingale Pratik Vasantrao		49	Yele Amit Mallhari	
10	Masal Samadhan Dadaso		50	Valsange Akash Somanath	
11	Mulani Shahid Mahammad		51	Wghamare Raj Vikas	
12	Mulani Vasim Jahangir		52	Gaikwad Balaji Yuvraj	AB
13	Nagane Amol Mahadeo		53	Lambture Abhishek Raju	AB
14	Nimgire Piyush Dadasaheb		54	Mandwale Pratiksinh S.	
15	Kumbhar Ganesh Naganath		55	Maugrule Vedant D.	
16	Pavase Mayur Santosh		56	Muthawat Kedar Sanjay	
17	Sathe Akshay Sunil		57	Nayaku Akshay Laxman	
18	Shaikh Nihal Naushad		58	Pandhare Rohan Anil	
19	Shinde Mahesh Vilas		59	Parkam Pavan Shashikant	
20	Adalinge Rohit Chandrakant		60	Salgar Laxman Balaso	
21	Takale Akshay Angad		61	Salgar Ram Balaso	
22	Waghmode Pradyumna Dinesh		62	Shinde Abhijeet Ashok	
23	Chavan Dinesh Uttam		63	Shinde Abhishek Amar	
24	Tamboli Arbaj Jabbar		64	Shinde Ravikiran T.	AB
25	Boramanikar Sanket Anant		65	Shrigadi Swamisamarth V.	
26	Dandage Vaibhav Nagnath		66	Tate Rutvil Dramhadev	
27	Dhage Shantanu Prakash		67	Thakare Bhushankumar D.	
28	Jadhav Vaibhav Satish		68	Thite Prem Ganesh	
29	Kale Onkar Mohan		69	Patkar Samadhan Macchindra	AB
30	Mulani Aftab Iqbal		70	Jadhav Rohan Mukund	AB
31	Raut Yogesh Dattatray		71		
32	Raut Shubham Anil	AB	72		
33	Sansare Sanket Manojkumar		73		
34	Sapkal Ruturaj Digambar		74		
35	Vhankalas Avinash Bhaskar		75		
36	Kumbhar Pratikesh Pramod		76		
37	Lad Varad Anil		77		
38	Langote Shubham Sambhaji		78		
39	Denkar Shubham Bandu		79		
40	Jagtap Vaibhav Sambhaji		80		

Sign Of CC

Sign Of HOD

Industrial Visit Report

Date: 26/09/2018

To,

The Principal,

College of Engineering,

Pandharpur.

Subject: Report of industrial visit

Respected sir,

As per the curriculum laid by Solapur University, Solapur for S.E Mechanical Engineering Part-I, Applied Thermodynamics Subject include industrial visit. In this regard 140 students along with 09 faculty members visited Kumbhi-Kasari Sakhar Karkhana Ltd. Kolhapur on 19th Sept. 2018. During this visit we had seen Boiler and its mountings and accessories. Also we had seen cogeneration plant. From this industrial visit students got practical knowledge about boiler and cogeneration plant and they are satisfied with the visit.

This is for your kind information and needful action.

Thanking you

(Prof. S. R. Gavali)
ATD Subject Teacher
SE (Mech) Div. A and C

(Prof. S. N. Kulkarni)
ATD Subject Teacher
SE (Mech) Div. B

Industrial Visit Report

Date: 26/09/2018

To,

The Principal,

College of Engineering,

Pandharpur.

Subject: Report of industrial visit

Respected sir,

As per the curriculum laid by Solapur university, Solapur for S.E Mechanical Engineering Part-I, Manufacturing Process Subject include industrial visit in this regard 140 students along with 09 faculty member visited ,

1) Marvelous Metals Pvt.Ltd.Gokul Shirgaon MIDC, Kolhapur
2) Mahesh Forge Gokul Shirgaon MIDC, Kolhapur
3) Jigisha Forge and Components Pvt Ltd. Gokul Shirgaon MIDC, Kolhapur
4) Jadhav Foundry Gokul Shirgaon MIDC, Kolhapur
5) DCPL Ltd. Gokul Shirgaon MIDC, Kolhapur

on 18th and 19th Sept. 2018. During visit, we had seen various foundry process and its significance also we have seen different forging operations. From this industrial visit student got practical exposure to foundry and forging operations and they got satisfied with the visit.

This is for your kind information and needful action.

Thanking you

(Prof. B.D.Gaikwad)
MP Subject Teacher
SE (Mech) Div. A and B

(/Prof.P.K.Patil)
MP Subject Teacher
SE (Mech) Div. C


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Shri Vithal Education & Research Institute's

College of Engineering, Pandharpur

Gopalpur- Ranjani Road, Gopalpur, P.B. No. 54, Tal Pandharpur-413304
Dist. Solapur (Maharashtra) Ph. : (02186) 225083. Fax: (02186) 225082,
Email: contact@sveri.ac.in Website: www.sveri.ac.in (Approved by AICTE, New Delhi,& Govt. of Maharashtra and Affiliated to Solapur University, Solapur)
NBA and IE (I) Accredited, A Grade, ISO 9001:2008 Certified

SVERI
Engineering for Excellence

NBA Accredited Courses :
- Electronics & Telecommunication Engg.
- Computer Science & Engg.
- Mechanical Engg.
- Civil Engg

Date: 14/09/2018

To,
The Manager
Jigisha Forge & Components Pvt Ltd.
Gokul Shirgaon MIDC
Kolhapur

Sub: -About Industrial Visit

Dear Sir,

Hope this letter finds you in good health and pleasant mood.

First of all, we wish to put forth few words regarding our College. Ours is NBA accredited and an ISO 9001:2008 certified Engineering College located in Pandharpur, the "South Kashi" of India and "Spiritual capital" of Maharashtra. "Shri Vitthal Education & Research Institute", Pandharpur, the trust established by group of qualified and experienced Technocrats. We offer the following four-year degree courses in engineering viz. Mechanical Engg., Electrical Engg., Civil Engg., Electronics & Tele communication Engg. and Computer Science & Engg.

As per our S.E. (Mechanical Engg.) syllabus for Manufacturing Processes subject, we want to organize industrial visit to your well reputed industry for getting knowledge about gear manufacturing. Our Second year Mechanical students are nearly about 140 who are willing to visit your estimated organization. So you are requested to permit us to visit your esteemed organization for our S.E. Mechanical students along with few Staff members on 18/09/2018 and 19/09/2018.

We will remain grateful to you, if we get a chance to visit your well reputed Sugar industry.

Thanking you.

Yours faithfully,

(Prof. S. R. Gavali)
Head, Mech, Dept.

Visited On 19/09/2018 to Our factory & I think to Here Satisfaction, the visit was Success

Telephonic discussions on dated 14/09/2018 with Mr. Jitendra Kurahde Manager (Mob. No. 9130006296) of Jigisha Forge along with Prof. B. D. Gaikwad has got permission for industrial visit.

Jigish... Kolhapur

14/09/18

Shri Vithal Education & Research Institute's
College of Engineering, Pandharpur
Gopalpur- Ranjani Road, Gopalpur, P.B. No. 54, Tal Pandharpur-413304
Dist. Solapur (Maharashtra) Ph. : (02186) 225083, Fax: (02186) 225082,
Email: contact@sveri.ac.in Website: www.sveri.ac.in (Approved by AICTE, New Delhi,& Govt. of Maharashtra and Affiliated to Solapur University, Solapur)
NBA and IE (I) Accredited, A Grade, ISO 9001:2008 Certified

NBA Accredited Courses :
- Electronics & Telecommunication Engg.
- Computer Science & Engg.
- Mechanical Engg.
- Civil Engg.

Ref : COEP/MECH/2018-19/76 Date: 28/08/2018

To,
The Manager
Marvelous Metals
Gokul Shirgaon MIDC
Kolhapur

Sub: -About Industrial Visit

Dear Sir,

Hope this letter finds you in good health and pleasant mood.

First of all, we wish to put forth few words regarding our College. Ours is NBA accredited and an ISO 9001:2008 certified Engineering College located in Pandharpur, the "South Kashi" of India and "Spiritual capital" of Maharashtra. "Shri Vitthal Education & Research Institute", Pandharpur, the trust established by group of qualified and experienced Technocrats. We offer the following four-year degree courses in engineering viz. Mechanical Engg., Electrical Engg., Civil Engg., Electronics & Tele communication Engg. and Computer Science & Engg.

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We will remain grateful to you, if we get a chance to visit your well reputed Sugar industry.

Thanking you.

Visited on 18/09/2018

Yours faithfully,

(Prof. S. R. Gavali)
Head, Mech. Dept.

HEAD
Dept. of Mechanical Engg.
C.O.E. Pandharpur

Marvelous Metals Pvt. Ltd. MMPL Kolhapur MIDC Gokul Shirgaon

9225833529

Shri Vithal Education & Research Institute's

College of Engineering, Pandharpur

Gopalpur- Ranjani Road, Gopalpur, P.B. No. 54, Tal Pandharpur-413304
Dist. Solapur (Maharashtra) Ph. : (02186) 225083. Fax: (02186) 225082.
Email: contact@sveri.ac.in Website: www.sveri.ac.in (Approved by AICTE, New Delhi,& Govt. of Maharashtra and Affiliated to Solapur University, Solapur)
NBA and IE (I) Accredited, A Grade, ISO 9001:2008 Certified

SVERI
Engineering for Excellence

NBA Accredited Courses :
- Electronics & Telecommunication Engg.
- Computer Science & Engg.
- Mechanical Engg.
- Civil Engg

Ref.: COEP/MECH/2018:19/ 52

Date: 28/08/2018

To,
The Manager
Jadhav Foundry
Gokul Shirgaon MIDC
Kolhapur

Sub: -About Industrial Visit

Dear Sir,

Hope this letter finds you in good health and pleasant mood.

First of all, we wish to put forth few words regarding our College. Ours is NBA accredited and an ISO 9001:2008 certified Engineering College located in Pandharpur, the "South Kashi" of India and "Spiritual capital" of Maharashtra. "Shri Vitthal Education & Research Institute", Pandharpur, the trust established by group of qualified and experienced Technocrats. We offer the following four-year degree courses in engineering viz. Mechanical Engg., Electrical Engg., Civil Engg., Electronics & Tele communication Engg. and Computer Science & Engg.

As per our S.E. (Mechanical Engg.) syllabus for Manufacturing Processes subject, we want to organize industrial visit to your well reputed industry for getting knowledge about gear manufacturing. Our Second year Mechanical students are nearly about 140 who are willing to visit your estimated organization. So you are requested to permit us to visit your esteemed organization for our S.E. Mechanical students along with few Staff members on 18/09/2018 and 19/09/2018.

We will remain grateful to you, if we get a chance to visit your well reputed Sugar industry.

Thanking you.

Yours faithfully,

28/8/18

(Prof. S. R. Gavali)
Head, Mech, Dept.

HEAD,
Dept. of Mechanical Engg.
C.O.E. Pandharpur.

11/9/18

Shri Vithal Education & Research Institute's

College of Engineering, Pandharpur

Gopalpur- Ranjani Road, Gopalpur, P.B. No. 54, Tal Pandharpur-413304
Dist. Solapur (Maharashtra) Ph. : (02186) 225083. Fax: (02186) 225082,
Email: contact@sveri.ac.in Website: www.sveri.ac.in (Approved by AICTE, New Delhi,& Govt. of Maharashtra and Affiliated to Solapur University, Solapur)
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SVERI
Engineering for Excellence

NBA Accredited Courses :
- Electronics & Telecommunication Engg.
- Computer Science & Engg.
- Mechanical Engg.
- Civil Engg

Ref.: COEP/MECH/2018-19/54

Date: 28/08/2018

To,
The Manager
Mahesh Forge ltd
Gokul Shirgaon MIDC
Kolhapur

Sub: -About Industrial Visit

Dear Sir,

Hope this letter finds you in good health and pleasant mood.

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We will remain grateful to you, if we get a chance to visit your well reputed Sugar industry.

Thanking you.

Yours faithfully,

28/08

(Prof. S. R. Gavali)
Head, Mech, Dept.

HEAD,
Dept. of Mechanical Engg.
C.O.E. Pandharpur.

A-1, M.I.D.C. GOKUL SHIRGAON
KOLHAPUR-416 234.

19/18

0231 / 26 72 336

Shri Vithal Education & Research Institute's

College of Engineering, Pandharpur

Gopalpur- Ranjani Road, Gopalpur, P.B. No. 54, Tal Pandharpur-413304
Dist. Solapur (Maharashtra) Ph. : (02186) 225083. Fax: (02186) 225082,
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SVERI
Engineering for Excellence

NBA Accredited Courses :
- Electronics & Telecommunication Engg.
- Computer Science & Engg.
- Mechanical Engg.
- Civil Engg

Date: 18/09/2018

To,
The manager
DCPL,
Kolhapur.

Sub: -About Industrial Visit

Dear Sir,

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First of all, we wish to put forth few words regarding our College. Ours is NBA accredited and an ISO 9001:2008 certified Engineering College located in Pandharpur, the "South Kashi" of India and "Spiritual capital" of Maharashtra. "Shri Vitthal Education & Research Institute", Pandharpur, the trust established by group of qualified and experienced Technocrats. We offer the following four-year degree courses in engineering viz. Mechanical Engg., Electrical Engg., Civil Engg., Electronics & Tele communication Engg. and Computer Science & Engg.

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Thanking you.

Yours faithfully,

18/09

(Prof. S. R. Gavali)
Head, Mech, Dept.

18.9.2018 received.

Dattachhaya Chain Pvt. Ltd. Kolhapur

DEPARTMENT OF MECHANICAL ENGINEERING

A.Y. 2018-19 SEM: I

Industrial Visit Attendance

Date of Visit- 18th and 19th Sep 2018

CLASS: S. E. (MECH) DIV: A

Roll No.	Name of Student	Sign	Roll No.	Name of Student	Sign
SA 01	/BhumkarManasi Dinesh		SA 42	Shaikh VijasJaylani	
SA 02	/ChavanSonaliUmesh		SA 43	ShejalSamadhanNagnath	
SA 03	/Ghogale Mansi Sanjay		SA 44	Shinde Rajkumar Nana	
SA 04	**Admission Cancelled**		SA 45	Shinde SaurabhMahadev	
SA 05	/MhetreShubhada Shantanu		SA 46	Sirsat Anna Yuvraj	
SA 06	Sonar Sunil Ravindra		SA 47	TadmareSwapnilSanjaykumar	
SA 07	AtreShrirangRajendra		SA 48	VibhuteRushikeshNandkumar	
SA 08	BhiseAkashNamdev		SA 49	WasnikHarshal Prakash	
SA 09	DhumalVikas Vitthal		SA 50	GavaliParitPavanAnkush	
SA 10	ChavanSurajBaban		SA 51	Jadhav RushikeshKalyan	
SA 11	DevkateSachinKisan		SA 52	DevkateYogeshwar Arvind	
SA 12	GahirwarPawansingKiransing				
SA 13	Gaikwad SurajTanaji				
SA 14	Ganjale Ashish Namdev				
SA 15	GhadageVaibhav Prabhakar				
SA 16	GhadgeOnkarDhananjay				
SA 17	Gore OmkarRajkumar				
SA 18	Gosavi Dada Prakash				
SA 19	Honkande Rohan Ramesh				
SA 20	Mane Mahesh Gunvant				
SA 21	KadamShubhamJaimilind				
SA 22	Kale VaibhavPandurang				
SA 23	Kambire Pankaj Popat				
SA 24	KhadakePrajwal Sunil				
SA 25	Kulkarni Chaitanya Laxmikant				
SA 26	PatilAshutosh Sunil				
SA 27	Jadhav Ajinkya Arjun				
SA 28	Jadhav Ruturaj Satish				
SA 29	Jundale Rahul Rajkumar				
SA 30	NagrasPranil Prakash				
SA 31	PanditYogeshDhananjay				
SA 32	PangudwalePurvesh Prakash				
SA 33	Patil Ganesh Basavaraj				
SA 34	Pawar Aniket Santosh				
SA 35	Pawar DayanandYogesh				
SA 36	Pawar Pruthviraj Deepak				
SA 37	Rode Vaibhav Balasaheb				
SA 38	SapkalNishklankZumbar				
SA 39	SathePradipShivaji				
SA 40	Sayyad AzamAkram				
SA 41	Shaikh Juned Ramjan				

(Prof. S. J. Shinde)
Class Coordinator

(Prof. S. R. Gavali)
Head, Mech. Engg. Dept.

DEPARTMENT OF MECHANICAL ENGINEERING

A.Y. 2018-19 SEM: I

Industrial Visit Attendance

Date of Visit- 18th and 19th Sep 2018

CLASS: S. E. (MECH) DIV: B

Roll No.	Name of Student	Sign	Roll No.	Name of Student	Sign
SB 01	/Ashture Chandraprabha Balaji		SB 42	Mote Dayanand Sudhakar	Absent
SB 02	/Bhosale Pranoti Ramchandra		SB 43	Patkar Samadhan Macchindra	Absent
SB 03	/Deomare Nikita Narayan		SB 44	Pophale Pratap Ashok	
SB 04	/Kambale Pooja Dilip		SB 45	Salgar Rohit Adinath	
SB 05	Kumbhar Pratikesh Pramod		SB 46	Shendage Siddhanath Shahaji	
SB 06	Lad Varad Anil		SB 47	Vardole Ashutosh Ganesh	
SB 07	Langote Shubham Sambhaji		SB 48	Walujkar Hrushikesh Santosh	
SB 08	Magi Prasad Dattatray		SB 49	Yele Amit Mallhari	Absent
SB 09	Ingale Pratik Vasantrao		SB50	Jadhav Rohan Mukund	Absent
SB 10	Masal Samadhan Dadaso	Absent	SB51	Waghmare Raj Vikas	
SB 11	Mulani Shahid Mahamdh				
SB 12	Mulani Vasim Jahangir				
SB 13	Nagane Amol Mahadeo				
SB 14	Nimgire Piyush Dadasaheb				
SB 15	Kumbhar Ganesh Naganath				
SB 16	Pavase Mayur Santosh				
SB 17	Sathe Akshay Sunil				
SB 18	Shaikh Nihal Naushad				
SB 19	Shinde Mahesh Vilas				
SB 20	Adalinge Rohit Chandrakant				
SB 21	Takale Akshay Angad				
SB 22	Waghmode Pradyumna Dinesh				
SB 23	Chavan Dinesh Uttam				
SB 24	Tamboli Arbaj Jabbar				
SB 25	Boramanikar Sanket Anant				
SB 26	Dandage Vaibhav Nagnath				
SB 27	Dhage Shantanu Prakash				
SB 28	Jadhav Vaibhav Satish				
SB 29	Kale Onkar Mohon				
SB 30	Mulani Aftab Iqbal				
SB 31	Raut Yogesh Dattatraya				
SB 32	Raut Shubham Anil				
SB 33	Sansare Sanket Manojkumar				
SB 34	Sapkal Ruturaj Digambar				
SB 35	Vhankalas Avinash Bhaskar				
SB 36	/ Nistane Shweta Shadashiv	Absent			
SB 37	/ Nagtilak Rohini Dadasaheb				
SB 38	/ Patil Harshada Bhausaheb				
SB 39	Deokar Shubham Bandu				
SB 40	Jagtap Vaibhav Sambhaji				
SB 41	Kshirsagar Abhishek Prakash				

(Prof. S. S. Wangikar)
Class Coordinator

(Prof. S. R. Gavali)
Head, Mech. Engg. Dept.

SVERI's COLLEGE OF ENGINEERING PANDHARPUR

DEPARTMENT OF MECHANICAL ENGINEERING

A.Y. 2018-19 SEM: I

Industrial Visit Attendance

Date: 18th & 19th Sept. 2018

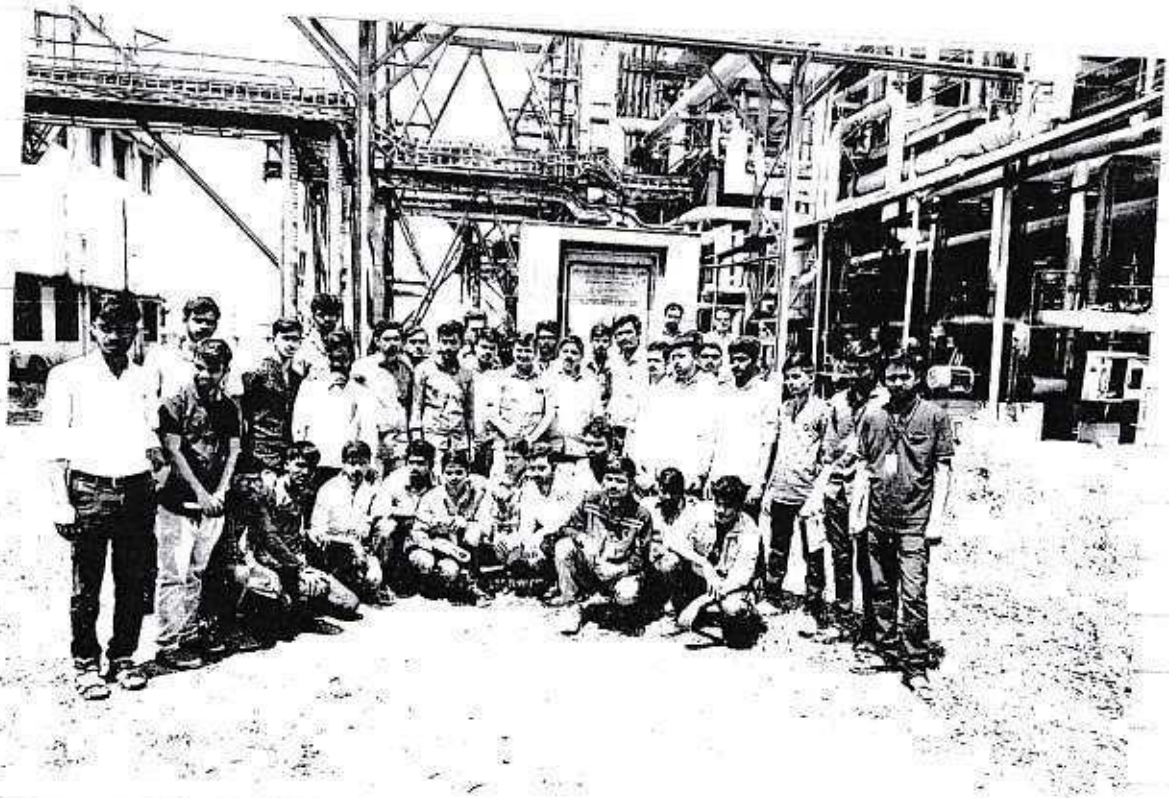
CLASS: S. E. (MECH) DIV: C

Roll No.	Name of Student	Sign	Roll No.	Name of Student	Sign
SC 01	/Attar Muskan Mukthar	—	SC 21	Koli Charandas Appaso	
SC 02	/Gavali Anjali Pandurang		SC 22	Lambture Abhishek Raju	
SC 03	/Gore Gauri Ramchandra	—	SC 23	Mandwale Pratiksinh S.	
SC 04	/Kothawale Shivani Sanjay	—	SC 24	Mangrule Vedant D.	
SC 05	/Nikate Pornima Milind		SC 25	Muthawat Kedar Sanjay	
SC 06	Autade Dashrath Madhukar		SC 26	Nayaku Akshay Laxman	
SC 07	Bagwan Mudaser Mahebob		SC 27	Pandhare Rohan Anil	
SC 08	Bandai Prathamesh M.		SC 28	Parkam Pavan Shashikant	
SC 09	Dandwate Rushikesh Prasad		SC 29	Salgar Laxman Balaso	—
SC 10	Deshmane Rushikesh Sanjay	—	SC 30	Salgar Ram Balaso	
SC 11	Gaikwad Balaji Yuvraj	—	SC 31	Shinde Abhijeet Ashok	
SC 12	Gaikwad Swapnil Rajendra		SC 32	Shinde Abhishek Amar	
SC 13	Gandule Rohan Rajaram		SC 33	Shinde Ravikiran T.	
SC 14	Gund Omkar Shahaji		SC 34	Shrigadi Swamisamarth V.	
SC 15	Kakade Shubham Madhukar		SC 35	Tate Rutvik Bramhadev	—
SC 16	Kale Rohan Suresh		SC 36	Thakare Bhushankumar D.	
SC 17	Kale Shubham Malashidha		SC 37	Thite Prem Ganesh	—
SC 18	Khapale Siddheshwar g.		SC 38	Tuljapurkar Gaurav Jayant	
SC 19	Khyade Amit Rajendra	—	SC 39	Valsange Akash Somanath	
SC 20	Kodag Vasudev Dattatray		SC 40	Waghmare Dipak Subhash	
				Batches:	
				SC 1: Roll No. SC 01 to SC 20	
				SC 2: Roll No. SC 21 to SC 40	

(Prof. A. K. Parkhe)
Class Coordinator

(Prof. S. R. Gavali)
Head, Mech. Engg. Dept.


MARVELOUS METALS
PVT. LTD



SHRI VITHAL EDUCATION & RESEARCH INSTITUTE'S
COLLEGE OF ENGINEERING, PANDHARPUR.
Gopalpur -Ranjani Road, Gopalpur, P.B. No. 54, Tal - Pandharpur- 413 304,
Dist. Solapur (Maharashtra) Ph.: (02186) 225083, Fax: (02186) 225082.
(Approved by AICTE, New Delhi and affiliated to Solapur University, Solapur)

Summary Report for Industrial Visit

Sr.No.	Event =Industrial Visit	
A)	**TE MECH**	
B)	**Industry Visit date : 02/04/2019 & 03/04/2019**	
c)	**(a) Industry details:-** **Aviraj Industries, P. R. Engineering, DCPL, Sunil Industries, Mahalaxmi Aluminium,** **Address:** M. I. D. C. Gokul - Shirgaon. Kolhapur **(b)Industry details:-** **Rocket Engg. Pvt. Ltd** (M. I. D. C. Shiroli, Kolhapur.) **SAROJ Polymers.** (M. I. D. C. Gokul - Shirgaon. Kolhapur)	
D)	**(a)Industry Visit Report:** These industries are related to conveyor manufacturing industry having annual turnover 35 corors. In this unit contains all types of conventional and non conventional machines as well as mechanical and hydraulic power presses from 20 to 500 tonnes capacity . In this visit students has got knowledge about press tool, Jig & Fixtures, Draw tool and use of CAD/CAM for the manufacturing of the same. Apart from this we have gone through the various heat treatment process. It contains through hardening and case hardening process. **(b) Industry Visit Report:** Rocket Engg. Corp. Pvt. Ltd. is related to manufacturing of diesel engine having annual turnover 55 corors. In this visit students has got knowledge about foundry, Design of engine part and manufacturing of the same. Also we have seen diese engine line assembly and testing of the same engine.	
E)	**Outcome :** Students have got real feel of company's working after this visit. The visit helped students to understand the following points.	**Mapping of POs**
	1. About the basic knowledge of foundry and forming process.	**a, b, c, j, k**
	2. Their expertise area such as press tools, Jig and fixtures, Heat Treatment and use of CAD/CAM for manufacturing purpose.	**a, b, c, j, k**
	3. Deign of the conveyor as per the convening capacity and their assembly.	**a, b, c, j, k**
	4. Projects based on diesel engines, cane carrier chains, Bagase carrier chain, Block type of cahin, Stacker chain normly used in cement plant, sugar industry, food processing industry, solvent plant, paper industry and foundy.	**a, b, c, j, k**

Industrial Visit Coordinator

HOD

SHRI VITHAL EDUCATION & RESEARCH INSTITUTE'S
COLLEGE OF ENGINEERING, PANDHARPUR
P.B. No. 54, Gopalpur -Ranjani Road, Gopalpur, Tal - Pandharpur- 413 304,
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ISO 9001-2000 Certified Institute & Accredited by Institute of Engineers, India,
E-mail : coe@sveri.ac.in Website: www.sveri.ac.in

Ref. No.:- COEPR/MECH/18-19/123 Date: -17/03/2019

To,
Production Manager
P. R. Engineering,
B 33, M. I. D. C.
Gokul - Shirgaon.
Kolhapur

Sub: - About Industrial Visit

Dear Sir,

Hope this letter finds you in good health and pleasant mood.

First of all, we wish to put before you few words regarding our College. Ours is an ISO 9001 certified Engineering College located in Pandharpur, the "South Kashi" of India and "Spiritual capital" of Maharashtra. "Siiri Vitthal Education & Research Institute", Pandharpur, the trust established by group of qualified and experienced Technocrats, runs the College. We offer the following four-year degree courses in Engineering viz. Mechanical Engg., Civil Engg., Electronics & Tele communication Engg. Computer Science & Engg. and Information Technology.

As per our T.E. (Mechanical Engg.) syllabus for CAD/CAM & Tool Engineering subject, we want to organize industrial visit to your well reputed organization for getting knowledge about Manufacturing Processes. Our third year Mechanical students nearly about 142 students are willing to visit your estimated organization. So you are requested to allow us with 142 students of T.E. Mechanical to visit your esteemed organization on 02nd & 03rd April 2019.

We will remain grateful to you if give chance for industrial visit.

Thanking you.

Yours faithfully,

P. R. ENGINEERING
P-33, KOLHAPUR
गोकुळ शिरगांव, कोल्हापूर -416234

(Prof. S. R. Gavali)
Head, Mech. Engg. Dept.

HEAD,
Dept. of Mechanical Engg.
C.O.E. Pandharpur.

19/3/19

SHRI VITHAL EDUCATION & RESEARCH INSTITUTE'S
COLLEGE OF ENGINEERING, PANDHARPUR
P.B. No. 54, Gopalpur -Ranjani Road, Gopalpur, Tal - Pandharpur- 413 304,
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ISO 9001-2000 Certified Institute & Accredited by Institute of Engineers, India,
E-mail : coe@sveri.ac.in Website: www.sveri.ac.in

Ref. No.:- COEPR/MECH/18-19/121 Date: -17/03/2019

To,
Production Manager
SAROJ Polymers,
D 60/3, M. I. D. C.
Gokul - Shirgaon.
Kolhapur

Sub: - <u>About Industrial Visit</u>

Dear Sir,

Hope this letter finds you in good health and pleasant mood.

First of all, we wish to put before you few words regarding our College. Ours is an ISO 9001 certified Engineering College located in Pandharpur, the "South Kashi" of India and "Spiritual capital" of Maharashtra. "Shri Vitthal Education & Research Institute", Pandharpur, the trust established by group of qualified and experienced Technocrats, runs the College. We offer the following four-year degree courses in Engineering viz. Mechanical Engg., Civil Engg., Electronics & Tele communication Engg. Computer Science & Engg. and Information Technology.

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We will remain grateful to you if give chance for industrial visit.

Thanking you.

Yours faithfully,

17/3/19
(Prof. S. R. Gavali)
Head, Mech. Engg. Dept.

HEAD,
Dept. of Mechanical Engg.
C.O.E. Pandharpur.

8483093232

SHRI VITHAL EDUCATION & RESEARCH INSTITUTE'S
COLLEGE OF ENGINEERING, PANDHARPUR
P.B. No. 54, Gopalpur -Ranjani Road, Gopalpur, Tal - Pandharpur- 413 304,
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E-mail : coe@sveri.ac.in Website: www.sveri.ac.in

Ref. No.:- COEPR/MECH/18-19/125 Date: -17/03/2019

To,
Production Manager,
Sunil Industries,
F-2,Gokul - Shirgaon M.I.D.C.
Kolhapur

Sub: - About Industrial Visit

Dear Sir,

Hope this letter finds you in good health and pleasant mood.

First of all, we wish to put before you few words regarding our College. Ours is an ISO 9001 certified Engineering College located in Pandharpur, the "South Kashi" of India and "Spiritual capital" of Maharashtra. "Shri Vitthal Education & Research Institute", Pandharpur, the trust established by group of qualified and experienced Technocrats, runs the College. We offer the following four-year degree courses in Engineering viz. Mechanical Engg., Civil Engg., Electronics & Tele communication Engg. Computer Science & Engg. and Information Technology.

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We will remain grateful to you if give chance for industrial visit.

Thanking you.

Yours faithfully,

Visit done
02-04-2019

(Prof. S. R. Gavali)
Head, Mech. Engg. Dept.

HEAD,
Dept. of Mechanical Engg
C.O.E. Pandharpur.

SHRI VITHAL EDUCATION & RESEARCH INSTITUTE'S
COLLEGE OF ENGINEERING, PANDHARPUR
P.B. No. 54, Gopalpur -Ranjani Road, Gopalpur, Tal - Pandharpur- 413 304,
Dist. Solapur (Maharashtra) Ph.(02186)- 282223, 9503103892
(Approved by A.I.C.T.E., New Delhi and affiliated to Solapur University, Solapur)
ISO 9001-2000 Certified Institute & Accredited by Institute of Engineers, India,
E-mail : coe@sveri.ac.in Website: www.sveri.ac.in

Ref. No.:- COEPR/MECH/18-19/126

Date: -17/03/2019

To,
Production Manager,
Mahalaxmi Aluminium,
G-22, M.I.D.C.
Gokul - Shirgaon
Kolhapur

Sub: - About Industrial Visit

Dear Sir,

Hope this letter finds you in good health and pleasant mood.

First of all, we wish to put before you few words regarding our College. Ours is an ISO 9001 certified Engineering College located in Pandharpur, the "South Kashi" of India and "Spiritual capital" of Maharashtra. "Shri Vitthal Education & Research Institute", Pandharpur, the trust established by group of qualified and experienced Technocrats, runs the College. We offer the following four-year degree courses in Engineering viz. Mechanical Engg., Civil Engg., Electronics & Tele communication Engg. Computer Science & Engg. and Information Technology.

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We will remain grateful to you if give chance for industrial visit.

Thanking you.

Yours faithfully,

Batch of 10 studeats only at a time will be allowed due to space limitation.

(Prof. S. R. Gavali)
Head, Mech. Engg. Dept.
HEAD,
Dept. of Mechanical Engg.
C.O.E. Pandharpur.

21/3/19

19/3/19

Mob. 9422418446

SHRI VITHAL EDUCATION & RESEARCH INSTITUTE'S
COLLEGE OF ENGINEERING, PANDHARPUR
P.B. No. 54, Gopalpur -Ranjani Road, Gopalpur, Tal - Pandharpur- 413 304,
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ISO 9001-2000 Certified Institute & Accredited by Institute of Engineers, India,
E-mail : coe@sveri.ac.in Website: www.sveri.ac.in

Ref. No.:- COEPR/MECH/18-19/ Date: -17/03/2019

To,
Mr. S. M.Patil,
Personnel Manager,
Rocket Engg. Corp. Pvt. Ltd,
Shiroli, Kolhapur.

Sub: - About Industrial Visit

Dear Sir,

Hope this letter finds you in good health and pleasant mood.

First of all, we wish to put before you few words regarding our College. Ours is an ISO 9001 certified Engineering College located in Pandharpur, the "South Kashi" of India and "Spiritual capital" of Maharashtra. "Shri Vitthal Education & Research Institute". Pandharpur, the trust established by group of qualified and experienced Technocrats, runs the College. We offer the following four-year degree courses in Engineering viz. Mechanical Engg., Civil Engg., Electronics & Tele communication Engg. Computer Science & Engg. and Information Technology.

As per our T.E. (Mechanical Engg.) syllabus for internal combustion engine subject, we want to organize industrial visit to your well reputed organization for getting knowledge about Manufacturing of Engine Parts. Our third year Mechanical students nearly about 142 students are willing to visit your estimated organization. So you are requested to allow us with 142 students of T.E. Mechanical to visit your esteemed organization on 02nd & 03rd April 2019.

We will remain grateful to you if give chance for industrial visit.

Thanking you.

Yours faithfully,

Rocket Engg. Corpn. P. Ltd. Kolhapur.
Outward Sr. No.
Dated 03/04/2019
Time 10:30
Recd. By 11:20

19/03/19

(Prof. S. R. Gavali)
Head, Mech. Engg. Dept.

HEAD,
Dept. of Mechanical Engg.
C.O.E. Pandharpur.

Rocket Engg. Corpn. P. Ltd. Kolhapur.

Rushikesh Powar.
8380001112

SHRI VITHAL EDUCATION & RESEARCH INSTITUTE'S
COLLEGE OF ENGINEERING, PANDHARPUR
P.B. No. 54, Gopalpur -Ranjani Road, Gopalpur, Tal - Pandharpur- 413 304,
Dist. Solapur (Maharashtra) Ph.(02186)- 282223, 9503103892
(Approved by A.I.C.T.E., New Delhi and affiliated to Solapur University, Solapur)
ISO 9001-2000 Certified Institute & Accredited by Institute of Engineers, India,
E-mail : coe@sveri.ac.in Website: www.sveri.ac.in

Ref. No.:- COEPR/MECH/18-19/122 Date: -17/03/2019

To,
Production Manager
Aviraj Industries,
D 15, M. I. D. C.
Gokul - Shirgaon.
Kolhapur

Sub: - About Industrial Visit

Dear Sir,

Hope this letter finds you in good health and pleasant mood.

First of all, we wish to put before you few words regarding our College. Ours is an ISO 9001 certified Engineering College located in Pandharpur, the "South Kashi" of India and "Spiritual capital" of Maharashtra. "Shri Vitthal Education & Research Institute", Pandharpur, the trust established by group of qualified and experienced Technocrats, runs the College. We offer the following four-year degree courses in Engineering viz. Mechanical Engg., Civil Engg., Electronics & Tele communication Engg. Computer Science & Engg. and Information Technology.

As per our T.E. (Mechanical Engg.) syllabus for CAD/CAM & Tool Engineering subject, we want to organize industrial visit to your well reputed organization for getting knowledge about Manufacturing Processes. Our third year Mechanical students nearly about 142 students are willing to visit your estimated organization. So you are requested to allow us with 142 students of T.E. Mechanical to visit your esteemed organization on 02nd & 03rd April 2019.

We will remain grateful to you if give chance for industrial visit.

Thanking you.

Yours faithfully,

Aviraj Industries Visited the Factory

(Prof. S. R. Gavali)
Head, Mech. Engg. Dept.

HEAD,
Dept. of Mechanical Engg.
C.O.E. Pandharpur.

अविराज इंडस्ट्रीज
D-15, [illegible] सी.,
[illegible] शिरगाव, कोल्हापूर-416234

14/3/19

SVERI's COLLEGE OF ENGINEERING PANDHARPUR
DEPARTMENT OF MECHANICAL ENGINEERING
A.Y. 2018-19 SEM: II
CLASS: T. E. (MECH) DIV: B

Industrial Visit Present Students List

Roll No.	Name of Student	Sign	Roll No.	Name of Student	Sign
TB 01	/ Sarvagod Manali Vikrant		TB 29	Babar Kiran Vasudev	
TB 02	Bhagwat RushikeshManoj		TB 31	Chavan Aniket Balasaheb	
TB 03	Deshpande Mihir Milind		TB 32	Chavan Nikhil Vijay	
TB 04	DevmareAvinash Arjun		TB38	KeskarKrushnadev Arjun	
TB 05	Dune Kiran Mahipati		TB39	KhaladkarVyankatesh Yuvraj	
TB 06	Pore Onkar Gulabrao		TB 41	MhetreGurudev Nagesh	
TB 07	Pansare Kamlesh Rajendra		TB 42	Mote Rama Appa	
TB 08	Patil Pushkar Mahesh		TB 43	Netake Pratap Nagnath	
TB 09	Patil Vikas Dasharath		TB 45	Panchal Nagesh Balaji	
TB 10	SonageRavikiranSiddharam		TB 46	Tate Sudarshan Sushenrao	
TB 11	Shalu Vishal Sudhakar		TB47	Sakhare Rohit Pandurang	
TB 12	Dixit Shubham Ashok		TB48	VastreGanesh Shankar	
TB 13	Gaikwad Pruthvijit Vasudev		TB49	Shinde Sudarshan Balasaheb	
TB 14	Gaikwad Sagar Navnath		TB50	Katale Ganesh Karan	
TB 15	Hake Akshay Arun		TB 53	Deshpande Abhiram	
TB 16	Naiknaware Mayur Baburao		TB 55	DhatSakharamEkanath	
TB 17	Gaikwad Pritam Madhukar		TB 56	Ghodake Swapnil Prakash	
TB 18	PhalakeSuhasShrimant		TB59	Pandit Sachin Rajendra	
TB 19	Ranadive Savata Sadhu		TB60	Patil ShivprasadNamadeo	
TB 20	Sawant Bhushan P.		TB 66	Kulkarni Kedar Mahesh	
TB 21	Kolekar Shubham Nirgun		TB68	Waghmode Onkar Suryakant	
TB 22	Deshmukh RuturajAbasaheb		TB70	Shete Shivam	
TB 24	/ Makar SupriyaChagan				

Prof. C. C. Jadhav
Class- Coordinator

Prof. S. R. Gavali
HOD, Mech. Engg. Dept

SVERI's COLLEGE OF ENGINEERING PANDHARPUR
DEPARTMENT OF MECHANICAL ENGINEERING
A.Y. 2018-19 SEM: II
CLASS: T. E. (MECH) DIV: A

Industrial visit Present student List

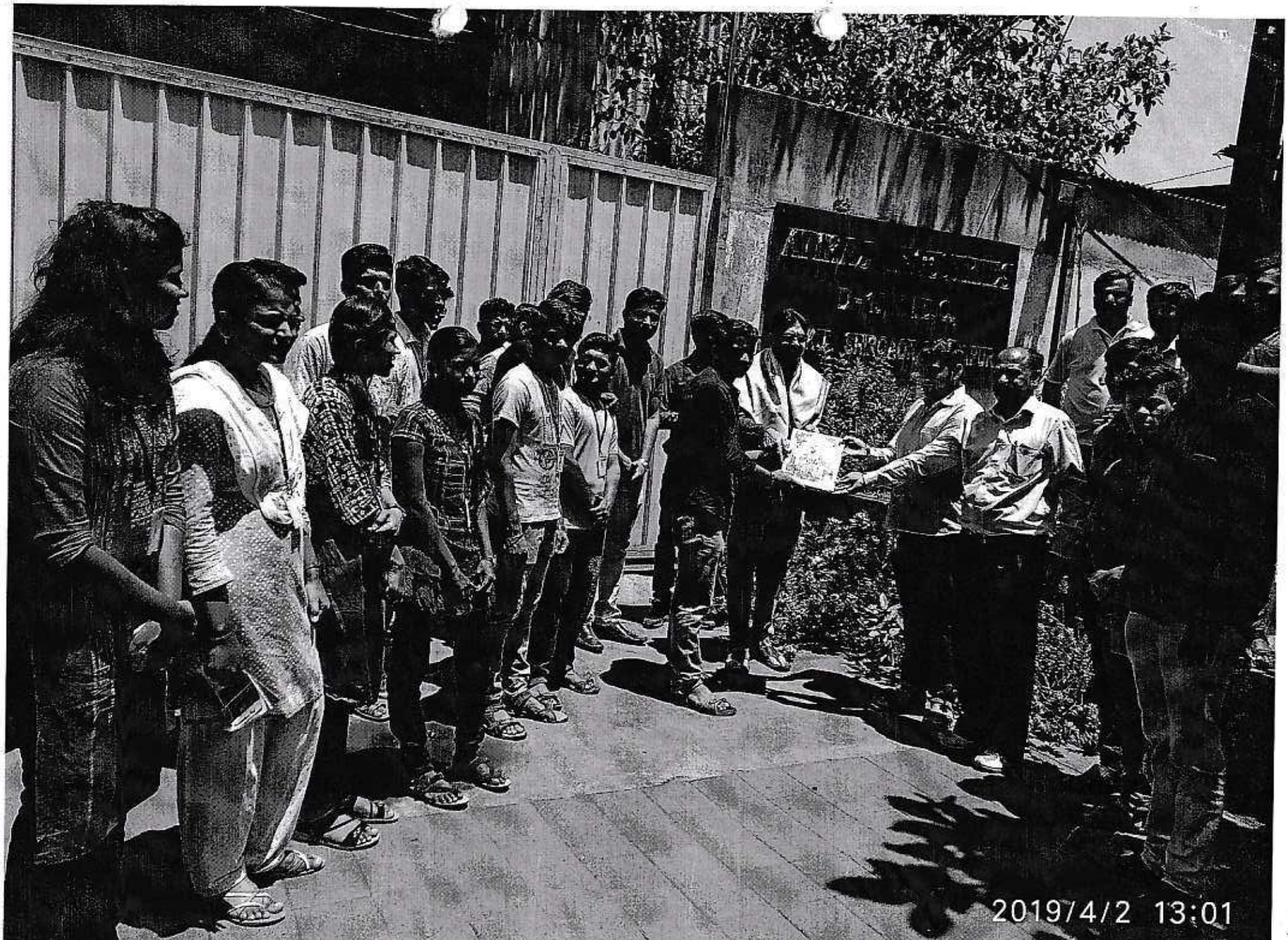
Roll No.	Name of Student	Sign	Roll No.	Name of Student	Sign
TA03	/Kale Pallavi Rajkumar		TA30	Jadhav Rishabh Dnyaneshwar	
TA04	Bhosale Hemant Dilip		TA31	Narule Shivtej Chandrakant	
TA05	Shaikh Amir Makbul		TA32	Patil Onkar Dadaso	
TA06	Deshmukh Shrinath Jayavant		TA33	Rakate Akash Bharat	
TA07	Devkar Samadhan Tanaji		TA34	Chavan Pravin Vikram	
TA08	Waghmare Vishal Balasaheb		TA35	/Kolekar Supriya Ravindra	
TA09	Gaikwad Siddheshwar Subhash		TA37	Bhanvase Amar Maruti	
TA10	Gaikwad Suraj Subhash		TA38	Chavan Aniket Dnyaneshwar	
TA11	Gate Hanumant Dadasaheb		TA39	Chidrewar Onkar Pramod	
TA12	Ghodake Dattatraya Lahu		TA40	Gosavi Vaibhav Digambar	
TA13	Gosavi Sachin Ramchandra		TA41	Ingle Sachin Suresh	
TA14	Ippanpalli Pranav Hiralal		TA42	Jadhav Arohan Anandrao	
TA15	Jadhav Shubham Jayshankar		TA43	Wagh Govind Rajaram	
TA16	Kadam Vishal Janarath		TA45	Vyavahare Yogesh Maruti	
TA17	Kate Pankaj Lalachand		TA46	Warkhedkar Karan Prasanna	
TA18	Kawale Chaitanya Mukund		TA48	Swami Pranav Vivekanand	
TA19	Khadtare Rahul Suresh		TA49	Ghogade vishal	
TA20	Masal Shriram Chandrakant		TA50	Adarsh Chavan	
TA21	Sayyad Sameer Mansub		TA51	Sagar Khade	
TA22	Vhanmane Vikram Dadaso		TA59	Tamboli Sultan Motilal	
TA23	Sid Ajinkya Sarjerao		TA63	Surve Pranay sugriv	
TA24	Tele Nitin Shankar		TA64	Aiwale Prathamesh Babu	
TA25	Shende Suraj Kundalik		TA65	Atkale Shubham Ramchandra	
TA26	Godase Pavan Vilas		TA66	Ghodake Akshay Narayan	
TA27	Ronge Nagesh Sudhakar		TA67	Jadhav Ajit Shankar	
TA28	Wadgave Indrajit Somnath		TA68	Kotyal Shridhar Sidram	
TA29	Chavan Sumit Sanjay				

(Prof. V. R. Chavan)
Class- Coordinator

(Prof. S. R. Gavali)
Head, Mech. Engg. Dept.


SUNIL
INDUSTRIES


P. R. ENGINEERING WORKS
LEVI STRAUSS & CO


2019/4/2 13:01

Industrial Visit Report

- **Name of industries with details address:** Tejas Agro Irrigation system Pvt. Ltd
  A/P Bandishegaon, Pandharpur
  Dist-Solapur 413304

- **No. of student visited:**160

- **Date of visit:** 15/4/19
-
- **Brief industry visit report:** Students able to understand injection and extrusion moulding , different types of Plastic material and application of plastic.

- **No. of faculty visited & name of faculty:-** 06

1. **Dr.** S.S.Wagikar
2. **Prof.** D.T. Kashid
3. **Prof.** A. K. Parkhe
4. **Prof.** /V. G. Kalebag
5. **Prof.** /P. K. Patil
6. **Prof.** A.A.Shinde

SHRI VITHAL EDUCATION & RESEARCH INSTITUTE's
COLLEGE OF ENGINEERING, PANDHARPUR
P.B. No. 54, Gopalpur -Ranjani Road, Gopalpur, Tal.- Pandharpur- 413 304,Dist.- Solapur (Maharashtra)
Tel.: 02186-216063, 9503103757, E-mail : coe@sveri.ac.in, Website: www.sveri.ac.in
(Approved by A.I.C.T.E., New Delhi and affiliated to Solapur University, Solapur)
NBA Accredited all Eligible UG Programmes and , **NAAC**, Accredited Institute,
Accredited by the Institute of Engineers (India), Kolkata and TCS, Pune ISO 9001-2015 Certified Institute

Ref: - COEPR /MECH/2018-19 /129 **Date: - 16/03/2019**

To,
The Director,
Tejas Agro Irrigation Systems Pvt Ltd.,
Nishant Park, Gat No: 97/1/1 B, Bhandishegaon,
Tal- Pandharpur, Dist, Solapur, Maharashtra 413304

Subject: - Seeking permission to visit your esteemed Industry

Respected Sir/ Madam,

Hope this letter finds you in good health and pleasant mood.

It gives me immense pleasure to put before you few words about our institute. Shri Vithal Education and Research Institute (SVERI), a Charitable Trust formed by devoted technocrats, established its first project, College of Engineering, Pandharpur in 1998 with approval from AICTE, New Delhi and Government of Maharashtra. All four UG courses of our college are accredited by NBA. The Engineering College is accredited by NAAC, TCS, The Institution of Engineers (India), Kolkata and is also ISO 9001:2015 Certified. To continue with the developmental process, the trust has started College of Pharmacy and College of Pharmacy (Poly.) from academic year 2006-07 and also College of Engineering (Poly.) from the academic year 2008-09. The college administration is striving hard to provide the best facilities to the students along with the quality education. Every year our students are grabbing 10-12 University ranks. Campus placement rate of our college is also very high.

As per the curriculum laid down by Solapur University, Solapur for B.E. (Mechanical) (Part-II), the subject of 'Plastic Engineering include industrial visit. In the processing of same, our final year students are interested to visit the your esteemed Industry, which is under your supervision. Kindly grant permission **for 6 Faculty members** along with the **160 students** to visit your place on **23/03/2019.**

We will remain grateful to you if give chance for industrial visit.

Thanking you,
Yours faithfully,

16/03/19

(Prof. S. R. Gavali)
Head, Mech. Engineering. Dept.
SVERI's COE, Pandharpur

Tejas Agro Irrigation Systems Pvt.Ltd.
General Manager
15/04/2019.

Tejas Agro Irrigation Systems Pvt. Ltd. Pandharpur

SVERI's COLLEGE OF ENGINEERING PANDHARPUR

DEPARTMENT OF MECHANICAL ENGINEERING

A.Y. 2018-19 SEM: II

Attendance Sheet

Industrial Visit at "TEJAS Agro Irrigation System Pvt. Ltd. Bandhishegaon"

Date: 15/04/2019.

CLASS: B. E. (MECH) DIV: A

RollNo.	Name of Student	Sign
BA01	/Gaikwad Priyadarshani	P
BA02	/Gund Komal Shahaji	P
BA03	/Kale Snehal Soudagar	P
BA04	/Kazi Kulsum Habbibulla	P
BA05	/Pangavkar Prajakta Vardhaman	A
BA06	/Raut Mayuri Ankush	P
BA07	/Fund Bhairavi Sunildatta	P
BA08	Atkale Sagar Audumbar	P
BA09	Badave Guruprasad Vivek	P
BA10	Bagewadi Sagar Mallikarjun	P
BA11	Bandgar Rupesh Balasaheb	P
BA12	Bankar Rohit Dattatray	P
BA13	Barkul Yogesh Ramesh	P
BA14	Bawale Aakash Lakshmikant	P
BA15	Bhosale Ravindra Babaso	P
BA16	Bhosale Mangesh Ramesh	P
BA17	Bidkar Onkar Hemant	P
BA18	Bile Rajkumar Prakash	P
BA19	Buradkar Yogesh Balaji	P
BA20	Burande Somesh Haribhau	P
BA21	Choudhari Deepak Baliram	P
BA22	Deshmukh Ashutosh Bhagwat	A
BA23	Dhumal Vishal Maruti	P
BA24	Gaikwad Kiran Gorakh	A
BA25	Gaikwad Nikhil Navanath	P
BA26	Gaikwad Darshan Ramhari	P
BA27	Gaikwad Rohan Dipakraj	P
BA28	Jadhao Akshay Ananda	P
BA29	Ghule Kiran Shrimant	P
BA30	Godase Ajay Laxman	P
BA31	Jadhav Sushant Yashwant	A
BA32	Jagtap Akash Prakash	P
BA33	Jaware Pranav Sunil	P
BA34	Kachare Pravin Ramchandra	P
BA35	Kale Akshay Vitthal	P
BA36	Kanade Shivam Ramling	P
BA37	Kulkarni Hrushikesh Dhananjay	P
BA38	Lotake Aditya Atul	P
BA39	Mali Shriram Nagnath	P
BA40	Mali Vishal Hanumant	P
BA41	Mete Akash Rajendra	A
BA42	Miskin Sunil Sudam	P
BA43	Motkule Shailesh Arun	P

Roll No.	Name of Student	Sign
BA44	Mule Ashok Bhimrao	P
BA45	Mule Atul Dattatraya	P
BA46	Paricharak Hrushikesh Nitin	P
BA47	Jokare Mayur Manik	A
BA48	Kale Dipak Popat	A
BA49	Kalel Vikas Arvind	P
BA50	Kamble Rahul Chandrakant	P
BA51	Kokate Vijay Bharat	P
BA52	Koli Akash Gopal	P
BA53	Koshti Vaibhav Rajkumar	P
BA54	Dange Shubham Tanaji	A
BA55	Kshirsagar Vinod Shantinath	A
BA56	Lokhande Somanath Gurudeo	A
BA57	**Bhoi Sagar Shankar**	P
BA58	Maradkar Sudarshan Suryakant	P
BA59	Maske Dadasaheb Uttam	P
BA60	Mhetre Ashutosh Shantanu	A
BA61	Nakate Ghansham Gulab	P
BA62	Patil Ram Bhausaheb	P
BA63	Randive Prafullkumar	A
BA64	Kore Akshaykumar Gururaj	P
BA65	Shahane Shubham Vikas	P
BA66	Shaikh Touhid Rashid	P
BA67	Shinde Hrushikesh Murlidhar	A
BA68	Swami Sonal Rajendra	P
BA69	Telang Dnyanraj Suresh	P
BA70	**Bhosale Shubham Somnath**	P
BA71	**Bhosale Vivek Manik**	P
BA72	Waghamare Sachin Gopal	A
BA73	Waghmare Pratik Shirishkumar	A
BA74	Warad Sidharam Shrimanth	P
BA75	Bandgar Samadhan Uttam	P
BA76	Aradhye Shripad D.	P
BA77	Moholkar Kshitij D.	P
BA78	Rajgole Amar Anil	P
BA79	Rasal Ashish Bhaskar	P
BA80	Shinde Makrand Anil	P

Batches:

BA-1: BA01 to BA20 = 20

BA-2: BA21 to BA40 = 20

BA-3: BA41 to BA60 = 20

BA-4: BA61 to BA80 = 20

(Prof. D. T. Kashid)
Class Co-ordinator

(Prof. S. R. Gavali)
HOD

SVERI's COLLEGE OF ENGINEERING PANDHARPUR

DEPARTMENT OF MECHANICAL ENGINEERING

A.Y. 2018-19 SEM: II

Attendance Sheet

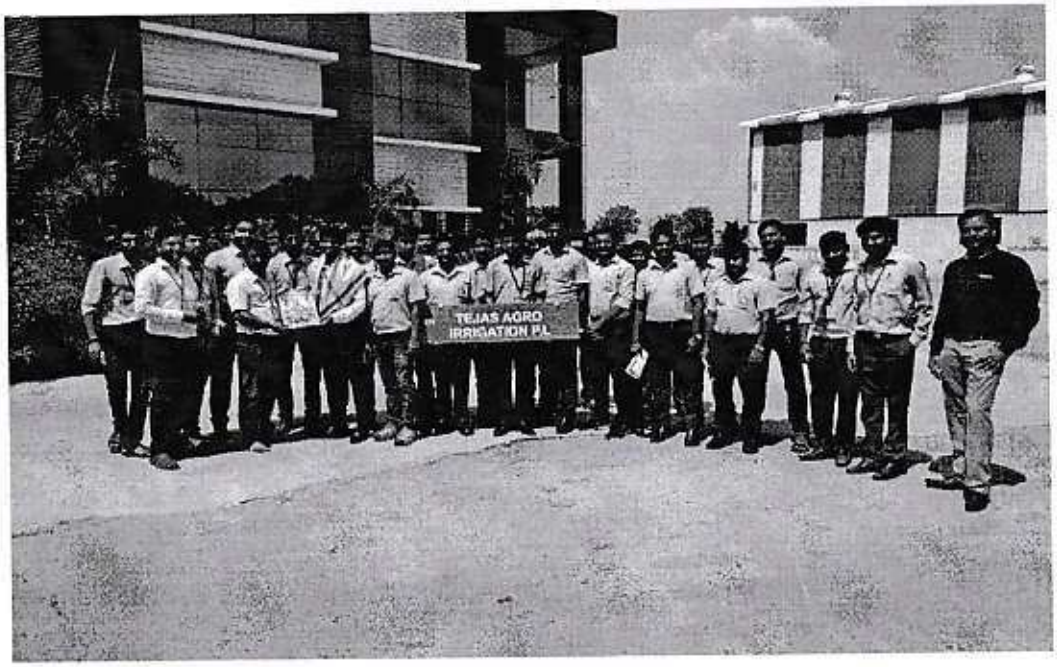
Industrial Visit at "TEJAS Agro Irrigation System Pvt. Ltd. Bandhishegaon"

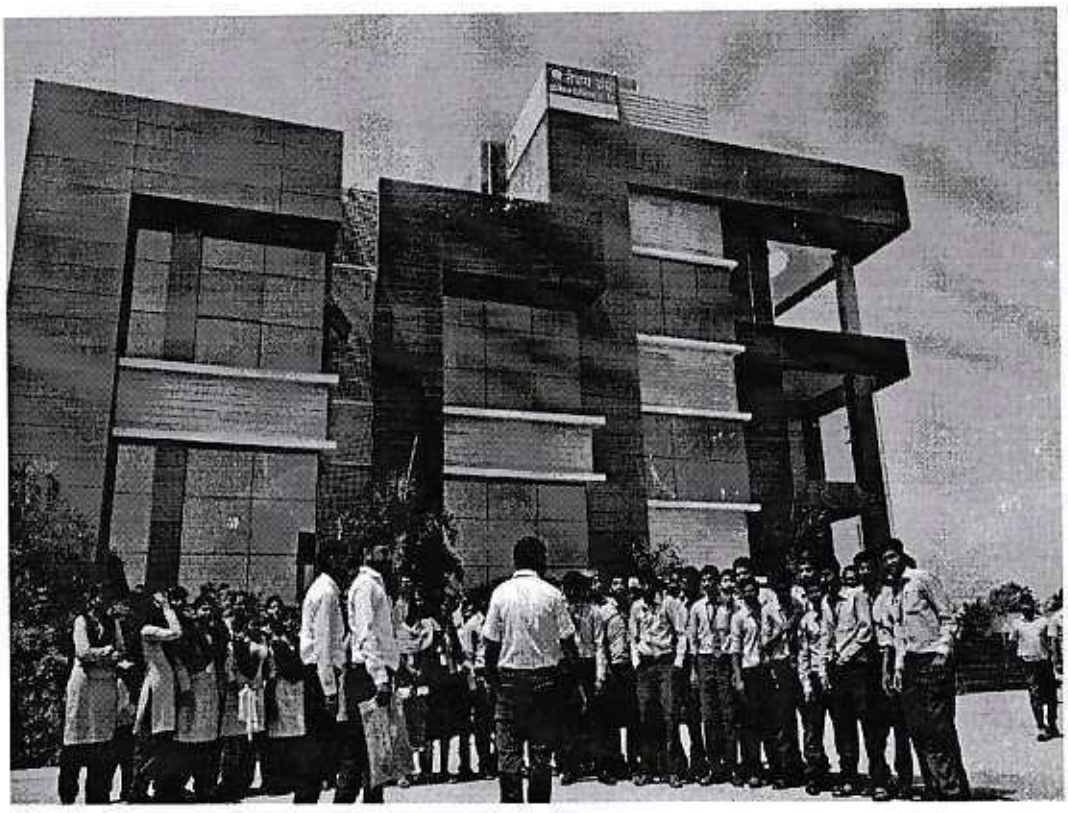
CLASS: B. E. (MECH) DIV: B Date: 15/04/2019.

Roll No.	Name of Student	Sign	Roll	Name of Student	Sign
BB01	/Bhusare Madhuri Laxman	P	BB44	Salunkhe Yashraj Appa	P
BB02	/Fand Rajnandini Namdev	P	BB45	Sayyad Faruk Husen	A
BB03	/Jadkar Sonali Somnath	P	BB46	Shendge Krishna Vitthalrao	P
BB04	/Olekar Monika Ram	P	BB47	Shirke Ganesh Laxman	P
BB05	/Ramteke Sachi Kishor	P	BB48	Surwase Balaji Zumbar	P
BB06	/Ghodake Vaishnavi	P	BB49	Thalkari Vaibhav Kalyanrao	P
BB07	/Kashid Ankita Appasaheb	P	BB50	Tupe Shashikant Tanaji	P
BB08	/Patil Pallavi Mohan	P	BB51	Vedpathak Abhishek Hari	P
BB09	Abhangrao Chaitanya Rajendra	P	BB52	Waghamare Rushikesh Raosaheb	P
BB10	Bangale Kamesh Nana	P	BB53	Yadav Abhishek Shivaji	P
BB11	Bhakte Umesh Balasaheb	P	BB54	Bhosale Chandrakant Vishnu	P
BB12	Bhosale Pratap D.	A	BB55	Chavan Rohit Bharat	P
BB13	Bhosale Sachin Audumbar	P	BB56	Joshi Laxmikant Dattatray	P
BB14	Chaugule Balasaheb Dilip	P	BB57	Kadam Jaykumar Jagannath	P
BB15	Jadhav Sourabh Madhukar	P	BB58	Khandekar Akshay Mahadev	P
BB16	Kadam Nitin Kisan	P	BB59	Kokil Raviraj Bharat	P
BB17	Kadam Shubham Suresh	P	BB60	Mane Shubham Sanjay	P
BB18	Kale Devanand Dadarav	P	BB61	Mosalagi Shrikant Amasiddha	P
BB19	Karatkar Onkar Vishnu	P	BB62	Mote Gopal Ravsaheb	P
BB20	Khajepawar Sumit Sunil	P	BB63	Patange Shriyash Dattatraya	P
BB21	Khandekar Ajit Machhindra	A	BB64	Vastre Nagesh Shankar	P
BB22	Khirade Rohit Dattatraya	A	BB65	[illegible]	P
BB23	Kolekar Vishal Mahadev	P	BB66	**Mahajan Virendra Vilas**	P
BB24	Kothawale Rajdeep Rameshwar	P	BB67	Kumbhare Sachin V.	P
BB25	Mane Sudhakar Vasant	P	BB68	**Thengil Prasad Vijaykumar**	P
BB26	Merwade Shivprasad Ganpatsa	P	BB69	Bhosale Vishal Dilip	P
BB27	Meshram Rajratna	P	BB70	Bhosale Vishal Shahaji	P
BB28	Mhamane Prathamesh Guruling	P	BB71	**Vastre Rushikesh Haribhau**	P
BB29	More Rajesh Dagduba	P	BB72	Burud Makarand Kyataya	P
BB30	Mote Chetan Sukhadev	P	BB73	Pawar Akash Vilas	P
BB31	Mulani Shakir Mahamdh	P	BB74	Chitrav Dashrath Popat	P
BB32	Mulani Sohel Mehbub	P	BB75	Dongare Vaibhav Vishnu	P
BB33	Patale Avinash Bharat	P	BB76	Dubewar Ganesh Vinodrao	P
BB34	Patil Rahul Arun	P	BB77	Dudhane Onkar Pravin	P
BB35	Patil Pankaj Vitthal	P	BB78	Gavade Vishal Rama	A
BB36	Pawar Digambar Sukhadev	P	BB79	Hadapad Rahul Ambanna	P
BB37	Pawar Prashant Nitin	P	BB80	Hiremath Rahul Dhananjay	P
BB38	Pawar Rajendra Darasing	P	BB81	/Deshmane Priyadarshni	P
BB39	Pawar Vaibhav Dattakumar	P		**Batches:**	
BB40	Phanse Viraj Avinash	P		BB-1: BB01 to BB20, 81 = 21	
BB41	Pise Jagadish Milind	P		BB-2: BB21 to BB40 = 20	
BB42	Potdar Ashutosh Mahadev	P		BB-3: BB41 to BB60 = 20	
BB43	Reshame Akash Vishwanath	P		BB-4: BB61 to BB80 = 20	

(Prof. A. K. Parkhe)
Class Co-ordinator

(Prof. S. R. Gavali)
HOD


TEJAS AGRO
IRRIGATION P.L



Industrial visit report

08-10-2018

The B.E. Mechanical students (165) along with 6 teaching staff visited the below mentioned company as a part of their Automobile Engineering subject term work requirement.

Address of company visited:

S.T. Workshop

Pandharpur

Dist -solapur

The **Maharashtra State Road Transport Corporation** abbreviated as (**MSRTC**, or simply ST), is the state run bus service of Maharashtra, India with 16,500 buses which ferry 7 million passengers daily on 18,700 routes. It serves routes to towns and cities within Maharashtra and adjoining states. Apart from locations within the state of Maharashtra, the MSRTC service also covers destinations in neighboring states. It also offers a facility for online booking of tickets for all 18,700 routes **the** area covered by the scheme is entire area of the State of Maharashtra. The undertaking is operating stage and contract carriage services in the entire area of the state of Maharashtra.The First bus was flagged off from the Pune to Ahmednagar in 1948.Tracing the history that saw this development, we go back to the 1920s, when various entrepreneurs started their operations in the public transport scenario. And the first blue and silver-topped bus took off from Pune to Ahmednagar. There were 10 makes of buses in use then - Chevrolet, Fort, Bedford, Seddon, Studebaker, Morris Commercial, Albion, Leyland, and Fiat. In the early 1950s, two luxury coaches were also introduced with Morris Commercial Chassis. These were called Neelkamal and Giriyarohini and used to ply on the Pune-Mahableshwar route. They had two by two seats, curtains, interior decoration, a clock and green tinted glasses.

The ST started with 30 Bedford buses having wooden bodies, coir seats. The fare charged on the Pune-Nagar route was nine paisa. With time, the S.T. buses underwent many changes, including increasing the seating capacity from the original 30 to 45 to the present 54, introduction of all-steel bodies to replace wooden bodies to make them stronger and cushion seats for more comfort. Later, in 1960, aluminium bodies were introduced as steel corrodes, especially in coastal areas, and the colour code also changed to red from the blue and silver. A partial night service was

launched in 1956; the overnight service about a decade later and the semi-luxury class came into being during the Asian Games in 1982.

The S.T. buses are also used for transportation of the postal mail, distribution of medicines, newspapers and even Tiffin's sent by people from rural areas to their relatives in cities. Transporting goods of the farmers to cities, is also one of their jobs. MSRTC Bus service connects more than 70 lakh passengers, who travel every day through 16000 buses and 17000 routes. MSRTC has a fleet of approximately 16000 buses. Ordinary passenger buses, **semi-luxury buses, Volvo- B7R** and **Volvo B9R buses** are a part of this huge fleet. MSRTC Volvo buses run between a large number of cities in Maharashtra. The Ordinary, Parivartan, Asiad etc. builtinhouseworkshopsat Dapodi, Aurangabad,and Nagpur on AshokLeyland and TATA chassis. These workshops produce as high as 2,000 buses per annum on an average. The corporation has 9 tyre retreading plants along with 32 divisional workshops.

All maintenance activities related to scheduled maintenance, breakdown maintenance etc. of the buses were explained by the guide. all automobile systems related information was also explained by him. Students were able to see practically all the systems which they have studies theoretically in the subject, like brake system, suspension system, axles propeller shaft, differential clutch components, air suspension components, steering system gear box components etc. in all the visit to the S. T. Depot, Pandharpur was very useful for the students.

Subject Teacher

S. V. Jadhav

Noted

SHRI VITHAL EDUCATION & RESEARCH INSTITUTE's
COLLEGE OF ENGINEERING, PANDHARPUR
P.B. No. 54, Gopalpur -Ranjani Road, Gopalpur, Tal.- Pandharpur- 413 304,Dist.- Solapur (Maharashtra)
Tel.: 02186-216063, 9503103757, E-mail : coe@sveri.ac.in, Website: www.sveri.ac.in
(Approved by A.I.C.T.E., New Delhi and affiliated to Solapur University, Solapur)
NBA Accredited all Eligible UG Programmes and , **NAAC**, Accredited Institute,
Accredited by the Institute of Engineers (India), Kolkata and TCS, Pune ISO 9001-2015 Certified Institute

Ref No: COEPR/2018-19/ 78

Date: 06/10/2018

To,
Depot Manager (Service)
S. T. Depot,
Pandharpur

Sub: - About Industrial Visit

Dear Sir,

Hope this letter finds you in good health and pleasant mood.

First of all, we wish to put before you few words regarding our College. Ours is an ISO 9001-2015 certified Engineering College located in Pandharpur, the "South Kashi" of India and "Spiritual capital" of Maharashtra. "Shri Vitthal Education & Research Institute", Pandharpur, the trust established by group of qualified and experienced Technocrats, runs the College. We offer the four-year B.Tech. degree courses in Mechanical, Civil , Electrical, Electronics & Tele communication, Computer Science Engineering.

As a part of our B.E. (Mechanical Engg.) syllabus for Automobile Engineering subject, Our final year Mechanical Engineering students (162 Nos.) want to organize industrial visit to your esteemed organization for getting knowledge about automobile maintenance and repair. So you are requested to grant the permission for the same, on your convenient day, preferably on 08/10/2017.

Thanking you in anticipation!!!

Yours faithfully,

(Prof. S. R. Gavali)
Head, Mech. Engineering. Dept

Received
6.10.2018

परवानगी देणे.

SHRI VITHAL EDUCATION & RESEARCH INSTITUTE's
COLLEGE OF ENGINEERING, PANDHARPUR
P.B. No. 54, Gopalpur -Ranjani Road, Gopalpur, Tal.- Pandharpur- 413 304,Dist.- Solapur (Maharashtra)
Tel.: 02186-216063, 9503103757, E-mail : coe@sveri.ac.in, Website: www.sveri.ac.in
(Approved by A.I.C.T.E., New Delhi and affiliated to Solapur University, Solapur)
NBA Accredited all Eligible UG Programmes and , NAAC, Accredited Institute,
Accredited by the Institute of Engineers (India), Kolkata and TCS, Pune ISO 9001-2015 Certified Institute

Ref No: COEPR/2018-19/ 79 (Mech)

Date: 06/10/2018

To,
The Director
Baliraja Cold Storage,
Pandharpur, 413304
Maharashtra, India.

Sub: - About Industrial Visit

Dear Sir,

Hope this letter finds you in good health and pleasant mood.

First of all, we wish to put before you few words regarding our College. Ours is an ISO 9001-2015 certified Engineering College located in Pandharpur, the "South Kashi" of India and "Spiritual capital" of Maharashtra. "Shri Vitthal Education & Research Institute", Pandharpur, the trust established by group of qualified and experienced Technocrats, runs the College. We offer the four-year B.Tech. degree courses in Mechanical, Civil , Electrical, Electronics & Tele communication, Computer Science Engineering.

As per the Final Year Mechanical Engineering syllabus for the subject, Refrigeration & Air Conditioning, we need to organize an Industrial Visit to one of cold storage plant. Our students are interested to visit the Baliraja Cold Storage Plant, which is under your supervision. Kindly grant permission for 8 Faculty members along with the 162 students to visit your place on, preferably on 08/10/2017.

Thanking you in anticipation!!!

Yours faithfully,

(Prof. S. R. Gavali)
Head, Mech. Engineering. Dept

बळीराजा कोल्ड स्टोअरेज प्रा. लि
मॅनेजर

Date: 10/10/2018

RAC Industrial Visit Report

The B.E. Mechanical students (165) along with 6 teaching staff visited on 8th October 2018 to the below mentioned company as a part of their Refrigeration & Air conditioning subject term work requirement.

Address of company visited:

Baliraja Cold Storage

Sangola Road, Pandharpur

Dist –Solapur, 413304

Baliraja Cold Storage Private Limited is a Private incorporated on 19 June 2002. It is classified as Non-govt company and is registered at Registrar of Companies, Pune. Our students got exposure related to Vapour Compression Refrigeration System. The staff member from the Baliraja Cold Storage has nicely explained about the various types of compressors & compressor used in the plant, also he has explained related to the various types of condenser, expansion valve & evaporator & type of condenser, expansion valve & evaporator used in the plant.

All the students got satisfied due to the satisfactory exposure related to cold storage plant.

Mr. S. M. Kale
(Subject Teacher)

Mr. S. S. Jadhav
(Subject Teacher)

Noted

SVERI's COLLEGE OF ENGINEERING PANDHARPUR
DEPARTMENT OF MECHANICAL ENGINEERING
A.Y. 2018-19 SEM: I

Industrial Visit Attendance

CLASS: B. E. (MECH) DIV: A **Date: 08/10/2018**

RollNo.	Name of Student	Sign	Roll No.	Name of Student	Sign
BA01	/Gaikwad Priyadarshani		BA39	Mali Shriram Nagnath	
BA02	/Gund Komal Shahaji		BA40	Mali Vishal Hanumant	
BA03	/Kale Snehal Soudagar		BA41	Mete Akash Rajendra	
BA04	/Kazi Kulsum Habbibulla		BA42	Miskin Sunil Sudam	
BA05	/Pangavkar Prajakta Vardhaman		BA43	Motkule Shailesh Arun	
BA06	/Raut Mayuri Ankush		BA44	Mule Ashok Bhimrao	
BA07	/Fund Bhairavi Sunildatta		BA45	Mule Atul Dattatraya	
BA08	Atkale Sagar Audumbar		BA46	Paricharak Hrushikesh Nitin	
BA09	Badave Guruprasad Vivek				
BA10	Bagewadi Sagar Mallikarjun				
BA11	Bandgar Rupesh Balasaheb				
BA12	Bankar Rohit Dattatray				
BA13	Barkul Yogesh Ramesh				
BA14	Bawale Aakash Lakshmikant				
BA15	Bhosale Ravindra Babaso				
BA16	Bhosale Mangesh Ramesh				
BA17	Bidkar Onkar Hemant				
BA18	Bile Rajkumar Prakash				
BA19	Buradkar Yogesh Balaji				
BA20	Burande Somesh Haribhau				
BA21	Choudhari Deepak Baliram				
BA22	Deshmukh Ashutosh Bhagwat				
BA23	Dhumal Vishal Maruti				
BA24	Gaikwad Kiran Gorakh				
BA25	Gaikwad Nikhil Navanath				
BA26	Gaikwad Darshan Ramhari				
BA27	Gaikwad Rohan Dipakraj				
BA29	Ghule Kiran Shrimant				
BA30	Godase Ajay Laxman				
BA31	Jadhav Sushant Yashwant				
BA32	Jagtap Akash Prakash				
BA33	Jaware Pranav Sunil				
BA34	Kachare Pravin Ramchandra				
BA35	Kale Akshay Vitthal				
BA36	Kanade Shivam Ramling				
BA37	Kulkarni Hrushikesh Dhananjay				
BA38	Lotake Aditya Atul				

(Mr. A. A. Mote)
Class Coordinator

(Prof. S. R. Gavali)
Head, Mech. Engg. Dept.

SVERI's COLLEGE OF ENGINEERING PANDHARPUR
DEPARTMENT OF MECHANICAL ENGINEERING
A.Y. 2018-19 SEM: I

Industrial Visit Attendance

CLASS: B. E. (MECH) DIV: B **Date: 08/10/2018**

Roll	Name of Student	Sign	Roll	Name of Student	Sign
BB 01	/Bhusare Madhuri Laxman		BB 38	Nakate Ghansham Gulab	
BB 02	/Fand Rajnandini Namdev		BB 39	Patil Ram Bhausaheb	
BB 03	/Jadkar Sonali Somnath		BB 40	Randive Prafullkumar Chandrakant	
BB 04	/Olekar Monika Ram		BB 41	Akshaykumar Gururaj Kore	
BB 05	/Ramteke Sachi Kishor		BB 42	Shahane Shubham Vikas	
BB 06	/Deshmane Priyadarshani Vijayanand		BB 43	Shaikh Touhid Rashid	
BB 07	Bansode Karan Kumar		BB 44	Shinde Hrushikesh Murlidhar	
BB 08	Bhoi Sagar Shankar		BB 45	Swami Sonal Rajendra	
BB 09	Kumbhare Sachin V.		BB 46	Telang Dnyanraj Suresh	
BB 10	Bhosale Shubham Somnath		BB 47	Thengil Prasad Vijaykumar	
BB 11	Bhosale Vishal Dilip		BB 48	Vastre Rushikesh Haribhau	
BB 12	Bhosale Vishal Shahaji		BB 49	Waghamare Sachin Gopal	
BB 13	Bhosale Vivek Manik		BB 50	Waghmare Pratik Shirishkumar	
BB 14	Burud Makarand Kyataya		BB 51	Warad Sidharam Shrimanth	
BB 15	Pawar Akash Vilas		BB 52	Bandagar Samadhan Uttam	
BB 16	Chitrav Dashrath Popat		BB 53	Aradhey Shripad Dattatray	
BB 17	Dongare Vaibhav Vishnu		BB 54	Moholkar Kshitij Dhananjay	
BB 18	Dubewar Ganesh Vinodrao		BB 55	Rajgole Amar Anil	
BB 19	Dudhane Onkar Pravin		BB 56	Rasal Ashish Bhaskar	
BB 20	Gavade Vishal Rama		BB 57	Shinde Makarand Anil	
BB 21	Hadapad Rahul Ambanna				
BB 22	Hirematn Rahul Dhananjay				
BB 23	Jadhao Akshay Ananda				
BB 24	Jokare Mayur Manik				
BB 25	Kale Dipak Popat				
BB 26	Kalel Vikas Arvind				
BB 27	Kamble Rahul Chandrakant				
BB 28	Kokate Vijay Bharat				
BB 29	Koli Akash Gopal				
BB 30	Koshti Vaibhav Rajkumar				
BB 31	Shubham Tanaji Dange				
BB 32	Kshirsagar Vinod Shantinath				
BB 33	Lokhande Somanath Gurudeo			**Batches:**	
BB 34	Mahajan Virendra Vilas			BB1: Roll No. BB 01 to BB 19	
BB 35	Maradkar Sudarshan Suryakant			BB2: Roll No. BB 20 to BB 38	
BB36	Maske Dadasaheb Uttam			BB3: Roll No. BB 39 onwards	
BB 37	Mhetre Ashutosh Shantanu				

(Prof. S. M. Khomane)
Class Coordinator

(Prof. S. R. Gavali)
Head, Mech. Engg. Dept.

SVERI's COLLEGE OF ENGINEERING PANDHARPUR
DEPARTMENT OF MECHANICAL ENGINEERING
A.Y. 2018-19 SEM: I

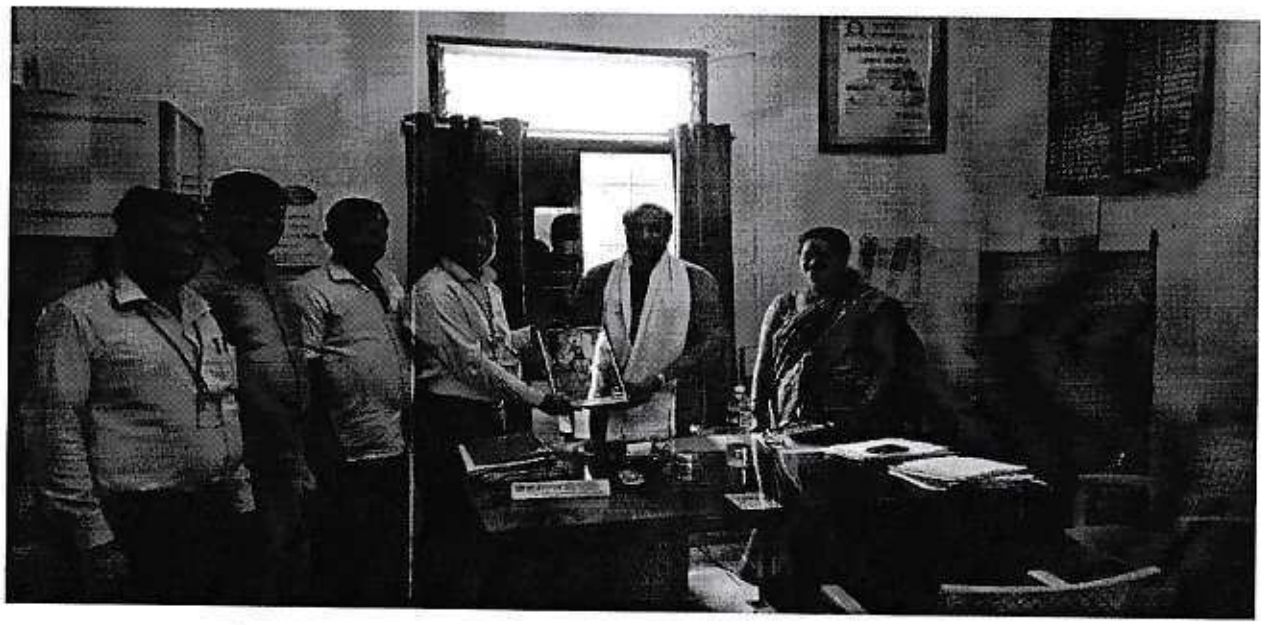
Industrial Visit Attendance

CLASS: B. E. (MECH) DIV: C **8/10/2018**

Roll No.	Name of Student	Sign	Roll No.	Name of Student	Sign
BC01	Abhangrao Chaitanya Rajendra		BC34	Potdar Ashutosh Mahadev	
BC02	Bangale Kamesh Nana		BC35	Reshame Akash Vishwanath	
BC03	Bhakte Umesh Balasaheb		BC36	Salunkhe Yashraj Appa	
BC04	Bhosale Pratap D.		BC37	Sayyad Faruk Husen	
BC05	Bhosale Sachin Audumbar		BC38	Shendge Krishna Vitthalrao	
BC06	Chaugule Balasaheb Dilip		BC39	Shirke Ganesh Laxman	
BC07	Jadhav Sourabh Madhukar		BC40	Surwase Balaji Zumbar	
BC08	Kadam Nitin Kisan		BC41	Thalkari Vaibhav Kalyanrao	
BC09	Kadam Shubham Suresh		BC42	Tupe Shashikant Tanaji	
BC10	Kale Devanand Dadarav		BC43	Vedpathak Abhishek Hari	
BC11	Karatkar Onkar Vishnu		BC44	Vastre Nagesh Shankar	
BC12	Khajepawar Sumit Sunil		BC45	Yadav Abhishek Shivaji	
BC13	Khandekar Ajit Machhindra		BC46	/Ghodake Vaishnavi Chandrakant	
BC14	Kharade Ketan Dattatraya		BC47	/Kashid Ankita Appasaheb	
BC15	Kolekar Vishal Mahadev		BC48	/Patil Pallavi Mohan	
BC16	Kothawale Rajdeep Rameshwar		BC49	Bhosale Chandrakant Vishnu	
BC17	Mane Sudhakar Vasant		BC50	Chavan Rohit Bharat	
BC18	Merwade Shivprasad Ganpatsa		BC51	Joshi Laxmikant Dattatray	
BC19	Meshram Rajratna AB		BC52	Kadam Jaykumar Jagannath	
BC20	Mhamane Prathamesh Guruling		BC53	Khandekar Akshay Mahadev	
BC21	More Rajesh Dagduba		BC54	Kokil Raviraj Bharat	
BC22	Mote Chetan Sukhadev		BC55	Mane Shubham Sanjay	
BC23	Mulani Shakir Mahamdh		BC56	Mosalagi Shrikant Amasiddha	
BC24	Mulani Sohel Mehbub		BC57	Mote Gopal Ravsaheb	
BC25	Patale Avinash Bharat		BC58	Patange Shriyash Dattatraya	
BC26	Patil Rahul Arun		BC59	Waghmare Rushikesh	
BC27	Patil Pankaj Vitthal				
BC28	Pawar Digambar Sukhadev				
BC29	Pawar Prashant Nitin				
BC30	Pawar Rajendra Darasing				
BC31	Pawar Vaibhav Dattakumar				
BC32	Phanse Viraj Avinash				
BC33	Pise Jagadish Milind				

(Mr. S. S. Gaikwad)
Class Coordinator

(Prof. S. R. Gavali)
Head, Mech. Engg. Dept.





Shri Vithal Education & Research Institute's
COLLEGE OF ENGINEERING, PANDHARPUR
P.B.No.54, Gopalpur - Ranjani Road, Gopalpur, Pandharpur - 413304, District: Solapur (Maharashtra)
Tel.: (02186) 216063, 9503103757, Toll Free No.: 1800-3000-4131 e-mail.: coe@sveri.ac.in
Website.: www.sveri.ac.in (Approved by A.I.C.T.E., New Delhi and Affiliated to Solapur University, Solapur)
NBA Accredited all eligible UG Programmes, NAAC Accreditated Institute,ISO 9001:2015 Certified Institute.
Accredited by The Institution of Engineers (India), Kolkata and TCS, Pune.

Ref.:- Date:-

1.3.3 Number of the student studied course on experimental learning through Project Work / Internship

Programme Name: Computer Science & Engineering Program Code: 1-1408968327			
Year of offering: 2018-19			
Sr. No.	**Name of the Course that include experiential learning through project work/field work/internship**	**Course code**	**Number of the student studied course on experiential learning through project work/field work/internship**
1.	Project Phase-I	CS417	148
2.	Vocational Training	CS418	
3.	Project Phase-II	CS426	
4.	Mini Project	CS327	147

PRINCIPAL,
College of Engineering
PANDHARPUR

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SVERI's
College of Engineering, Pandharpur

Department of Computer Science & Engineering

Industrial Training Record

A.Y.: 2018-19

SVERI's College of Engineering, Pandharpur

Department of Computer Science & Engineering

List of Students Those Who have Completed Vocational Training

Academic Year: 2018-19

Sr. No.	Roll No.	Name of Student	Company Name	Industrial Training Topic	Start Date	End Date
1	A1	/Akhade Manisha Babasaheb	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
2	A2	/Awatade Sayali Dattatray	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
3	A3	/Bhadule Vaishanavi Bhagwan	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
4	A4	/Bhange Anuja Ramdas	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
5	A5	/Bhusare Snehal Tanaji	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
6	A6	/Bochare Chaitali Rajendra	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
7	A7	/Burande Shravani Pandurang	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
8	A9	/Devidas Vaishnavi Ravindra	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
9	A10	/Dhengale Smita Ganpat	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
10	A11	/Fakade Mrunal Mahesh	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
11	A12	/Farkande Tejaswini Neharu	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
12	A13	/Gaikwad Aishwarya Atul	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
13	A14	/Hajare Sayali Prakash	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
14	A15	/Irkar Reshma Digambar	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
15	A16	/Jadhav Kajal Bandu	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
16	A17	/Jadhav Pratima Sunil	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
17	A18	/Kachare Rutuja Pravin	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
18	A19	/Kamble Priyanka Abhay	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
19	A20	/Kamble Vishakha Bhaskar	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
20	A21	/Kamliwale Umeyani Akilahmad	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
21	A23	/Kawade Shruti Baban	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
22	A24	/Kedar Kiran Senapati	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
23	A25	/Kharade Priyanka Vitthal	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
24	A26	/Khatal Snehal Saudagar	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
25	A27	/Khatib Taslim Rafik	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
26	A28	/Masal Yogita Shivaji	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
27	A30	/Mulani Simran Shakil	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
28	A31	/Patil Akanksha Avadhut	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
29	A32	/Patil Soyarabai Uttareshwar	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
30	A34	/Rajurkar Pornima Ajit	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
31	A36	/Raut Pooja Sanjay	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
32	A38	/Shinde Asawari Sharad	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
33	A39	/Shiral Chaitrali Hanumant	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
34	A40	/Swami Vrushali Baswaraj	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
35	A41	/Tamhane Richa Dinesh	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
36	A42	/Tawashe Shruti Yashwant	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
37	A43	/Tonape Sakshee Sanjay	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
38	A44	/Yadav Pravina Chandrakant	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
39	A45	/Sayyad Afroj Zakir	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
40	A46	/Ambure Dhanashri	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019

(Mr. P. G. Gaikwad)
Co-ordinator

HOD,
Department of Computer Science & Engg
SVERI's C.O.E. Pandharpur

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SVERI's College of Engineering, Pandharpur

Department of Computer Science & Engineering

List of Students Those Who have Completed Vocational Training

Academic Year: 2018-19

Sr. No.	Roll No.	Name of Student	Company Name	Industrial Training Topic	Start Date	End Date
41	A47	/Gaikwad Aboli Vijay	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
42	A48	/Magar Sayali Tanaji	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
43	A49	/Mane Kajal Maruti	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
44	A52	Bhandari Swarit Bajrang	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
45	A53	Chavan Nana Bandu	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
46	A54	Dake Kanifnath Shankar	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
47	A57	Kale Satyajit Anil	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
48	A60	Phutane Mahesh Dilip	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
49	A62	Sawhaney Puneet	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
50	A64	Vasekar Swapnil Lahu	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
51	A65	Vernekar Adarsh Gurudas	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
52	A67	Dhaygude Aditya Anil	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
53	A68	Waghmode Vinayak Hanumant	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
54	B1	/Adlinge Revati Tukaram	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
55	B3	/Athawale Yogita Jitendra	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
56	B6	/Bhogawakar Vaishnavi	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
57	B8	/Bhoite Ankita Pradip	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
58	B9	/Birajdar Sujata Ramesh	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
59	B12	/Gawali Priyanka Santosh	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
60	B13	/Gurav Prachi Prasad	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
61	B17	/Kadlaskar Komal Sudhir	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
62	B18	/Ligade Dipali Popat	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
63	B19	/Mandwale Sakshi Rajendrasinh	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
64	B20	/Maneri Sumyya Dastgir	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
65	B22	/Mulade Aishwarya Pradeep	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
66	B23	/Mundhe Bhagyashri Arun	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
67	B27	/Pardeshi Kavita Kantilal	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
68	B28	/Patil Nikita Jaykumar	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
69	B30	/Patil Swapnali Ganesh	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
70	B33	/Saravade Pooja Sunil	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
71	B34	/Sarvagod Pranoti Chandrakant	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
72	B36	/Siddhaganesh Kranti Sanjay	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
73	B41	/Todkari Vaishnavidevi Vilas	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
74	B42	SHENDE SHIVANI SUHAS	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
75	B44	/Chandanshive Pratiksha Mohan	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
76	B45	/Dindore Srushti Rahul	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
77	B48	/Yernale Sneha Sanjay	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
78	B57	Kumbhar Sushant Ganesh	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
79	B58	Mulge Sumeet Shivraj	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
80	B59	Namade Hritivkh Santosh	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
81	B60	Narkar Sandesh Sudhakar	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
82	B61	Patil Pruthviraj Tukaram	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
83	B62	Salunke Amol Kundan	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
84	B63	Sawant Raviraj Balasaheb	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
85	B64	Shaikh Arbaj Faruk	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
86	B65	Shedbale Pravin Vijaykumar	ADJ Infotech Service Pvt. Ltd. Solapur	Programming For IOT with Python	1/6/2019	15/06/2019
87	B02	Asabe Prajakta Vijay	TechnoWings International IT Solution	Inplant Training	20/05/2019	5/6/2019
88	B21	Metkari Aishwarya Devidas	TechnoWings International IT Solution	Inplant Training	20/05/2019	5/6/2019

(Mr. P.G. Gaikwad)
Co-ordinator

HOD,
Department of Computer Science & Engg
SVERI's C.O.E. Pandharpur

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From SVERI College of Engineering Pandharpur Computer Science and Engineering Department has successfully completed Inplant Training in Real Time concepts of Software Development, Webservices,Mobile App Development in Cross platform and Networking Domain in our organization from 20.5.2019 till 05.06.2019.During the tenure of training, we found her very sincere attentive and good behavior.

Authorized Signatory

Shraddha Kothari

H R Manager

Solapur

Authorized Signatory

Bahubali.M.Kandale

Director

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Authorized Signatory

hraddha Kothari

H R Manager

TechnoWings International IT Solution Solapur

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Bahubali.M.Kandale

Director

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PROGRAMMING FOR IOT WITH PYTHON

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Ambure Dhanashri

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SVERI's
College of Engineering, Pandharpur

Department of Computer Science & Engineering

Industrial Training

Sample Report

A.Y.: 2018-19

A

Vocational Training Report

Submitted to,

Department of Computer Science & Engineering

By,

Miss Bhagyashri Arun Mundhe

(Class: BE, Div.: B, Roll No.:23)

Under the Guidance of
Prof. V.M.Sale

At

ADJ INFOTECH SERVICE PVT.LTD.,SOLAPUR

S.V.E.R.I's

College of Engineering, Pandharpur

Department of Computer Science and Engineering

Affiliated to Solapur University, Solapur

2020-21

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SVERI's COLLEGE OF ENGINEERING,

PANDHARPUR

This is to certify that the vocational training report entitled "PROGRAMMING FOR IOT WITH PYTHON" is submitted by Miss Bhagyashri Arun Mundhe for partial fulfillment Bachelor degree in Computer Science and Engineering as per requirement of Solapur University, Solapur for the academic year 2018-2019.

(Prof. V.M.Sale)
Guide

(Dr. B.C.Melinamath)
Head, CSE

(Dr. B.P. Ronge sir)

PRINCIPAL

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Mundhe Bhagyashri Arun

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PROGRAMMING FOR IOT WITH PYTHON

13th June 2019

DATE

Prof. A. M. Joshi

ADJ INFOTECH SERVICE PVT. LTD., Solapur | www.adjinfotech.co

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General information about trainee and the company

- **Candidate Details**

1. **Name of trainee** : Bhagyashri Arun Mundhe
2. **Class** : BE
3. **Division** : B
4. **Roll Number** : **2 3**
5. **Contact Address :** Kalamb , Tal-Kalamb ,Dist-Osmanabad

- **Company Details :**

1. **Company Name :** ADJ Infotech Service Pvt.Ltd.,Solapur

2. **Company Address :** Near IMS School,22,Veershaiv Nagar,Jule Solapur Rd,Solapur,Maharashtra 413401

- **Outline of the problem/project that done in field training :**

We have completed our training in ADJ Infotech Pvt. Ltd. Solapur. In this company, we work on IoT technology . We studied the Python programming and develop more project using Sensors and Rasberry pie.

- **Period of Field Training :** From Date:1 June 2019 To Date:15 June 2019

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Acknowledgement

I would like to express my special thanks of gratitude to our H.O.D. Dr. B.C.Melinamath madam as well as our Principal Dr. B. P. Ronge sir who gave me the golden opportunity to do this Industrial Training on the topic "**PROGRAMMING FOR IOT WITH PYTHON",** which also helped me in doing a lot of Research and I came to know about so many new things. I am very thankful to them. Also I would like to thank Prof.A.D.Joshi,Managing Director of ADJ Infotech Service Pvt. Ltd , Solapur for having faith in me and giving me the opportunity to work in their organization.

Secondly I would also like to thank my parents and friends who helped me a lot in finalizing this project within the limited time frame.

Sign

(Student Name: Bhagyashri Arun Mundhe (BE-B-23) **)**

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CHAPTER 1: INTRODUCTION

ABOUT COMPANY:

- Vision:

"WE ALL TOGETHER HAVE JOINED TO MARCH TOWARDS A COMMON VISION OF ESTABLISHING IT HUB ACROSS TIER TWO CITIES IN INDIA"

- About:

ADJ INFOTECH delivers on the industry's broadest portfolios of the information technology and business process outsourcing services to clients in the Manufacturing, Education Services , Finance and investment companies, Sports & Entertainments,Healthcare,Communications,Energy,Transportation,

Consumer & Retail Industries and to government organisations across PAN india and around the world.

A.d.j. Infotech Services Private Limited is an Indian Non-Government Company. It's a private company and is classified as'company limited by shares'.

Company's authorized capital stands at Rs 10.0 lakhs and has 0.65999997% paid-up capital which is Rs 0.07 lakhs.

A.d.j. Infotech Services Private Limited is majorly in Business Services business and currently, company operations are active.

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- Details:

A.d.j. Infotech Services Private Limited is a Private incorporated on 28 June 2018. It is classified as Non-govt company and is registered at Registrar of Companies, Pune. Its authorized share capital is Rs. 1,000,000 and its paid up capital is Rs. 8,300. It is inolved in Other computer related activities [for example maintenance of websites of other firms/ creation of multimedia presentations for other firms etc.]

- Clients of Company:

1. Aditya Birla
2. Kalyani Bharat Forge
3. Sigma Optima
4. ColdWell banker Commercial
5. Mother Tree
6. NTB group
7. Precision
8. Africunia
9. South Carolina

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- Company Products:

a. SMART LOCK SYSTEM

b. PROPERTY MANAGEMENT SYSTEM

c. GROCERY SELLING APPLICATION

d. FOOD DELIVERY APPLICATION

- Contact Details:

Email ID: imsarunjoshi@gmail.com

Website: https://www.adjinfotech.com/

Address:

C/O ARUN D JOSHI 22, VEERSHAIV NAGAR OPP: BHARATI VIDYAPEETH SOLAPUR Solapur MH 413004 IN

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CHAPTER 2: LEARNING AT COMPANY

- **PROGRAMMING FOR IOT:**

Computers understand instructions that are written in a specific syntactical form called a programming language. A programming language provides a way for a programmer to express a task so that it could be understood and executed by a computer. Refer our another blog-post "What is programming language?" to know more about programming languages. Some of the popular Programming languages are Python, C, C++, Java, etc.

The Internet of things (IoT) describes the network of physical objects—"things"—that are embedded with sensors, software, and other technologies for the purpose of connecting and exchanging data with other devices and systems over the Internet.

Things have evolved due to the convergence of multiple technologies, real-time analytics, machine learning, commodity sensors, and embedded systems. Traditional fields of embedded systems, wireless sensor networks, control systems, automation (including home and building automation), and others all contribute to enabling the Internet of things. In the consumer market, IoT technology is most synonymous with products pertaining to the concept of the "smart home", including devices and appliances (such as lighting fixtures, thermostats, home security systems and cameras, and other home appliances) that support one or more common ecosystems, and can be controlled via devices associated with that ecosystem, such as smartphones and smart speakers. IoT can also be used in healthcare systems.

There are a number of serious concerns about dangers in the growth of IoT, especially in the areas of privacy and security, and consequently industry and governmental moves to address these concerns have begun including the development of international standards.

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- **Sensors:**

  a sensor is a device, module, machine, or subsystem whose purpose is to detect events or changes in its environment and send the information to other electronics, frequently a computer processor. A sensor is always used with other electronics.

  Sensors are used in everyday objects such as touch-sensitive elevator buttons (tactile sensor) and lamps which dim or brighten by touching the base, besides innumerable applications of which most people are never aware. With advances in micromachinery and easy-to-use microcontroller platforms, the uses of sensors have expanded beyond the traditional fields of temperature, pressure or flow measurement, for example into MARG sensors. Moreover, analog sensors such as potentiometers and force-sensing resistors are still widely used. Applications include manufacturing and machinery, airplanes and aerospace, cars, medicine, robotics and many other aspects of our day-to-day life. There are a wide range of other sensors, measuring chemical & physical properties of materials. A few examples include optical sensors for Refractive index measurement, vibrational sensors for fluid viscosity measurement and electro-chemical sensor for monitoring pH of fluids.

  The development of prototyping boards and the low price of sensors allow us easily use them in IoT projects. There are several prototyping boards on the market, suited for different projects depending on features and specifications. In this context, we will consider the two most popular boards: the Arduino Uno and Raspberry Pi 2.

  Before diving into the details on how to use sensors with these boards, it is important to note that every sensor has its own operating voltage range. This parameter is very important because the voltage supplied by the board must not be higher than the maximum voltage allowed by the sensor. Therefore, it is important to read the sensor data sheet carefully before connecting it to the board to avoid damage. The same principle is valid for the output signal, which must be lower than the maximum voltage that the board can tolerate.

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- **Ardino Uno &Rasberry Pie:**

  In terms of I/O, Arduino has an USB-B port that can be used by a computer to transfer new programs to run, a power input and a set of I/O pins.

  A Raspberry Pi is much more sophisticated in this regard, having a Video output, an HDMI port, an SD card port, an Audio jack, CSI camera port, DSI display port, 4 USB 2.0 ports which you can use to attach USB devices, a Gigabit Ethernet jack, Wireless LAN, Bluetooth 4.2 and I/O pins (GPIO) as well. Lots of things.

  Arduino has no operating system. It can only run programs that were compiled for the Arduino platform, which mostly means programs written in C++.

  Raspberry Pi runs an operating system, which is usually Linux. It's a mini computer, while Arduino is much more simple.

- **Python** :

  Python is a very popular high-level programming language that focuses on code readability. It is a dynamic and interpreted programming language. Python supports multiple programming paradigm. Generally, Python has fewer steps as compared to Java and C. Python language is also called a general-purpose programming language.

  Python can be used for software development, mathematics, web development, and system scripting. In Python web development, developers use python on the server-side to develop web applications. Python can handle big and complex data easily. It can work on different platforms Windows, Mac, Linux, and Raspberry Pi.

  Python is an efficient and fast programming language because it runs on the interpreter. Python can be treated as procedural, functional and

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object-oriented, etc. With the scripting language, you can develop desktop applications and web applications. It also translated into binary language like java.

The usage of IoT devices has increased year to year. More than 8 billion IoT devices have registered from 2016 to 2018. As per the IoT expert's analysis, at the end of 2020, the count of IoT devices will reach more than 30 billion. And the market value of IoT will reach $7 trillion.

As the internet of things (IoT) is evolving continuously, it can be difficult to analyze which tools are more useful in IoT development. Many programming languages are used to develop IoT devices. But which programming languages are most efficient in IoT development. Python language is one among the most popular programming languages for IoT. The coding flexibility & dynamic nature of python helps developers in creating intelligent IoT devices.

- **Problem Statement:**

  Garbage Monitoring System:

  In this system, we will put a sensor on top of the garbage bin which will detect the total level of garbage inside it according to the total size of the bin.When the garbage will reach the maximum level, a notification will be sent to the corporation's office, then the employees can take further actions to empty the bin. This system will help in cleaning the city in a better way. By using this system people do not have to check all the systems manually but they will get a notification when the bin will get filled.

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CHAPTER 3: CASE STUDY

3.1:Introduction:

IoT or Internet Things refers to the network of connected physical objects that can communicate and exchange data among themselves without the desideratum of any human intervention. It has been formally defined as an "Infrastructure of Information Society" because IoT sanctions us to amass information from all kind of mediums such as humans, animals, conveyances, kitchen appliances. Thus, any object in the physical world which can be provided with an IP address to enable data transmission over a network can be made part of IoT system by embedding them with electronic hardware such as sensors, software and networking gear.

This system is to propose a system for the immediate cleaning of the dustbins. As dustbin is considered as a basic need to maintain the level of cleanliness in the city, so it is very important to clean all the dustbins as soon as they get filled. We will use ultrasonic sensors for this system. The sensor will be placed on top of bin which will help in sending the information to the office that the level of garbage has reached its maximum level. After this the bin should be emptied as soon as possible. The concept of IoT when used in this field will result in a better environment for the people to live in. No more unsanitary conditions will be formed in the city. With the help of this system minimal number of smart bins can be used around the whole city and the city will still be much cleaner.

A Smart Dustbin proposed by [1], based on IoT in which the smart bin was built on a platform which was based on Aurdino Uno board which was interfaced with a GSM modem and an ultrasonic sensor. The sensor was placed on the top of the bin. A threshold level was set as 10cm. As the garbage reaches the level of threshold, the sensor triggers the GSM modem which alerts the associated authority till the garbage in the bin is emptied. At the end a conclusion was made that various issues like affordability, maintenance and durability wereaddressed when these smart bins were designed. It also contributed towards a hygienic and clean environment in the process of building a smart city.

The researchers suggests the method for garbage management which is as follows. The bin was interfaced with a system based on microcontroller which had IR wireless systems with a central system that showed the current status of the

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garbage in the bin. The status was seen on a mobile based web browser with a html page by using Wi-Fi. To reduce the cost, they only used weight based sensors and on the sender's side they only used a Wi-Fi module to send and receive the data. In the end the sensor could only detect the weight of waste present in the bin but not the level of waste.

Various bins were placed around the city which were provided with an embedded device which was low in price and helped in tracking the garbage level in the bins . A different ID was provided to each bin so that it could be easier to detect that which is bin is full and ready to be emptied. The project is divided into two sections one being the transmitter section and other the receiver section. The transmitter section consists of a microcontroller and sensors which check the level of the garbage and the data is passed onto the system with the help of the RF Transmitter, then RFReceiver receives the data and sends it to the client associated so that the bin can be emptied quickly. Anitha et al (2016) proposed an home automation system using IOT uses raspberry for the implementation . Also proposed a model for cyber security systems using artificial system to have secured transactions .

- **3.2 Requirements**

1. Arduino Uno:



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Arduino is an open source, PC paraphernalia and programming organization, endeavour, and client group that plans and produce microcontroller packs for constructing programmed devices and intelligent object that can detect and control questions in the real world. The inception of the Arduino extend began at the Interaction Design Institute in Ivrea, Italy.

2.ESP82266(Wi-Fi Module)**:**



ESP8266 is a Wi-Fi module which will give your projects access to Wi-Fi or internet. It is a very cheap device but it will make your projects very powerful. It can communicate with any microcontroller and make the projects wireless. It is in the list of most leading devices in the IOT platform. It runs on 3.3V and if you will give it 5V then it will get damage. The ESP8266 has 8 pins; the VCC and CH-PD will be connected to the 3.3V to enable the wifi. The TX and RX pins will be responsible for the communication of ESP8266 with the Arduino. The RX pin works on 3.3V so you will have to make a voltage divider for it as it used for implementation.

3.3. Ultrasonic Sensor:

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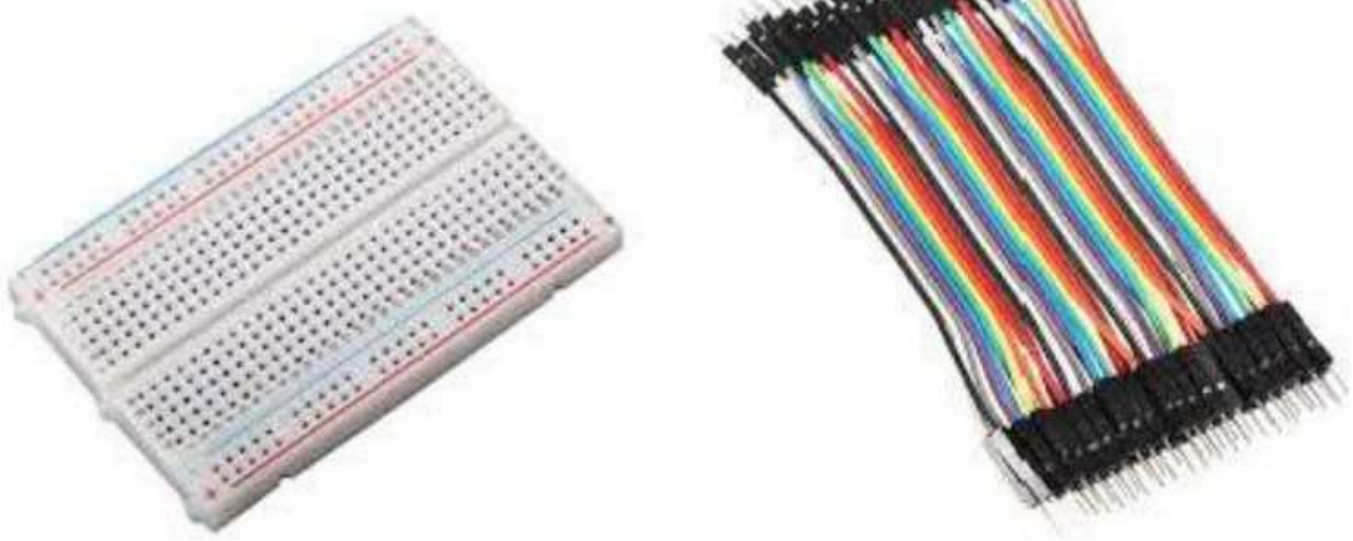
The Ultrasonic Sensor is used to measure the distance with high accuracy and stable readings.It can measure distance from 2cm to 400cm or from 1 inch to 13 feet. It emits an ultrasound wave at the frequency of 40KHz in the air and if the object will come in its way then it will bounce back to the sensor. By using that time which it takes to strike the object and comes back, you can calculate the distance. Distance can be measured by equation

1. Distance = Time * sound speed /2.

Where Time = the time between an ultrasonic wave is received and transmitted. It has four pins. Two are VCC and GND which will be connected to the 5V and the GND of the Arduino while the other two pins are Trig and Echo pins which will be connected to any digital pins of the Arduino. The trig pin will send the signal and the Echo pin will be used to receive the signal. To generate an ultrasound signal, you will have to make the Trig pin high for about 10us which will send a 8 cycle sonic burst at the speed of sound and after striking the object, it will be received by the Echo pin

3.4. Bread board and Jump wires

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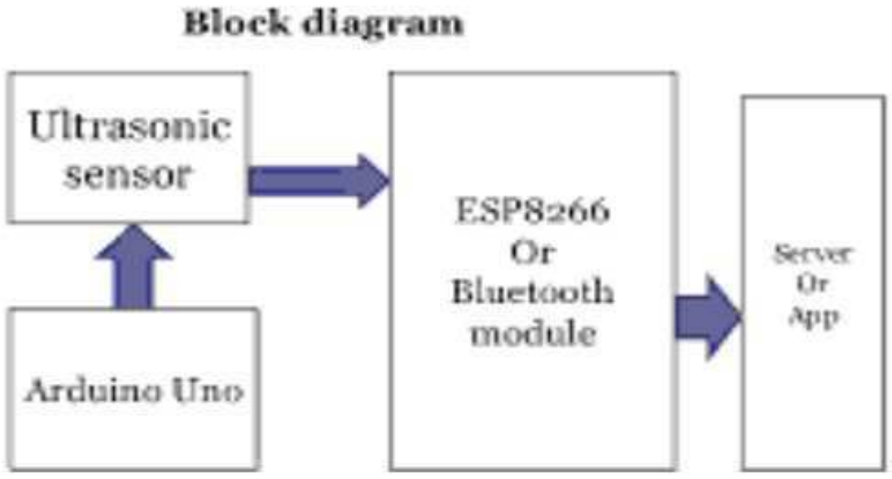


A modern solderless breadboard consists of a perforated block of plastic with numerous tin plated phosphor bronze or nickel silver alloy spring clips under the perforations. The clips are often called tie points or contact points. The number of tie points is often given in the specification of the breadboard. The spacing between the clips (lead pitch) is typically 0.1 in (2.54 mm). Integrated circuits (ICs) in dual in-line packages (DIPs) can be inserted to straddle the centerline of the block. Interconnecting wires and the leads of discrete components (such as capacitors, resistors, and inductors) can be inserted into the remaining free holes to complete the circuit. Where ICs are not used, discrete components and connecting wires may use any of the holes.A breadboard is utilized to build and test circuits expeditiously afore finalizing any circuit design. The breadboard has many apertures into which route components like ICs and resistors can be connected.. A typical breadboard that includes top and bottom power distribution rails is shown below figure 4. Jump wires are generally used to establish connectivity with bread board.

3.3 Modules:

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Concept (cont.)



To connect to the internet we make use of a prebuilt platform called Blynk app. After the user installs the Blynk app on the smartphone, an account to be created in the app to access its services. The services are enabled for the signed users. Let us create an account and add a new project to get started. An unique authentication code is used by the code to communicate with the project. The Blynk needs to be running in the background for the user to get real time notifications.

- Dustbin level detection:

We propose a smart garbage bin using cloud IOT based system to identify when the garbage bin is being fill using ultrasonic sensor we can get the volume occupied and left in the smart garbage bin. Ultrasonic distance measuring sensors provide information on an absolute position of target or moving object. For glossy surfaces, transparent objects or in environments with high degree of dust and humidity, ultrasonic technologies are often the only alternative to mechanical probing.

- Garbage Classification

This system a dry waste a wet waste separately for that we are using a moisture sensor if that sensor detected then the cap will open for dry waste.

- Web Application

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After filling the dustbin, we will send a message to web application.

- Working process:

After the account creation, the arduino will first read the ultrasonic sensor, It will send the signal with the speed of sound. It revert back after striking the object and the travel time is store based on equation1. Thus the distance of the object is calculated. Based on the distance we can identify the garbage level to be low or high. We used the term "overflow" to indicate the necessary for cleaning process. Thus the mobile is enable with the term as "Overflow".

3.4 Snap Shot:





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Conclusion:

The main objective is to maintain the level of cleanliness in the city and form an environment which is better for living. By using this system we can constantly check the level of the garbage in the dustbins which are placed in various parts of the city. If a particular dustbin has reached the maximum level then the employees can be informed and they can immediately take certain actions to empty it as soon as possible. The employees can check the status of these bins anytime on their mobile phones. This can prove to be a very useful system if used properly. The system can be used as a benchmark by the people who are willing to take one step further for increasing the cleanliness in their respected areas. Ultrasonic sensor is being used in this system to check the level of garbage in the dustbins but in future various other types ofsensors can be used with the ultrasonic sensor to get more precise output and to take this system to another level. Now this system can be used in certain areas but as soon as it proves its credibility it can be used in all the big areas. As this system also reduces manual work certain changes can be done in the system to take it to another level and make it more useful for the employees and people who are using it. In future, a team can be made which will be in charge for handling and maintaining this system and also to take care of its maintenances.

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SVERI's
College of Engineering, Pandharpur

Department of Computer Science & Engineering

Sponsored Project Record

A.Y.: 2018-19

SVERI's College of Engineering, Pandharpur
Department of Computer Science & Engineering

Sponsored Project List
A. Y. 2018-19

Sr. No.	Name of Project	Project Group Members	Name of Industry
1	Automatic Quality Detection of Fruits	Radhika Bhagavant Bahirat Yashashri Kalidas Patil Amruta Rajendra Arjun Aditi Balasaheb Malikpethkar	Aedifico Tech. Pvt. Ltd, Delhi
2	Machine Learning Approaches For data Analytics	DipanjaliDigambarChavare KajalShamraoGhodeswar KomalShamraoGhodeswar Vaibhavi V. Deshpande	Aedifico Tech. Pvt. Ltd, Delhi
3	Smart dustbin using IOT notification	Pooja B. Doifode Aishwarya S. Javheri Shweta Sanjay Tuljapurkar Pooja P. Chavan	Aedifico Tech. Pvt. Ltd, Delhi
4	Restaurant review classification and recommender system	Jayshree Sanjay Devkule NishigandhaRajendra Mali Poojashahaji Mane Patil Amruta Ashok Nagne	Dhanashree Restaurent
5	Brain Tumor detection algorithm research and mechanism ANN & Image Processing	Keskar Samarth Sitaram PawarPrithvirajDhairyashil Swami DhaneshIrayya JatharAkshayMadhukar	Aedifico Tech. Pvt. Ltd, Delhi
6	Broadcast Face Recognition using Image Processing.	DhirajLaxmanBodhale ShubhamBalajiPawar SaudagarPatil SamadhanSuryakantJagdale	Aedifico Tech. Pvt. Ltd, Delhi
7	Website development for KrushivardhanAgroTech	Tendulkar SaurabhChandrashekhar RautAmitPrabhakar Bansode Rahul Parshuram VarapeSurajBandu	KrushivardhanAgroTech., Pandharpur

(Mr. P. G. Gaikwad)
Project - Coordinator.

HOD,
Department of Computer Science & Engg
SVERI's C.O.E. Pandharpur

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Sr. No.	Name of Project	Project Group Members	Name of Industry
Contd... 8	Forms Processing	DikshaSudhirYergattikar	AutomationEdge, Pune
		Shruti Shankar koli	
		TejashriChintamaniPitke	
		SudarshanSugreevAbhivant	
		KedarDevidasPatil	
		SaifYakubTamboli	
9	Designing of software which will keep database	Ms. Shraddha P. Danave	DhrauvtaraWiretech, Aurangabad
		Ms. Manasi D. Jagalpure	
		Mr. Vaibhav S. Khabani	
		Mr. Kiran V. Kasulwar	

For the A. Y. 2018-19, we are having 09 sponsored projects from various IT industries. We are expecting some sort of consultancy from Dhrauvtara Wiretech, Aurangabad for the sponsored project. This project is in the final stage.

(Mr. P. G. Gaikwad)
Project Coordinator
Department of Computer Science & Engineering,

HOD,
Department of Computer Science & Engg
SVERI's C.O.E. Pandharpur

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Date: 31/07/2018

To Whomsoever It May Concern

This is to certify that the student of Computer Science and Engineering Department from SVERI's College of Engineering, Pandharpur are allowed to develop software module for our "Aedifico Tech. Pvt. Ltd, New Delhi", under the title of "AUTOMATIC QUALITY DETECTION OF FRUITS".

The details of operation will be provided as per the requirements. The students are as follows:

1. Radhika Bhagavant Bahirat
2. Yashashri Kalidas Patil
3. Amruta Rajendra Arjun
4. Aditi Balasaheb Malikpethkar

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The details of operation will be provided as per the requirements. The students are as follows:

1. Dipanjali Digambar Chavare
2. Kajal Shamrao Ghodeswar
3. Komal Shamrao Ghodeswar
4. Vaibhavi V. Deshpande

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The details of operation will be provided as per the requirements. The students are as follows:

1. Pooja B. Doifode
2. Aishwarya S. Javheri
3. Shweta Sanjay Tuljapurkar
4. Pooja P. Chavan

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This is to certify that the student of Computer Science and Engineering Department from SVERI's College of Engineering, Pandharpur are allowed to develop software module for our "Aedifico Tech. Pvt. Ltd, New Delhi", under the title of "BRAIN TUMOR DETECTION ALGORITHM RESEARCH AND MECHANISM ANN & IMAGE PROCESSING".

The details of operation will be provided as per the requirements. The students are as follows:

1. Keskar Samarth Sitaram
2. Pawar Prithviraj Dhairyashil
3. Swami Dhanesh Irayya
4. Jathar Akshay Madhukar

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Date: 31/07/2018

To Whomsoever It May Concern

This is to certify that the student of Computer Science and Engineering Department from SVERI's College of Engineering, Pandharpur are allowed to develop software module for our "Aedifico Tech. Pvt. Ltd, New Delhi", under the title of "BROADCAST FACE RECOGNITION USING IMAGE PROCESSING.".

The details of operation will be provided as per the requirements. The students are as follows:

1. Dhiraj Laxman Bodhale
2. Shubham Balaji Pawar
3. Saudagar Patil
4. Samadhan Suryakant Jagdale

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KRUSHIVARDHAN AGROTECH

Seed of Trust

Address Krushivardhan AgroTech, 106, Plot No. 972, Pandharpur, Maharashtra - 413304
Email: krushivardhanagrotech@gmail.com Contact No.: +91 7517437171

Date: 02/07/2018

To Whomsoever It May Concern

This is to certify that the student of Computer Science and Engineering Department from SVERI's College of Engineering, Pandharpur are allowed to develop software module for our "KrushivardhanAgroTech., Pandharpur", under the title of "WEBSITE DEVELOPMENT FOR KRUSHIVARDHANAGROTECH".

The details of operation will be provided as per the requirements. The students are as follows:

1. Tendulkar SaurabhChandrashekhar
2. Raut Amit Prabhakar
3. Bansode Rahul Parshuram
4. Varape Suraj Bandu

Director
Krushivardhan AgroTech

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B.E. Project Record

A.Y.: 2018-19

SVERI's College of Engineering, Pandharpur

Department of Computer Science & Engineering

BE Project List (A. Y. 2018-19)

Group No.	Name of Students	Project Titles	Name of Guide
G1	Somshette Shrushti Ramakant	Placement Prediction System	Mrs. V. D. Jadhav
	Raut pooja balu		
	Metakari Shital sudhakar		
	Lambture prajakta satish		
G2	Dipanwita Deb	Stock prediction using Twitter sentimental analysis	Mr. S. A. Dhanave
	Parvati R. Dagade		
	Varsha R.Deokar		
	Manasi G.Waghmare		
G3	Radhika Bhagavant Bahirat	Automatic Quality Detection of Fruits	Mr. G.V. Kakade
	Yashashri Kalidas Patil		
	Amruta Rajendra Arjun		
	Aditi Balasaheb Malikpethkar		
G4	Shruti Shankar Koli	Diabetic Retinopathy Detection	Mr. N. S. Mane
	Tejashri Chintaman Pitke		
	Diksha Sudhir Yergattikar		
G5	Tendulkar Saurabh C.	Krushivardhan AgroTech	Mr. P. G. Gaikwad
	Raut Amit Prabhakar		
	Bansode Rahul Parshuram		
	Varape Suraj Bandu		
G6	Pawar Sanjivani Shivaji	Cloud Storage with Seecurity	Mr. N. S. Mane
	Rokade Amruta Dattatraya		
	Mengar Ruchika Raviprakash		
	Rane Sujata Madhukar		
G7	Kokare Sarika Bhausaheb	EMO Player	Ms. D. V. Patil
	Shinde Komal Sampat		
	Chougule Ashwini Prakash		
	Lengare Renuka Kumar		
	Bergal Jyoti Shamrao		
G8	Keskar Samarth Sitaram	Brain Tumor detection algorithm research and mechanism ANN & Image Processing	Ms. M. P. Pawar
	Pawar Prithviraj Dhairyashil		
	Swami Dhanesh Irayya		
	Jathar Akshay Madhukar		
G9	Shriram Puja Vijay	Multi Room Sound System	Mr. S. V. Darshane
	Chavan Chaitali Ganesh		
	Dhekane Swati Dadarao		
	Katare Bhagyashree Hanmant		
G10	Lamkane Sonal Ankush	Fake news detection from Social Media	Mr. N. S. Mane
	Pawar Rupali Nagnath		
	Limburkar Snehal Vilas		
	Lade Pradnya Ramesh		

(Mr. P. G. Gaikwad)
Project Coordinator

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SVERI's College of Engineering, Pandharpur

Department of Computer Science & Engineering

BE Project List (A. Y. 2018-19)

Group No.	Name of Students	Project Titles	Name of Guide
G11	Pritilata Mukund Fartade	Voice Based Gmail Service for Visually Challenged People	Mr. P. K. Kurzekar
	Tabassum Sikandar Mujawar		
	Priyanka Suresh Mule		
	Namrata Chandrashekhar Ashtekar		
	Pratiksha Pradip Bhoite		
G12	Dhiraj Laxman Bodhale	Broadcast Face Recognition using Image Processing.	Mr. H. M. Tamboli
	Shubham Balaji Pawar		
	Saudagar Patil		
	Samadhan Suryakant Jagdale		
G13	Gurav Manisha Audumbar	Patient Healthcare System	Mr. N. S. Mane
	Pawar Aishwarya Rajesh		
	Shruti Narayan Kulkarni		
	Jadhav Kiran Sudhir		
G14	Sachin Satish Kadam	Web Based Attendance	Ms. M. P. Pawar
	Akshay Rajaram Gidde		
	Ganesh Jalindar Ekmalli		
	Onkar Haribhau Vastre		
	Chaitanya Ramchandra Kapshikar		
G15	Udayraj Chauhan	Human Robot Interaction using Android and PointBug Algorithm	Mr. P. G. Gaikwad
	Ganesh Sonvane		
	Sagar Chougule		
G16	Pragati Dalvi	Feature Based Sentiment Analysis of Product Reviews	Ms. S. S. Kadam
	Pooja Bhosale		
	Dipika Hivrale		
	Pradnya Pawar		
	Sandhya Madane		
G17	Bhadule Priyanka Umesh	Liquid level monitoring system	Mr. N. M. Maske
	Patule Shobha Arun		
	Jadhav Gouri Arvind		
	Zambare Suvarna Suresh		
G18	Shubham Vijay Maske	Skin Disease Detection Using Image Processing	Mr. G. G. Patil
	Onkar Ashok Panchal		
	Sanket Satish Kulkarni		
	Shubham Rajendra Pardeshi		
G19	Chavan Sonali Rukmaji	Road Pit Notifier	Ms. R. R. Shinde
	Unholi Nikita Irgonda		
	Nashikkar Saumya Rajendra		
	Karki Preeti Shivanand		
G20	Rohit Rajshekhar Konde	Developing a CAD System for early lung Cancer Detection, Department of Biotechnology	Mr. P. G. Gaikwad
	Dhawal Venkatesh Dyavanpalli		
	Ajinkya K Ghodake		
	Onkar Borade		
	Abhishek Gidvir		

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BE Project List (A. Y. 2018-19)

Group No.	Name of Students	Project Titles	Name of Guide
G21	Saif Yakub Tamboli Sudarshan Sugreev Abhivant Kedar Devidas Patil	Fruit Disease Detection Using Image Processing	Mr. H. M. Tamboli
G22	Sharyu Umesh Kamble Priya Kuber Jadhav Pooja Pandurang Velapure Vaishnavi Santosh Jawanjal	Heart Disease Prediction using Machine Learning Techniques	Mrs.S.S. Kadam
G23	Sayali Suhas Ranaware Kanchan Kailas Labade Vaishnavi Vyankatesh Talkokul Punam Nagnath Lavand Vidya Anna Kokare	Society management system	Ms. T. A. Dhumal
G24	Dipanjali Digambar Chavare Kajal Shamrao Ghodeswar Komal Shamrao Ghodeswar	Machine Learning Approaches For data Analytics	Mr. S. H. Dinde
G25	Chandraprabha Prakash Kale priyanka lahyappa Telgaon Yashoda sarjerav pingale Ashwini shivaji Jadhav	Design, Feature Extraction and Predication of Food Grains	Ms.M.P. Pawar
G26	Vaibhavi V. Deshpande Pooja B. Doifode Aishwarya S. Javheri Shweta Sanjay Tuljapurkar Pooja P. Chavan	Smart dustbin using iot notification	Mr. M. M. Shinde
G27	Bagal Vidyarani Sitaram Padman Shweta Prakash Kale Aarti Shivdas Shaikh Anisa Mahamad	Chatbot for college related FAQ's	Mrs. R. M. Shinde
G28	Bahirat Jui Atul Bongale Prajkta Dhanaji Asabe Priyanka Ganpat Bohari Mahera shukur	Heart Attack and Alcohol Detection system using internet of thing	Mr.R.B. Kagade
G29	Satpute Somnath Bhagwat Payghan Tirupati Balu Pore Rohit Sharad Ghaterao Harshdip Sunil Mhetre Shubham Satish	SVERI Coin	Mr. A. M. Dyade
G30	Kantule Varsha Satish Didwal neha nitin Bagwan Tanjila Noorahamad Pawar Aishwarya Anil	IOT Based Ration Card System Using Bluetooth Technology	Ms. S. A. Shegdar

(Mr. P. G. Gaikwad)
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BE Project List (A. Y. 2018-19)

Group No.	Name of Students	Project Titles	Name of Guide
G31	Jayshree Sanjay Devkule	Restaurant Review Classification And Recommender System	Mr. S. M. Shinde
	Nishigandha Rajendra Mali		
	Pooja Shahaji Mane Patil		
	Amruta Ashok Nagne		
G32	Jagadale Karishma Dilip	Statistical Tool for University Result Analysis	Mrs. R. M. Shinde
	Bodakhe Pooja Sanjay		
	Poonam Anurath Mule		
	Maske Priyanka		
G33	Patel Shaheen Anwar	Image Detection & enhancing attendence system for classroom using IOT .	Mr. M. M. Shinde
	Sawant poonam balaso.		
	Kokare Sukeshani Jagannath.		
	Gudd Kiran		
G34	Shubham Baburao Patil	Home Automation	Ms. R. R. Shinde
	Shubham Dattatray More		
	Rohit Ramling Savalajkar		
	Viraj Mohan Navale (YD)		
	Sachin Prabhakar Swami		
G35	Shrutigandha Gandhi	Hospital Selection	Ms. A. S. Pathan
	Sunita Gajare		
	Pooja Dekhane		
	Bhakti Shingate		
G36	Kulkarni Shubham	Rubik's Cube Solver	Ms. A. S. Pathan
	Thorat Rajvardhan		
	Hande Raviraj		
	Mulla Taufik D		
	Jamdade Yogeshwar		

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Department of Computer Science & Engineering

T.E. Mini- Project Record

A.Y.: 2018-19

SVERI's College of Engineering, Pandharpur
Department of Computer Science & Engineering

TE CSE 2018-19 Mini Project List

Group No	Name of Students	Project Title	Name of Guide
TEG1	Gurav Rupali V	Time Table Management	Mr. P. G. Gaikwad
	Gonjari Shivashri P		
	Kamble Supriya S		
TEG2	Landage Kajal V	Kisan App	Mr. S. M. Shinde
	Landage Priya v		
	Gurav Aishwarya V		
	Babar Sonali D		
	Kazi Tasmiya J		
TEG3	Donake Prajkta V	Dental clinic software plus dynamic website	Mr. M. M. Shinde
	Ghavate Aditi A		
	Ligade Gauri A		
	Gaikwad Snehal N		
TEG4	Pradip Mali	Website for NGO	Mr. L. H. Jadhav
	Jadhav Shrihari K		
	Karankot Rohan S		
	Kambale Rohit L		
	Dolle Mahadev I		
TEG5	Chavan Ashwini L	Health Monitoring System	Mr. S. M. Kumbhar
	Done Shilpa S		
	Dahinande Swati R		
	Aarati U Godase		
TEG6	Sayali Bhosale	Chat Application in LAN	Mr. Y. R. Kalshetty
	Jagalpure Mansi D		
	Dhasade Shraddha S		
	Shraddha Gaikwad		
TEG7	Khadake Vidya S	WebEmail based Search Engine using Java	Ms. S. V. Babar & Mr. Gedam
	Kshirsagar Apurva P		
	Ghongare Pratiksha A		
	Bokefode Sanjana M		
TEG8	Gadhave Varsha J	Website for Jwellery Shop	Ms. S. S. Kadam
	Lawate Poonam S		
	Khapale Monika S		
	Shinde Jyoti Madhukar		
TEG9	Khabani V. S.	Content Management System	Ms. M. P. Pawar
	Kasulwar K. V.		
	Anand Mali		
	Abhinav Anand		
TEG10	Ardak Suraj S.	Application for Automobile Accesseories	Ms. P. S. Doshi
	Kalshetti Ajit P		
	Kedare Vishal G		
	Kolekar Aditya		
	Gund Atul K		

(Mr. P. G. Gaikwad)
Project coordinator

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TE CSE 2018-19 Mini Project List

Group No	Name of Students	Project Title	Name of Guide
TEG11	Audumbar Nikam Kiran Sathe Harshal Ramgude Abhishek Kalase Khoje Omkar	Online Bekari Shop	Ms. R. R. Shinde
TEG12	Dagade Monali R Dixit Girija V Snehal Bhosale Bagwan Rafat R	Website for Blood Bank	Ms. S. A. Shegdar
TEG13	Pranali Supekar Kajal Thite Prajkta Satpute Dnyanada Mahajan	website for college of pharmacy Pandharpur	Mr. A. M. Dyade
TEG14	Smita Yadav Rutuja Taksale Kajal Mali Ratnprabha More	Website for civil construction	Mr. S. V. Darshane
TEG15	Pooja Vibhute Shivani D Soni Jyotsna Salunkhe Sneha Padwal Sonali Wadekar	Attendance System App	Mr. P. G. Gaikwad
TEG16	Shweta Misal Vidya More Supriya Paradhye Dipali Sathe	night study attendace system	Mr. A. S. Chavan
TEG17	Pradipta Mahimkar Prajkta Sugandhi Srushti Dhavale Madhura Shinde	website of Hostel Managment	Mr. N. S. Mane
TEG18	Minakshi Bhosale Madhuri Howal Smita Narkhedkar	Collection of onscreen keyboard requirements	Mr. L. H. Jadhav
TEG19	Rewati Sonkawde Manjusha Limbitote Priti Pise Mrunalini Nanaware Bhavana Musale	Plant Irrigation using IOT	Mr. M. M. Shinde
TEG20	Shubham S Shirur Rushikesh Mhetre Vinit Mhetre Pratap Madgundi Yogesh Shingade	Discussion Forum of Biology & Invension	Mr. A. S. Chavan

(Mr. P.G. Gaikwad)
Project Coordinator

HOD,
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SVERI's College of Engineering, Pandharpur
Department of Computer Science & Engineering

TE CSE 2018-19 Mini Project List

Group No	Name of Students	Project Title	Name of Guide
TEG21	Sukeshani S Shinde Shrutika S. Musale Ayesha L Mulani Archna More Vaishanvi Randive	Daily Absentee Register Management	Mr. N. M. Maske
TEG22	Shweta S Vibhute Akshaya A Sherkar Shradha S Tanawade Aishwarya S Nikam	Study Material	Mr. G. V. Kakade
TEG23	Kanchan D Tonape Khushali C Rane Ravina B Narale Apurva L Mohite	Website development for "Test the Best"	Mr. N. S. Mane
TEG24	Dhanaraj T Patil Ganesh S Rananavare Mujamuil S Shaikh Topage Akshay K.	Mahatour	/Ms. G. A. Fattepurkar
TEG25	Harshal Ramgude Abhijeet A Patil Rohit Vishnu Nagtilak	Nightingale	/Ms. G. A. Fattepurkar
TEG26	Tarannum N Tamboli Tabassum N Tamboli Pratiksha R Shindepatil Mayuri Z Surwase	Gym Management System	Mr. S. S. Bansode
TEG27	Sathe Prajkta A Patil Mispa S Mahimkar Shailaja S Londhe Mayuri B	website for "Online Sales & Inventory Management"	Mr. R. B. Kagade
TEG28	Jalindar H Dhembare Akash P Surwase Suyog R Nirmal Mayur K Vasav	Tutorial Website	Mr. J. D. Bokefode
TEG29	Vishal P Munguskar Pankaj A Shinde Pavan D Nakate Mayur R Patil Bharat K Sutar	Linux Recompilation	Mr. Y. R. Kalshetty
TEG30	Sonam K Maske Rutuja P Patil Sandhyarani D Tekale Shrilekha B Narkhedkar	Online library management System.	Ms. V. D. Jadhav

(Mr. P.G. Gaikwad)
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SVERI's College of Engineering, Pandharpur
Department of Computer Science & Engineering

TE CSE 2018-19 Mini Project List

Group No	Name of Students	Project Title	Name of Guide
TEG31	Srushti S Dhavale Madhura G Shinde Prajkta S Sugandhi	Hostel Management System	Mr. N. S. Mane
TEG32	Tanaji Kumbhar Harshad More Pandurang Dandge Avinash Lad Akash Deshmukh	SlamBook Stand alone Application	Mr. G. G. Patil
TEG33	Danave Shraddha P Bhairi Navina T Kamble Snehal A Gharbude Sneha H	Bugs Tracking System	Mr. S. M. Kumbhar
TEG34	Kumbhar Kajal P Thakare Gayatri S Bhosale Priti Bhui Aparna Bhosale Pradnya	Billing System App	Mr. G. R. Shaikh
TEG35	Bhosale Gauri Bhosale Priyanka Kale Preeti Kamble Dipali	Resume building	Ms. D.V. Patil
TEG36	Nikita Kamble Neha Babar Himangi Doke Tejaswini Chavan	business management dynamic website	Ms. A. S. Pathan

(Mr. P.G. Gaikwad)
Project Coordinator

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Department of Computer Science & Engg
SVERI's C.O.E. Pandharpur

SVERI's
College of Engineering, Pandharpur

Department of Computer Science & Engineering

Sample Project Report

A.Y.: 2018-19

A Project Report on

"KRUSHIVARDHAN AGROTECH WEBSITE DEVELOPMENT"

Submitted by:

Mr. SAURABH C. TENDULKAR	**(PRN:2016032500265533)**
Mr. AMIT P. RAUT	**(PRN:2016032500265796)**
Mr. SURAJ B. VARAPE	**(PRN:2016032500265773)**
Mr. RAHUL P. BANSODE	**(PRN:2016032500265982)**

UNDER THE GUIDANCE OF

Mr. P. G. GAIKWAD

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING
IN
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

at

SHRI VITHAL EDUCATION and RESEARCH INSTITUTES's, COLLEGE OF ENGINEERING, PANDHARPUR

AFFILIATED TO PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR

2018-2019

SYNOPSIS

1. Synopsis of Project Work

(a) Relevance:

The internet makes doing business much easier and faster. Its led to changes in the way people do business with a rapidly growing worldwide trend towards online shopping or e-commerce. Online shopping is considered to be a very helpful way of buying products through the internet especially during the holidays and clearance seasons. It allows customers to enjoy a wide variety of products and items not only from a specific store, but from a diverse storage that includes all kinds of items. Online shopping also provides customers with a good customer service that also occurs online.

(b) Present theories and practices:

i. Amazon:

Amazon (Amazon.com) is the world's largest online retailer and a prominent cloud service provider. The company was originally a book seller but has expanded to sell a wide variety of consumer goods and digital media as well as its own electronic devices, such as the Kindle e-book reader, Kindle Fire tablet and Fire TV, a streaming media adapter, etc.

ii. Flip cart:

Today, Flipkart is Indias largest online e-commerce website. Flipkart was started in 2007 and recently it also acquired an online fashion e-commerce Store Mantra for 300 Million. The annual revenue of Flipkart is Rs. 5000 crores. In the world, among the top 100 websites, Flipkart is ranked 82 nd by Alexa, and 7 th position as in India.

(c) Proposed work:

i. Scope of project:

A. This scope of Krushivardhan AgroTech is to develop .Net based website to support to for daily sell.
B. Receipt and balance of product and maintain all information of website related items.
C. This website will be very useful for big shop as well as small shops.
D. It will perform the required task of finding customers and clients information in easiest way.

ii. Objectives:

The main objective of the website to overcome the drawbacks of the existing and some advantages of new system is as follows:

A. Storing Customer Details and Display Our Pride Customers:

Our website stores the all information about customers, also stores the information about the blood donors and display the pride customers.

B. User Friendly:

The new website will be more user friendly as compared to other systems. To develop an easy to use web based interface where user can search for products, view a complete description of the products and can order for the products. A user can view the complete specification of the product along with various images and also view the customer's review of the product. They can also write their own comment about product.

C. Providing Dealership:

If any user wants to become a dealer, then that user should fill dealership form. When user submit the information then user request goes to Director. The Director check the information of that user and approved the request by sending the Dealership Certificate to their registered Email id.

D. Providing Blood Donor's Information:

Any user wants to donate the blood, then the user should fill the Blood Donor Form. It is mandatory to fill the blood group and get certificate from the Director. We only store the information of the donor's whenever any person demands for the blood, as per individual request, we will provide information of particular blood group donor.

iii. Phase wise Proposed Work

Phase I	Phase II
Finalizing project topic	Coding
Requirement Collection	Database Connectivity
Design the modules	Testing and Validation
Database Design	

2. Facilities Available:

(a) Internet.

(b) Required configured machine.

(c) Required software

3. Approximate expenditure:

(a) Domain Cost: - Rs 999/-
(b) Web Hosting: - Rs 2500/-

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Abbreviation

ASP – Application Service Provider
CSS – Cascading Style Sheets
DFD – Data Flow Diagram
DBMS – Database Management System
ER – Entity Relationship
GNU – General Public License
HTTP – Hyper Text Transfer Protocol
HTML – Hypertext Markup Language
RDBMS – Relational Database Management System
SQL – Structured Query Language
URL – Uniform Resource Locator
UML – Unified Modeling Language
WWW – World Wide Web

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Chapter 1

INTRODUCTION

1.1 Introduction

In today's world, people don't have time for their personal needs. The innovation is fast to the point that anybody can do anything by simply sitting in a room. So, it is an imperative issue as per observation. The internet is the way that helps a person in all aspects. In the event that somebody wish to purchase and view things, they can purchase online with the assistance of web. Commercial centers like Flipkart, Amazon and Snapdeal are giving gigantic chances to youthful understudies, housewives just as little shop proprietors to scale their organizations and win great cash [1] [13]. Not with standing, there are different variables that one needs to take a gander at before beginning up an online business. Setting up an online shop to move your items can be a valuable and beneficial method for working together.

It enables you to work without fundamentally requiring a conventional shopfront and gives your clients greater adaptability since they can purchase your items when-ever of the day. Web based moving can likewise widen your client base, as you can pitch to individuals who are interstate or abroad. Internet shopping doesn't speak to everybody, so ensure your objective market is OK with purchasing on the web before you begin. You may discover you can achieve more clients by offering web based shopping close by a customary shop. Web based shopping makes utilization of advanced innovation for dealing with the stream of data, items, and instalment between shopper, website proprietors and providers.

In the event that you were move your item disconnected, at that point you will ready to move your items in constrained region where your shop is found, however when you are going to move your items online then you can move the items in various locales. For this situation, your benefit will be naturally expanded. Presently

multi day everybody is occupied with their work they didn't get time for buying the items by going to specific shop, with the assistance of online commercial [5] centers they will spare their profitable time just as they will ready to see clients audit and contrast and the results of different merchants [6].

The clients get limits through which they can spare their cash. Labour additionally diminishes because of online commercial center. Online stores offer item depiction, pictures, correlations, cost and significantly more. Shopping basket is one of the essential office gave in web based shopping, this lets client to peruse distinctive products and enterprises and once they select a thing to buy they can put the thing in shopping basket, and keep perusing till the last choice [12].

1.2 Need of Work

There are large numbers of commercial Online Shopping Websites offering large number of products tailored to meet the shopping interests of large number of customers. These online marketplaces have thousands of products listed under various categories.

Shopping has been considered a recreational by many. Online shopping no exception. The goal of this website is to develop web based interface for online retails. The system would be easy to use and hence make the shopping experience pleasant for the users.

The goal of this website is:

1. To develop an easy to use web based interface where user can search for products, view a complete description of the products and order the products.
2. Drag and Drop feature which would allow the users to add a product to or remove a product from the shopping cart by dragging the product in to the shopping cart or out of the shopping cart.
3. A user can view the complete specification of the product along with various images and also view the customer review of the product. They can also write their own review.

Problem:

The basic problems with the existing systems are the non-iterative environment they provide to users. The use of traditional user interface which make continuous post to the server. Each post back makes a call to server, gets the response and then refreshes the entire web form to display the result. This scenario adds an extra trade off causing a delay in displaying the results.

- Use of traditional and non-user friendly interfaces that are hard to use.

Solution:

- The motive of this Online Shopping Website is to allow the user for Online Shopping.
- Provide interactive interface through which a user can interact with different areas of website easily.

1.3 Objectives

The main objective s of the website to overcome the drawbacks of the existing and some advantages of new system is as follows:

1.3.1 Storing Customer Details:

Our website stores the all information about customers. Because now a day it essential to know about our clients.

1.3.2 User Friendly:

The new website is more user friendly as compared to existing system.

Chapter 2

LITERATURE SURVEY

2.1 Existing System

E-Commerce software can be used to manage your online store and handle aspects such as adding and removing products, tracking inventory, calculating taxes and other work required to fulfill orders placed on the website. Currently most popular systems are discussed as follows:

1. **Amazon:**

   Amazon (Amazon.com) is the world's largest online retailer and a prominent cloud service provider. The company was originally a book seller but has expanded to sell a wide variety of consumer goods and digital media as well as its own electronic devices, such as the Kindle e-book reader, Kindle Fire tablet and Fire TV, a streaming media adapter, etc.

2. **Flip cart:**

   Today, Flipkart is India's largest online e-commerce website. Flipkart was started in 2007 and recently it also acquired an online fashion e-commerce store Mantra for 300 Million. The annual revenue of Flipkart is Rs. 5000 crores. In the world, among the top 100 websites, Flipkart is ranked 82nd by Alexa, and 7th position as in India.

2.2 Problem Definition

Purchasing and selling products offline, then you will restrict to sell the products in limited area where the shop is located. While purchasing any product customer

have to visit many websites for price, feature comparison, delivery time and availability of product. Customer generally suffer from unnecessary notification and redirection.

2.3 Proposed System

We are going to provide solution to address this issue through online website. We have considered dry foods, play equipment's and solar products for selling purpose, also we are going to provide facilities to connect the dealer, farmers. Also as a social responsibility we are going to provide blood donors information to the customer. The details of design and implementation is discussed in the successive sections.

A. Modular Design

The functionality of the proposed application is divided into number of sub modules. The modules to be taken into account are customer shopping cart, orders, payment and product module. These modules while integrated together give the functionality desired out of the application.

B. Customer

In this module the client information is processed. This information includes giving username and password to login to this site. This is required to verify the user. The email id of the customer is used to confirm the customers' orders and also to send promotional emails [10].

C. Shopping Cart

This sub-module lets the user to select the items that they intend to buy to store in cart before placing the order. The items can be stored into the cart and it can be deleted from the cart.

D. Order

In this module customer order is processed. The user can place the order for the items they want to buy. It verifies the pin code and it confirms the order to delivered place. At the shipping address the product should be delivered.

E. Payment

In this sub module payment options for the order is given and processed. Payment would be through credit card, debit card, E-cash or cash on delivery. The total charges of the product are the sum of cost of the product and delivery charges will be deducted from the users account in case of payment options other than cash on delivery.

F. Product

In this module product details can be added to the database. The tax per product and actual price of the products can be added. The product details can be edited by admin. The products are stored as per category. Arrangement of products into categories enables the user to search the products based on its category. The database is normalized [13] so that the redundancy is minimized. The database for the proposed application is normalized up to third normal form.

2.3.1 System Architecture

The Admin side DFD [2][3] describe the functionality of Admin. Admin is an owner of the website. Admin can add category of item and then add items by category wise and admin can manage order and payment detail. The Customer side DFD describe the functionality of Customer. Customer should login with correct credentials.

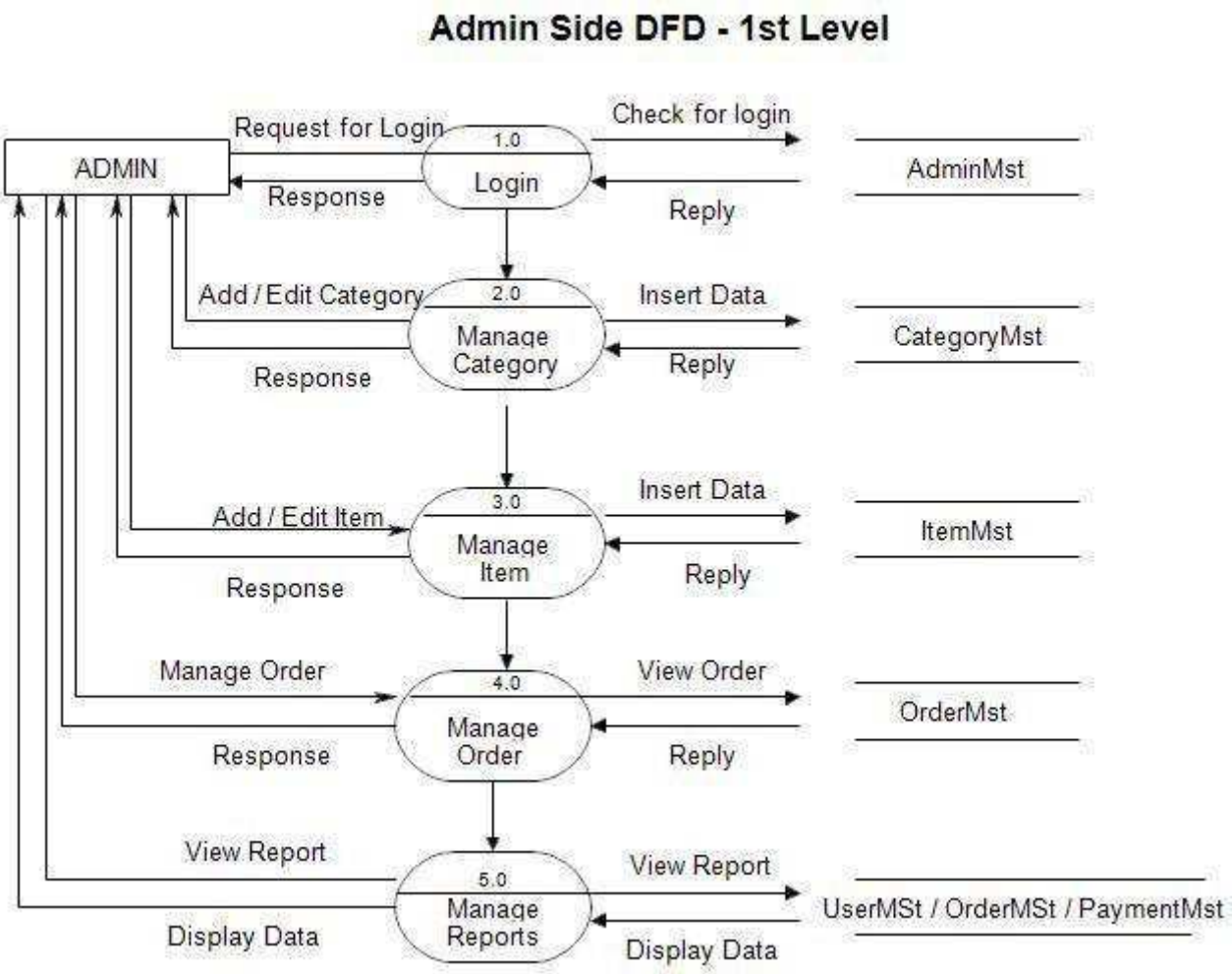


Figure 2.1: System Structure of Admin.

The Customer side DFD describe the functionality of Customer. Customer should login with correct credentials. Customer select the product as per their requirements specification, description. Then it should place the order through the payments. Customer can pay the payment through net banking credit card, debit card and cash on delivery.

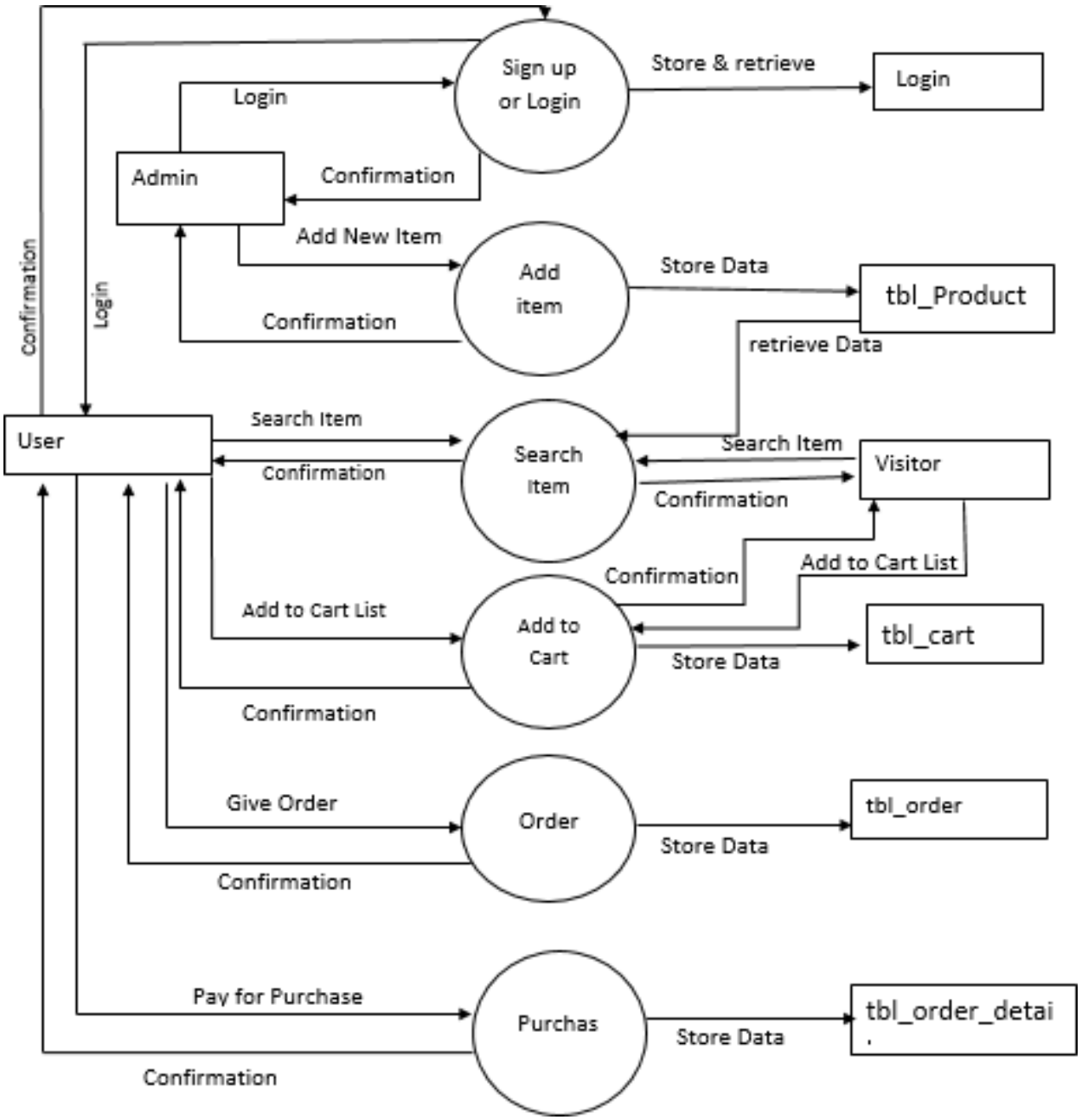


Figure 2.2: System Structure of User.

2.3.2 Modules to be Implement

The website design in this project needs a web browser and a database for implementation at the server side and only a web browser at the client side. The user types the URL corresponding to the website i.e. krushivardhanagrotech.co.in in the address field of the browser, a web server is contacted to get the requested information. Web server accepts the incoming HTTP requests and returns the requested information in an HTTP response. The application is developed using HTML as, and MYSQL workbench as the back end.

Integrating the website and the database:

Customers ordering the products from an e-commerce website should be able to get the information of products, ask questions, review, and give feedback on the products, select the products they would like to buy, submit payments. Admin should be able to keep track of the products ordered, payment details, customer inquiries. So a well-organized database is very essential for maintenance of an e-commerce website. The user must be able to access the data base and for this the remote database connectivity is established. The user information is stored in and retrieved from the remote database. The database used in this paper is MYSQL Server.

Webpage design:

The web pages are designed in HTML and Java Script [8][9]. The web pages should be dynamic in nature as the user should be able to access the product details, make payment, post feedback, etc. The static web pages are used for displaying the product description, privacy policy and so on. ASP is used as middle tier that establishes the necessary connection with the database to retrieve the information from the remote database.

1. User Account Module:

User accounts the executive's module keep up the data pretty much every one of the users like location, contact no, their past item decisions and so forth. This data is exceptionally valuable for fruitful online business advertise.

Enable Account Login a customer login is created (associated with the email address of the customer) to login to their account dashboard to access past orders and downloads, and to make future checkouts faster and easier. During checkout, clients set a password to access their account. They can then login to their account on the stores account page with their email address and their specified password.

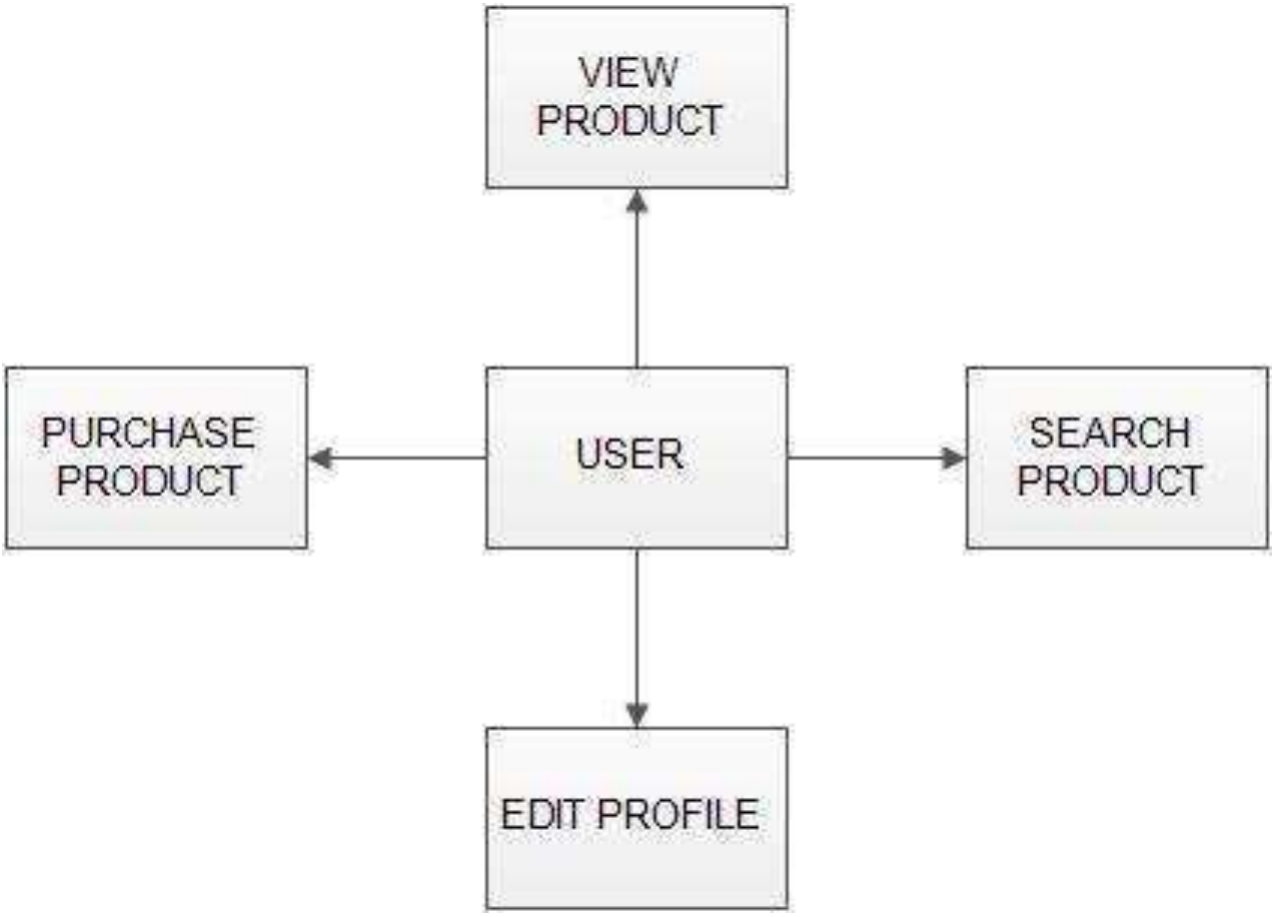


Figure 2.3: User Module.

- **Registration**

A new user will have to register in the system by providing essential details in order to view the products in the system. The admin must accept a new user by unblocking him.

- **Login**

A user must login with his user name and password to the system after registration.

- **View Products**

User can view the list of products based on their names after successful login. A detailed description of a particular product with product name, products details, product image, price can be viewed by users.

- **Search Product**

  Users can search for a particular product in the list by name.

- **Add to cart:**

  The user can add the desired product into his cart by clicking add to cart option on the product. User can view his cart by clicking on the cart button. All products added by cart can be viewed in the cart. User can remove an item from the cart by clicking remove.

- **Submit Cart:**

  After confirming the items in the cart the user can submit the cart by providing a delivery address. On successful submitting the cart will become empty.

2. Admin Account Module:

The administrator is the super user of this website. Only admin have access into this admin page. The administrator has all the information about all the users and about all products.

This module is divided into different sub-modules.

- Manage Products
- Manage Users
- Manage Orders

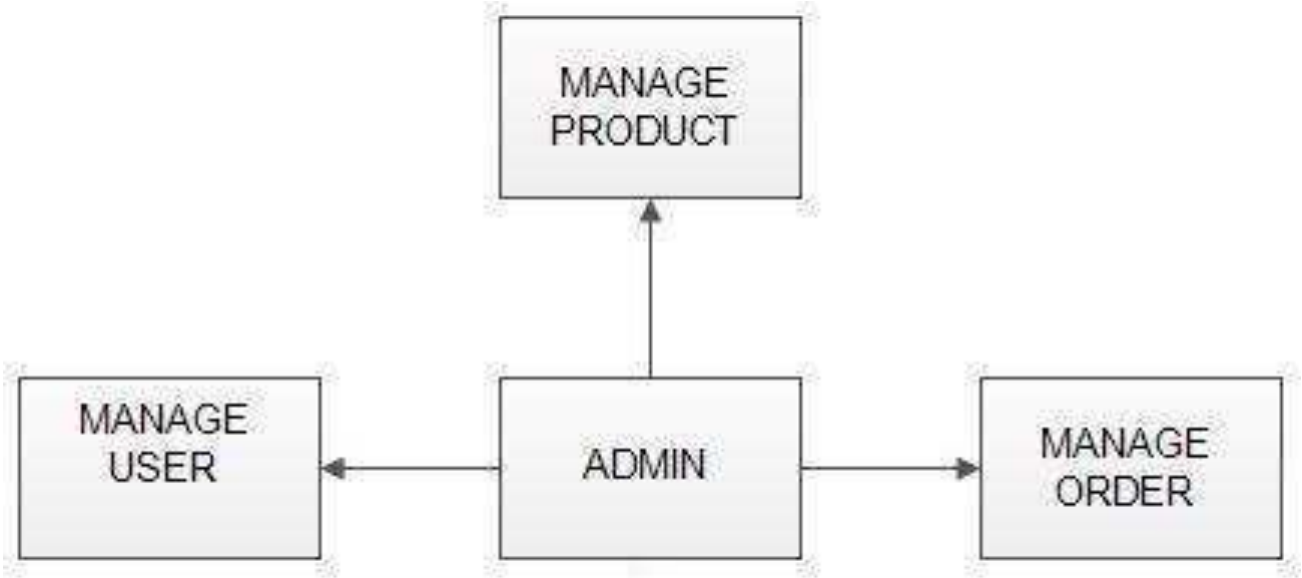


Figure 2.4: Admin module.

A. Manage Products

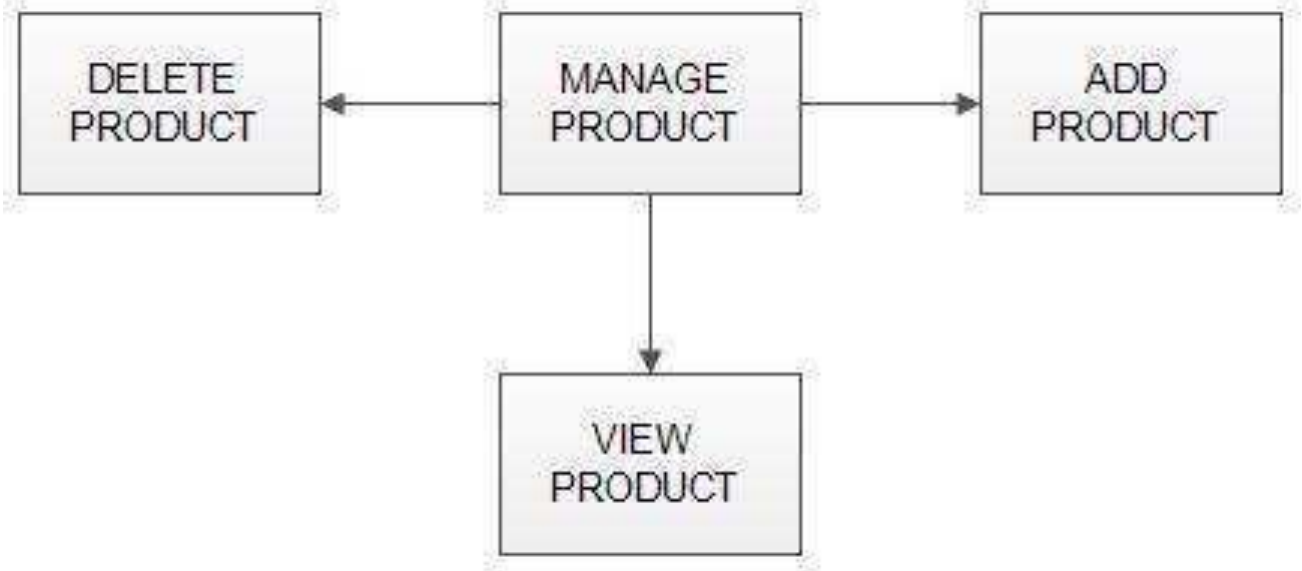


Figure 2.5: Manage Products.

- **Add Products**

The shopping cart project contains different kind of products as shown in fig 2.5. The products can be classified into different categories by name. Admin can add new products into the existing system with all its details including an image.

- **Delete Products**

Administrator can delete the products based on the stock of that particular product.

- **Search products**

Admin will have a list view of all the existing products. He can also search for a particular product by name.

B. Manage Users

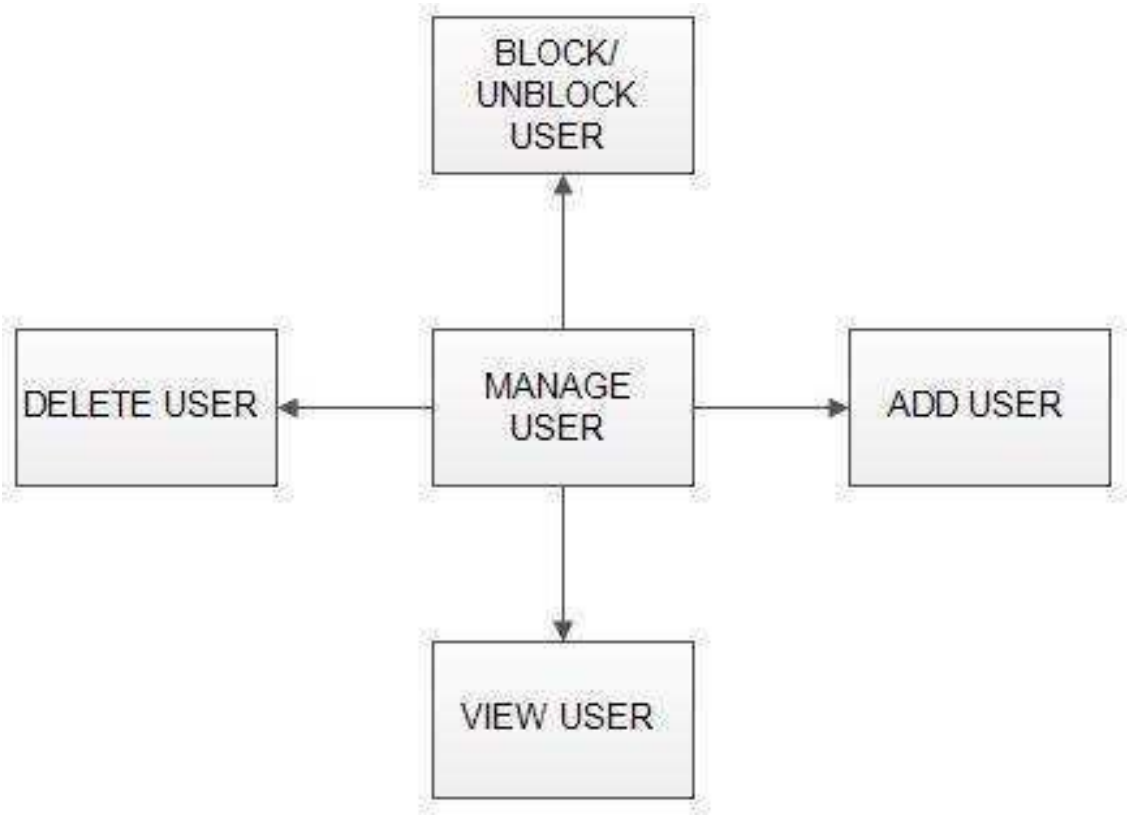


Figure 2.6: Manage User.

- **View Users**

The admin will have a list view of all the users registered in the system. Admin can view all the details of each user in the list except password.

- **Add Users**

Admin has privileges to add a user directly by providing the details.

- **Delete Block Users**

Administrator has a right to delete or block a user. The default status of a new user registered is set as blocked. The admin must accept the new user by unblocking him.

C. Manage Orders



Figure 2.7: Manage Order.

- **View Order**

Administrator can view the Orders which is generated by the users. He can verify the details of the purchase.

- **Delete order**

Admin can delete order from the orders list when the product is taken for delivery.

Working:

The administrator is given the benefits to change and refresh the database. The administrator includes new items, settles on the ideas on certain items. The items that are not sought after can be for all time erased from the database which implies that the closeout of those items on the site is ceased. The seller subtleties, installments to the merchant are to be taken consideration by the administrator. The transportation subtleties, for example, the regions where the delivery offices are accessible, the subtleties of the delivery organizations and the exchange between them are to be checked. The administrator can choose the money down office to make accessible in all territories or limit to certain regions as it were. The reports of the regular deal, benefit, the items are very on interest, etc. are produced according to the demand. The report age isn't feasible for the client. A client suspected to have broken the protection strategy can be hindered by the administrator.

Promotional mails can be sent to the customer's e-mail id based on their address. The heuristics analysis is to be made on a particular customer to know their interests. So that only on those products, the promotional mails can be sent to that customer.

The customer accesses the website by typing the URL corresponding to the website i.e. krushivardhanagrotech.co.in. The user can request for product details by clicking the products menu. The user is provided with two types of wish lists on site wish list and off site wish list. In the list the user is allowed to add any product available on the site to the list.

The customer should sign up for the first time to place order of a product. Later each time user to buy products he should login. The wish list of the user can be maintained if and only if the user has an account in the database. The product that user want to buy will be added to the cart, and if user to see some more products he can continue while one or more products are on the cart. The order of the products is placed from the cart. The products in the cart can be removed, more products can be added.

Once the order is placed the next step would be to give the order details. The user is asked to type his address, mobile number and pin code. Pin code is used to check the availability of the shipping service to given place.

The next step is payment. The payment can be done through credit card, debit card, pay pal and cash on delivery. If the user wants to make the payment via credit card or debit card, then the card details are asked. Once the user enters the card details the user is directed to a payment gateway for the transaction. Once the order is placed then mail will be send to the user. The user is informed via e-mail while the order is processed, shipped, and delivered at the destination.

The user will be given an order id which will help in tracking the order. The order can be cancelled before it is being shipped. The return policy is specified by the admin. The recently viewed products are displayed on the user's home page. The user can assign rating to products, review the products and give feedback. The purchase history of the user is maintained.

2.4 Advantageous of Proposed System

1. Make System Configuration as per requirement.
2. Create System Configuration and use later selling purpose.
3. Quickly creating database backup.
4. Customize bill that you want.
5. Create estimates and later convert into bills.
6. Manufacturing's Administration.
7. Server database provide and protected from unauthorized modification.
8. Selling quickly and efficiently.

Chapter 3

SYSTEM ANALYSIS AND DESIGN

System analysis is the process of gathering and interpreting facts, diagnosing problems and using the information to recommend improvements on the system. System analysis is a problem solving activity that requires intensive communication between the system users and system developers.

System analysis or study is an important phase of any system development process. The system is viewed as a whole, the inputs are identified and the system is subjected to close study to identify the problem areas. The solutions are given as a proposal. The proposal is reviewed on user request and suitable changes are made. This loop ends as soon as the user is satisfied with the proposal.

3.1 Requirement Specification

3.1.1 Non Functional Requirements

i. Efficiency Requirements

When an online shopping cart website implemented customer can purchase product in an efficient manner.

ii. Reliability Requirements

The system should provide a reliable environment to both customers and owner. All orders should be reaching at the admin without any errors.

iii. Usability Requirements

The website is designed for user friendly environment and ease of use.

iv. Implementation Requirements

Implementation of the system using CSS and html in front-end with ASP as back-end and it will be used for database connectivity. And the database part is developed by MYSQL. Responsive web designing is used for making the website compatible for any type of screen.

3.1.2 Functional Requirements

I. User

- User Login

Description of feature

This feature used by the user to login into system. A user must login with his user name and password to the system after registration. If they are invalid, the user not allowed to enter the system.

Functional requirement

- Username and password will be provided after user registration is confirmed.
- Password should be hidden from others while typing it in the field.

- Register New User

Description of feature

A new user will have to register in the system by providing essential details in order to view the products in the system. The admin must accept a new user by unblocking him.

Functional requirement

- System must be able to verify and validate information.
- The system must encrypt the password of the customer to provide security.

- Purchasing an Item

Description of feature

The user can add the desired product into his cart by clicking add to cart option on the product. He can view his cart by clicking on the cart button. All products added by cart can be viewed in the cart. User can remove an item from the cart by clicking remove. After confirming the items in the cart the user can submit the cart by providing a delivery address. On successful submitting the cart will become empty.

Functional requirement

- System must ensure that, only a registered customer can purchase items.

II. Admin

- Manage User

  Description of feature
  The administrator can add user, delete user, view user and block user.

- Manage Products

  Description of feature
  The administrator can add product, delete product and view product.

- Manage Orders

  Description of feature
  The administrator can view orders and delete orders.

  Functional requirement
  - The system must identify the login of the admin.
  - Admin account should be secured so that only owner of the shop can access that account.

3.2 UML Diagrams

3.2.1 ER Diagrams

- LOGIN

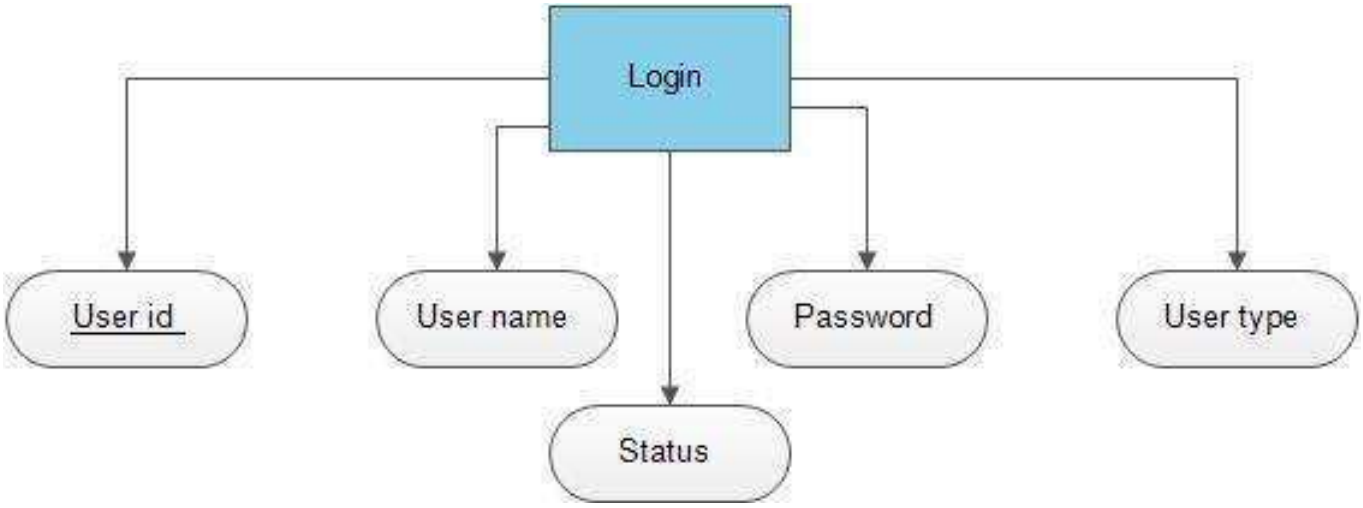


Figure 3.1: Login

- USER DETAILS

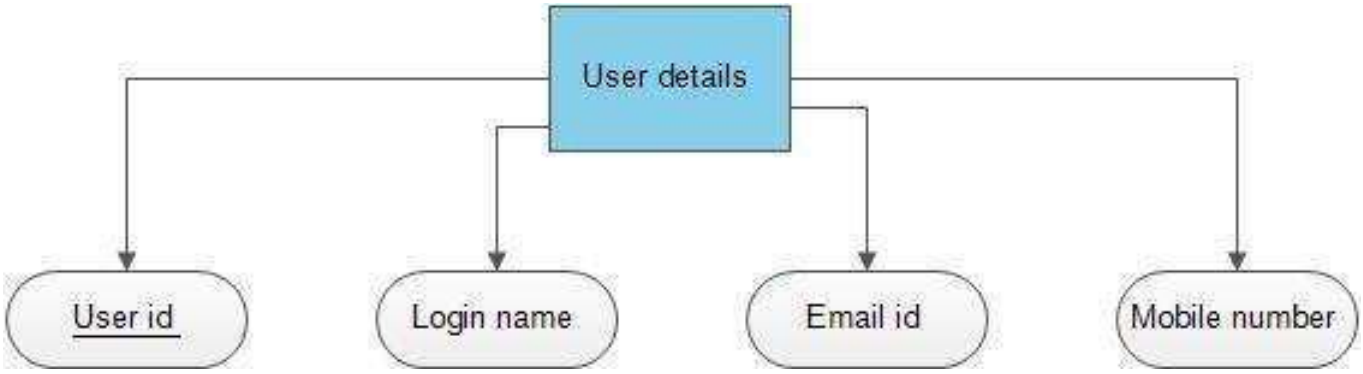


Figure 3.2: User Details

- PRODUCT DETAILS

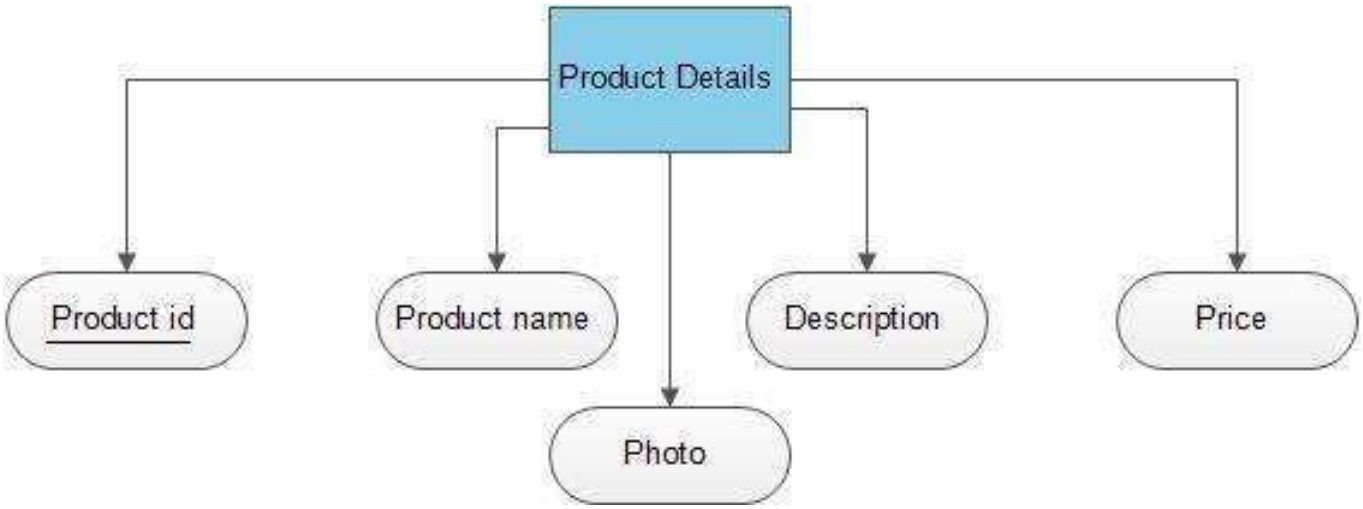


Figure 3.3: Product Details

- PRODUCT ORDERS

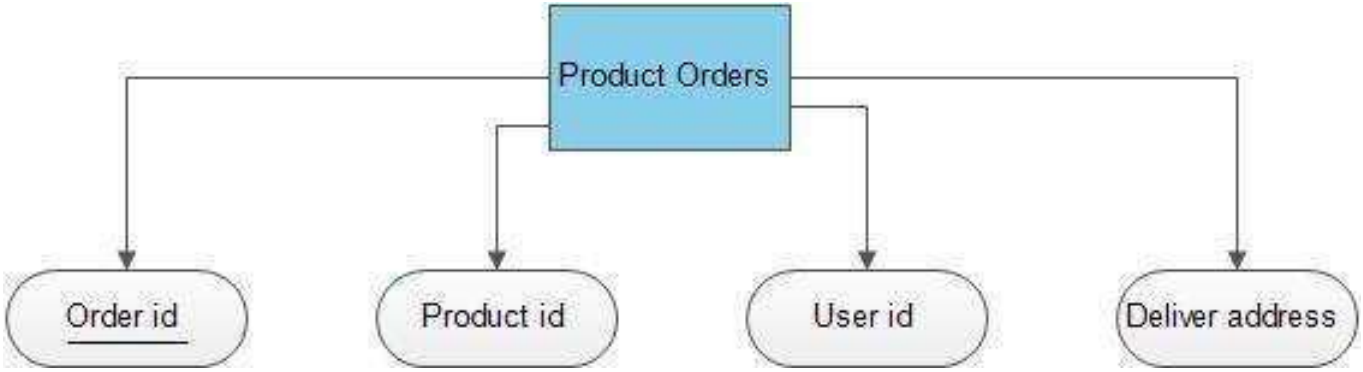


Figure 3.4: Product Orders

- ER DIAGRAM

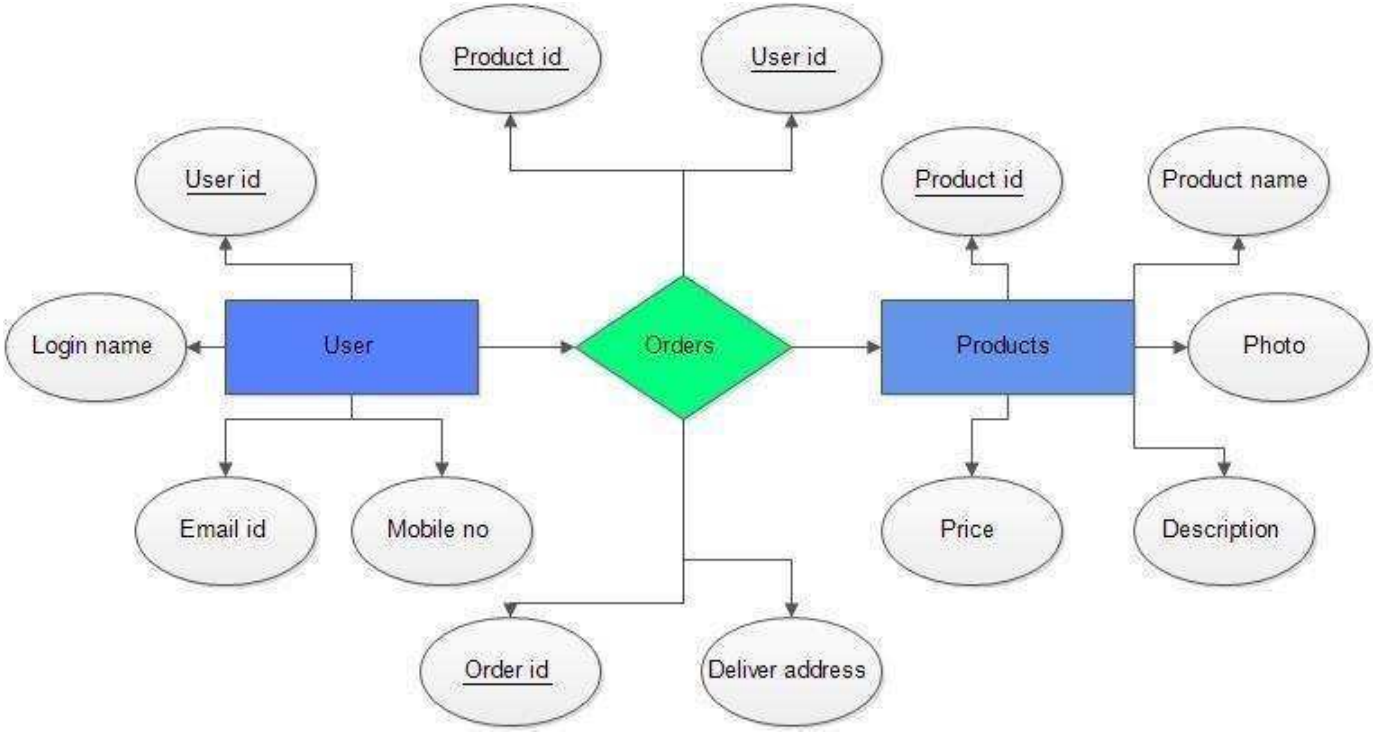


Figure 3.5: ER Diagram

3.2.2 Data Flow Diagram

A Data Flow Diagram (DFD) is a structured analysis and design tool that can be used for flow charting. A DFD is a network that describes the flow of data and the processes that change or transform the data throughout a system. This network is constructed by using a set of symbols that do not imply any physical implementation. It has the purpose of clarifying system requirements and identifying major transformations. So it is the starting point of the design phase that functionally decomposes the requirements specifications down to the lowest level of detail. DFD can be considered to an abstraction of the logic of an information-oriented or a process-oriented system flow-chart. For these reasons DFDs are often referred to as logical data flow diagrams.

LOGIN DFD

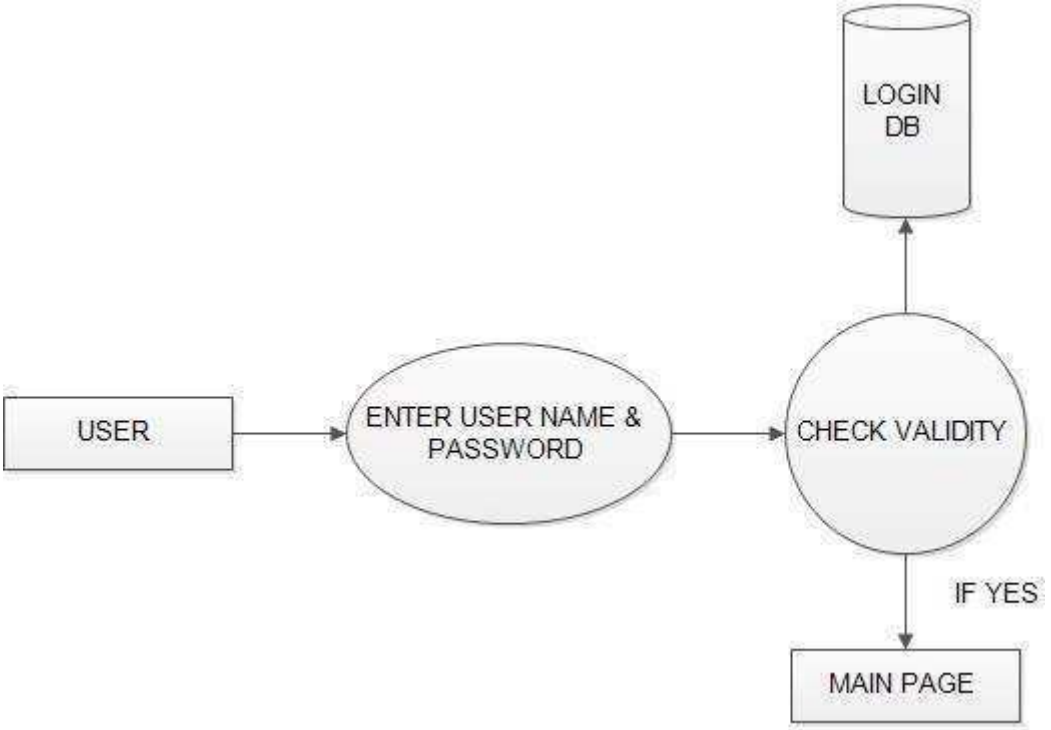


Figure 3.6: Login DFD

REGISTRATION DFD

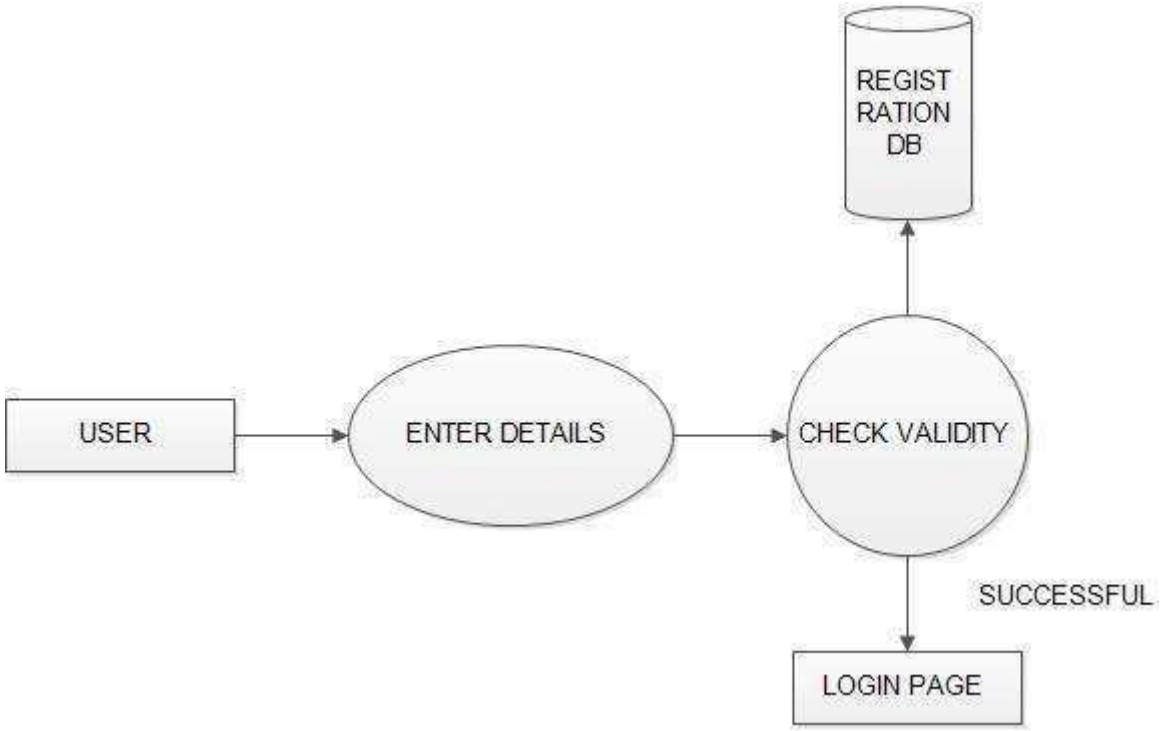


Figure 3.7: Registration DFD

ADMIN DFD

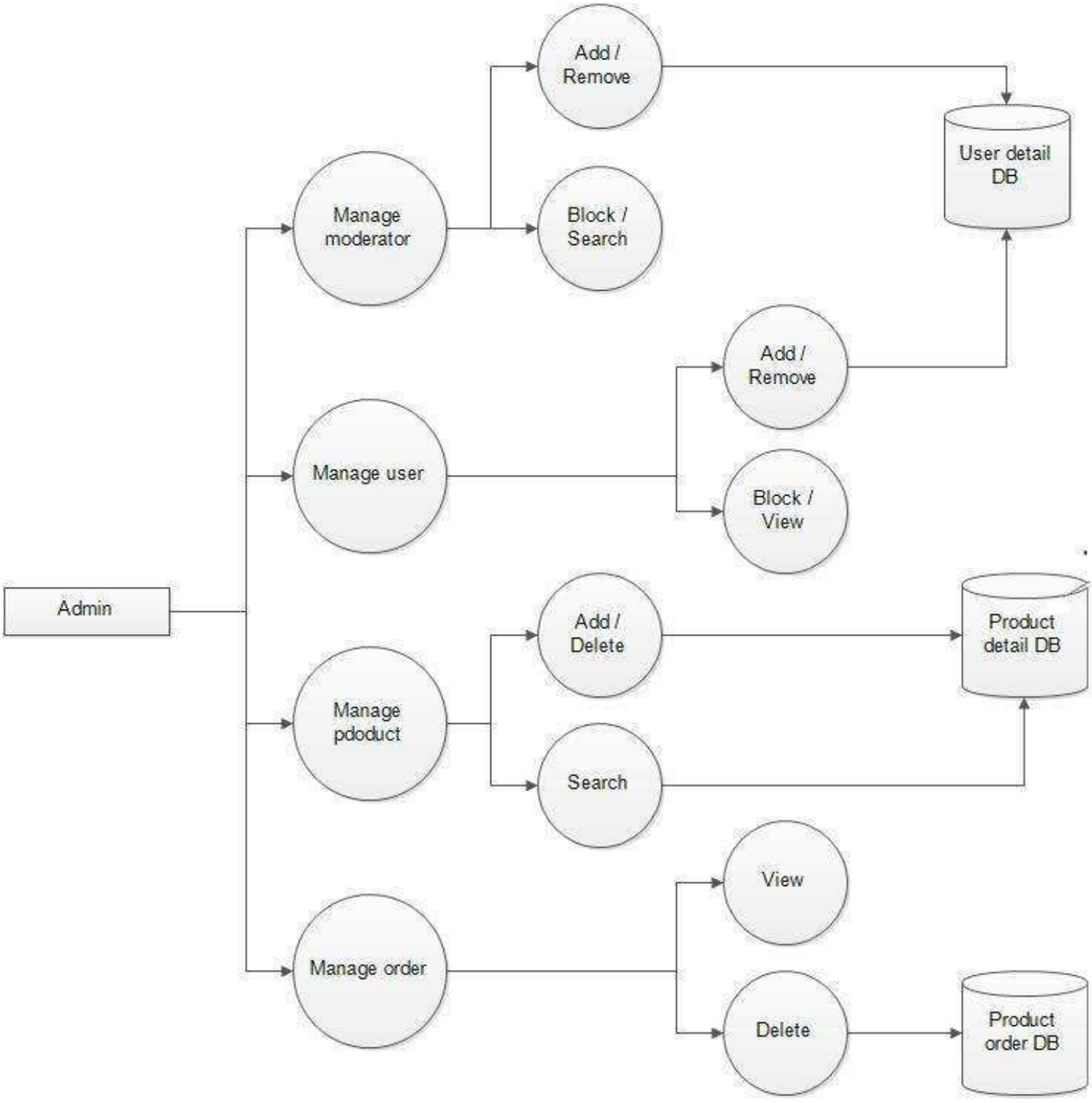


Figure 3.8: Admin DFD

EXTERNAL ENTITY

An external entity is a source or destination of a data flow. Only those entities which originate or receive data are represented on a data flow diagram. The symbol used is a rectangular box.

PROCESS

A process shows a transformation or manipulation of data flow within the system. The symbol used is an oval shape.

DATA FLOW

The data flow shows the flow of information from a source to its destination. Data flow is represented by a line, with arrowheads showing the direction of flow. Information always flows to or from a process and may be written, verbal or electronic. Each data flow may be referenced by the processes or data stores at its head and tail, or by a description of its contents.

DATA STORE

A data store is a holding place for information within the system: It is represented by an open ended narrow rectangle. Data stores may be long-term files such as sales ledgers, or may be short-term accumulations: for example, batches of documents that are waiting to be processed. Each data store should be given a reference followed by an arbitrary number.

3.3 Design and Test Steps / Criteria

A. General Test Cases

1. Verify that user is able to navigate through all the products across different categories.
2. Verify that all the links and banners are redirecting to correct product/category pages and none of the links are broken.
3. Verify that the company logo is clearly visible.
4. Verify that all the text - product, category name, price and product description are clearly visible.
5. Verify that all the images - product and banner are clearly visible.
6. Verify that category pages have relevant product listed specific to the category.
7. Verify that correct count of total products is listed on the category pages.
8. Search - Verify that on searching all the product satisfying the search criteria are visible on the search result page.
9. Search - Verify the more relevant product for the search term are displayed on the top for a particular search term.
10. Search - Verify that count of products is correctly displayed on the search result page for a particular search term.
11. Sorting - Verify that all the sort options work correctly - correctly sort the products based on the sort option chosen.
12. Sorting - Verify that sorting works correctly on the category pages.
13. Sorting - Verify that sorting works correctly on the search result page.

B. Product Buy Flow - Test cases

1. Verify that on the product page, user can select the desired attribute of the product e.g. size, color etc.
2. Verify that user can add to cart one or more products.
3. Verify that user can add products to add to cart.
4. Verify that user can buy products added to cart after signing in to the application (or as per the functionality of the website).

5. Verify that user can successfully buy more than one products that were added to his/her cart.
6. Verify that user cannot add more than available inventory of the product.
7. Verify that the limit to the number of products a user can by is working correctly by displaying error message and preventing user from buying more than the limit.
8. Verify that the delivery can be declined of for the places where shipping is not available.
9. Verify that Cash on Delivery option of payment is working fine.
10. Verify that the different prepaid methods of payments are working fine.
11. Verify that product return functionality works fine.

C. User Registration - Test cases

1. Verify that all the specified fields are present on the registration page.
2. Verify that the required/mandatory fields are marked with against the field.
3. Verify that for better user interface dropdowns, radio buttons and checkboxes etc. fields are displayed wherever possible instead of just textboxes.
4. Verify the page has both submit and cancel/reset buttons at the end.
5. Verify that clicking submit button after entering all the required fields, submits the data to the server.
6. Verify that clicking cancel/reset button after entering all the required fields, cancels the submit request and resets all the fields.
7. Verify that whenever possible validation should take place at client side.
8. Verify that not filling the mandatory fields and clicking submit button will lead to validation error.
9. Verify that not filling the optional fields and clicking submit button will still send data to server without any validation error.
10. Check validation on date and email fields (only valid dates and valid email Ids should be allowed).
11. Check validation on numeric fields by entering alphabets and special characters.
12. Verify that leading and trailing spaces are trimmed.

13. Verify that after making a request to the server and then sending the same request again with the same unique key will lead to server side validation error.

3.4 Testing Process

1. Testing E-commerce Applications Functionality

An e-commerce web or mobile application has four important elements in its structure, and they are:

- **Main Pages: -**

  Homepage, Product page, Services, Social Awareness, About Us page, Contact Us page etc.

- **Category / Product Type Pages: -**

  The product page consists of options such as description, product image, net wet, quantity and price. There is sorting feature to filter out products based on description, price, size, etc. There is also Add to Cart feature present in the category pages.

- **Product Description Page: -**

  Consists of product title, description, product images, related products, Add to Cart feature, Product comparison, additional product info, etc.

- **Shopping Cart: -**

  Products list view, removing product from the list, cash on delivery option, select delivery option, card payment, pay now option, etc.

2. **Testing E-commerce Application Workflow: -**

The testing of the complete workflow of your e-commerce web/mobile application consists of:

- Login and Signup options
- Search functionality
- Add/remove functionality in the shopping cart
- Check out process
- Order number and invoice generation

3. **Checking Compatibility with Web Browser: -**

It is important for e-commerce applications to work on all types of web browsers such as Google Chrome, Firefox, Opera, Internet Explorer, Safari, etc. You need to test the browser compatibility of the application to make sure that your customers are able to use your e-commerce website without any hassle.

4. **Testing for Mobile Responsiveness: -**

Nowadays, mobile devices are taking over desktop platforms in terms of internet usage and companies are taking mobile-first approach in their e-commerce applications. You need to test the responsive design of your application in mobile devices of various screen sizes.

5. **Other Common Things to be Tested: -**

There are other common things in your e-commerce application you need to test and they include website content, webpage format, website accessibility, cookies, social buttons, adding/deleting content, removing/adding links, web standards, analytics, and making changes to shipping settings.

Chapter 4

METHODOLOGY/ TECHNIQUES USED

4.1 Development Tools

The entire development process has been subdivided into two: the front end development and the backend development. The front end comprises of the visually visible parts such as the home page, admin panel, contact page, shopping cart page. The back end contains the database and its interaction with the front-end.

1. Front End Development:

The front end was initially raw coded using JavaScript. JavaScript is a client side scripting language which is a dedicated language for web development. JavaScript code was simply mixed with the Hypertext Mark- up Language (HTML) code. Hypertext mark-up language is the language used to design the web pages of an application. A static page is an HTML document that is stored on the web server and does not change.

This was performed by Cascading Style Sheet (CSS). CSS is a style sheet language used for describing the look and for- matting a document written in a mark-up language. These CSS files are linked with the class files with ASP extensions to put the panels in order, the text with correct font, size and color. JavaScript is a client side scripting language most commonly used as part of web browsers and its implementations allow client side scripts to interact with the user, control the browser and alter the document content which is displayed.

For example, in website for the client's registration, the system asks to provide their details which contains their name, email address, age, etc. If they missed any of the details, then immediately the browser asks them to fill the

particular field. This is implemented and handled by a JavaScript. Bootstrap programs are also introduced in for web application which supports creation of animations.

2. **Backend Development:**

The Database Management System (DBMS) provides support for the back end. The database management system is essentially software where admin can create the database, add, drop, alter and update tables. The tables can hold different types of data for example: integer, variable characters etc. in our application we have chosen the MySQL DBMS to hold the database. MySQL is a relational database management system. The main reason is MySQL development project has made its source code available under the terms of the General Public License (GNU) which is an open source web application.

3. **Database Design:**

One of the most important and challenging task is the database design. The information passed by the customer while registering in the website is stored in the database. The products with their identification, description and image is stored in the database. Moreover, if admin update any of the featured products then update takes place in the database. So the program has a lot to do with the database.

Any query is run on the database by Structured Query Language (SQL). As stated earlier that PHP has some useful features one of them is the support to connect the database and run queries. The following diagram explains the details the database design [3].

The system has eight tables in the database namely: advertise, brand, category, product, add and registration. The formation of three tables are shown in the diagram fig 4.1. The table entitled product has the attributes namely: product id, product rate, category id, brand id, and product rate. Where product id is the primary key for this table i.e. each product will have a unique identity.

The attribute category id plays as a foreign key for this table i.e. this foreign key creates a link with table category having two attributes: website his information will be stored in the customer table with the attributes- name, customer id, product id, quantity and email. Again customer id is the unique key for this table and product id is the foreign key to link with the product table.

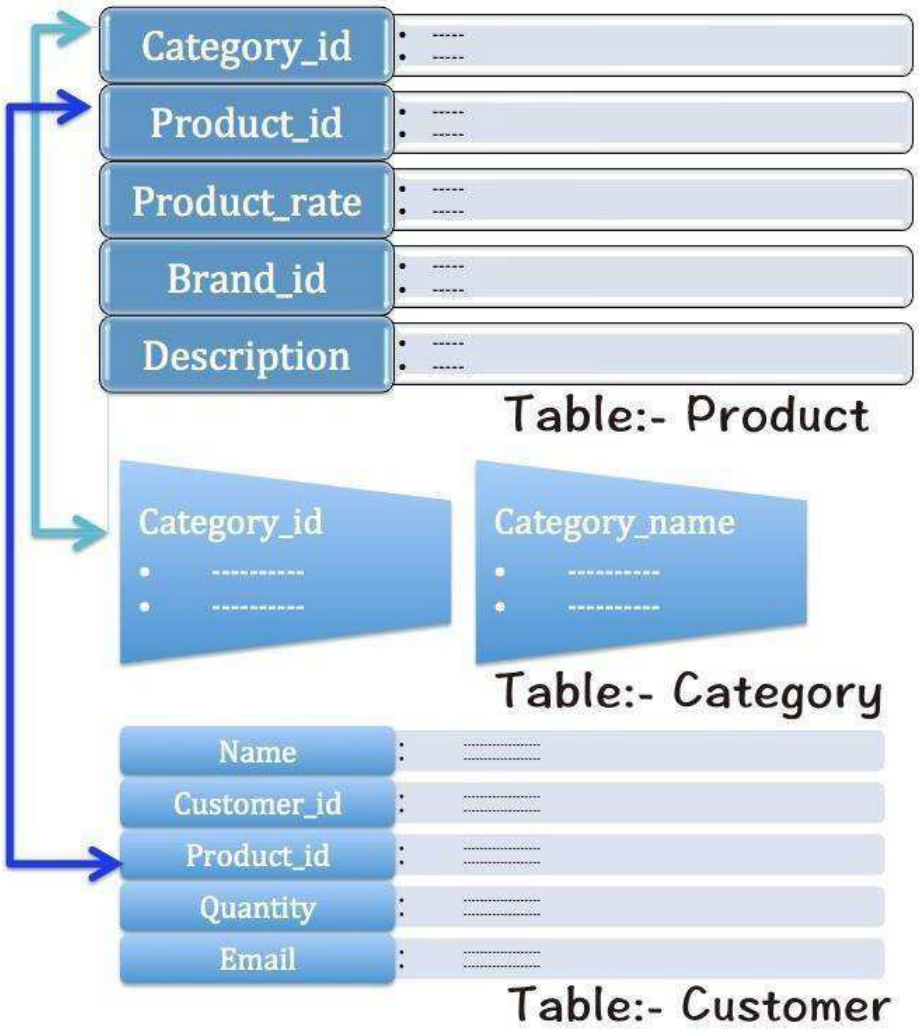


Figure 4.1: Database Tables of product, category and customer.

4.2 Database Schema

We are using eight table for the database such that User Registration, Dealer Registration, Blood Donor Registration, Product Information, Dry foods Product, Add to cart, Order Details and Feedback.

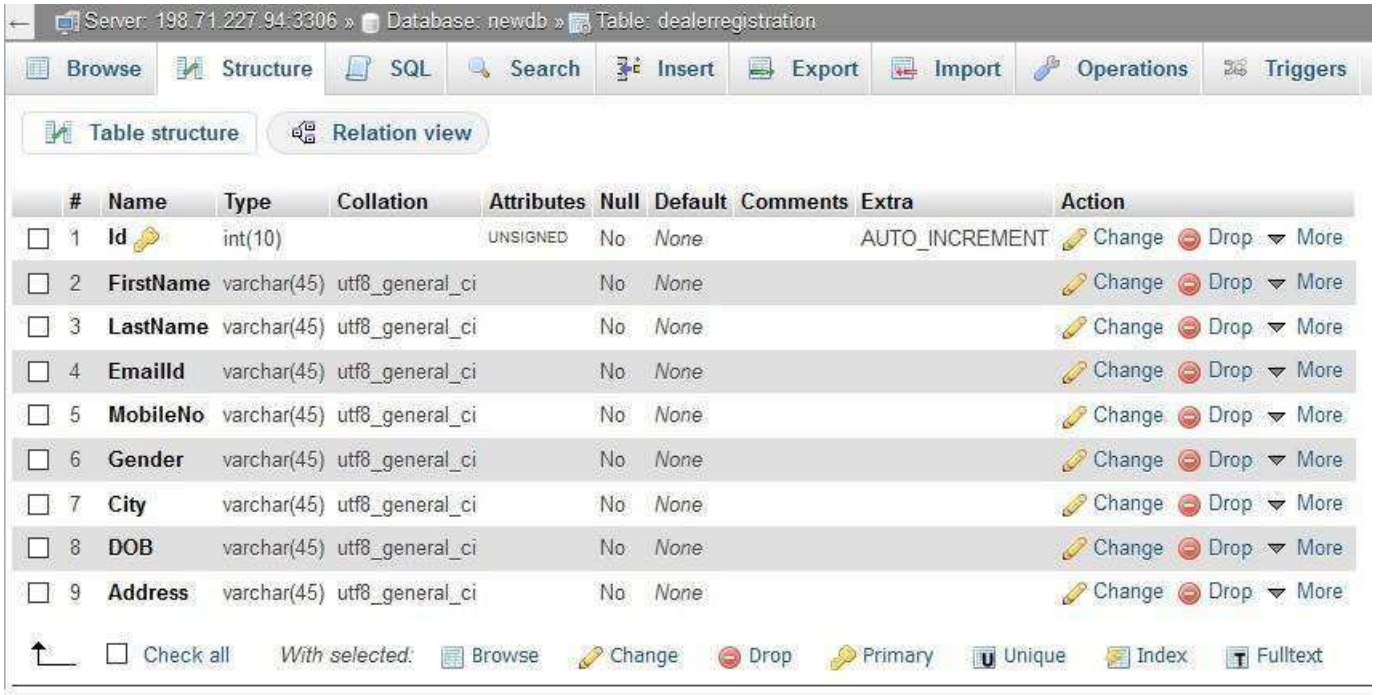
Table 4.1: User Registration



This is User Registration table. It includes seven columns like Uid, FirstName, LastName, DOB, MobileNo, Emailid and Password. The Uid is the primary key and it will be auto incremented. We can easily change the record as well as drop the record and perform many more operations.

If user want to purchase any product at that time user should register to our website. If user is already registered, then they can easily login to our portal with the credentials.

Table 4.2: Dealer Registration

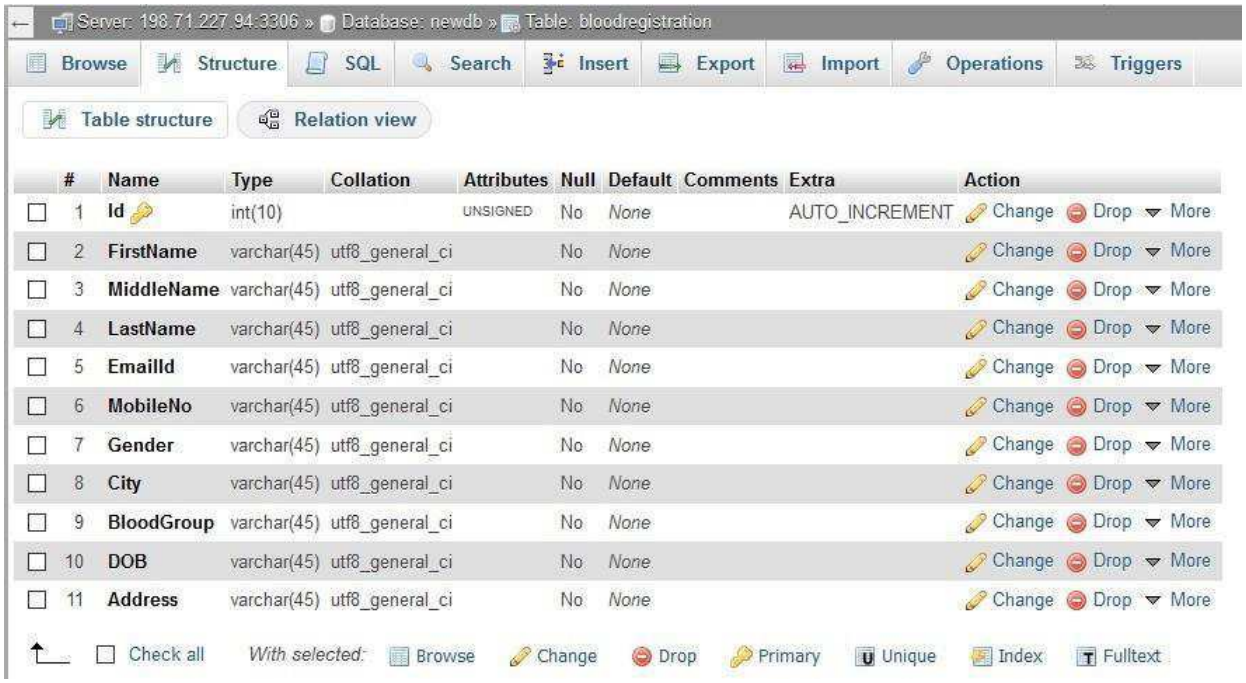


This is Dealer Registration table. It includes nine columns like id, FirstName, MiddleName, LastName, Emailid, MobileNo, Gender, City, DOB and Address. The id is the primary key and it will be auto incremented.

If user want to become the dealer of our company then they can fill the information such as first name, last name, mobile no and emailid. After that the administrator can verify that information and then as per the decision taken by company owners respond will be send through email.

This extra feature we have added by keeping “Rise with others” business line in mind which help to connect small business and growing our business too.

Table 4.3: Blood Donor Registration

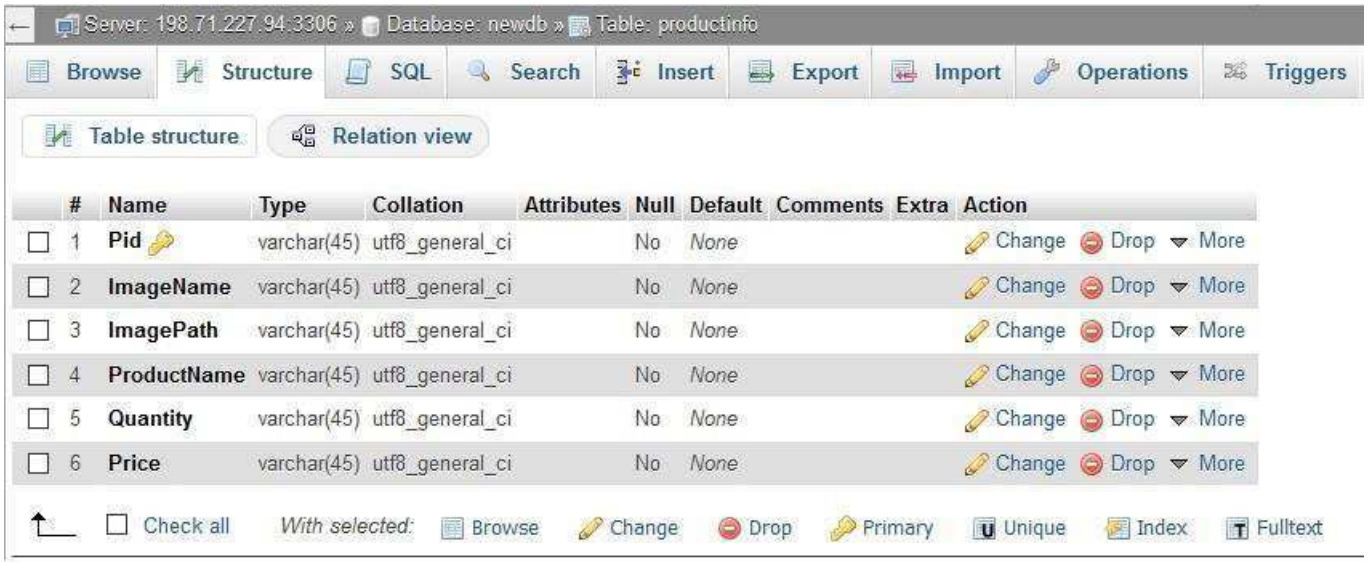


#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	Id	int(10)		UNSIGNED	No	None		AUTO_INCREMENT	Change Drop More
2	FirstName	varchar(45)	utf8_general_ci		No	None			Change Drop More
3	MiddleName	varchar(45)	utf8_general_ci		No	None			Change Drop More
4	LastName	varchar(45)	utf8_general_ci		No	None			Change Drop More
5	EmailId	varchar(45)	utf8_general_ci		No	None			Change Drop More
6	MobileNo	varchar(45)	utf8_general_ci		No	None			Change Drop More
7	Gender	varchar(45)	utf8_general_ci		No	None			Change Drop More
8	City	varchar(45)	utf8_general_ci		No	None			Change Drop More
9	BloodGroup	varchar(45)	utf8_general_ci		No	None			Change Drop More
10	DOB	varchar(45)	utf8_general_ci		No	None			Change Drop More
11	Address	varchar(45)	utf8_general_ci		No	None			Change Drop More

This is Blood Donor Registration table. It includes eleven columns like id, FirstName, MiddleName, LastName, Emailid, MobileNo, Gender, City, Blood Group, DOB and Address. The id is the primary key and it will be auto incremented.

If any user wants to donate the blood, then they can fill their information where blood group is mandatory. When any one wants the blood, then we can provide information of the registered blood donor providing the requesting user must be registered one.

Table 4.4: Product Information



This is Product Information table. It includes six columns like Pid, Image-Name, ProductName, Quantity, Price. The Pid is the primary key and it will be auto incremented. Also Pid will be foregin key.

In this table we can store the information of the product with their name, quantity and price. As per the shopping is done, quantity will be decreased from quantity column.

Table 4.5: Dry Foods Product



This is Dry Foods table. It includes seven columns like Pid, ImageName, ProductName, Quantity, Price, Discount. The Pid is the primary key and it will be auto incremented. Also Pid will be foregin key.

In this table we can store the information of the dry foods product with their name, quantity and price. As per the shopping is done, quantity will be decreased from quantity column.

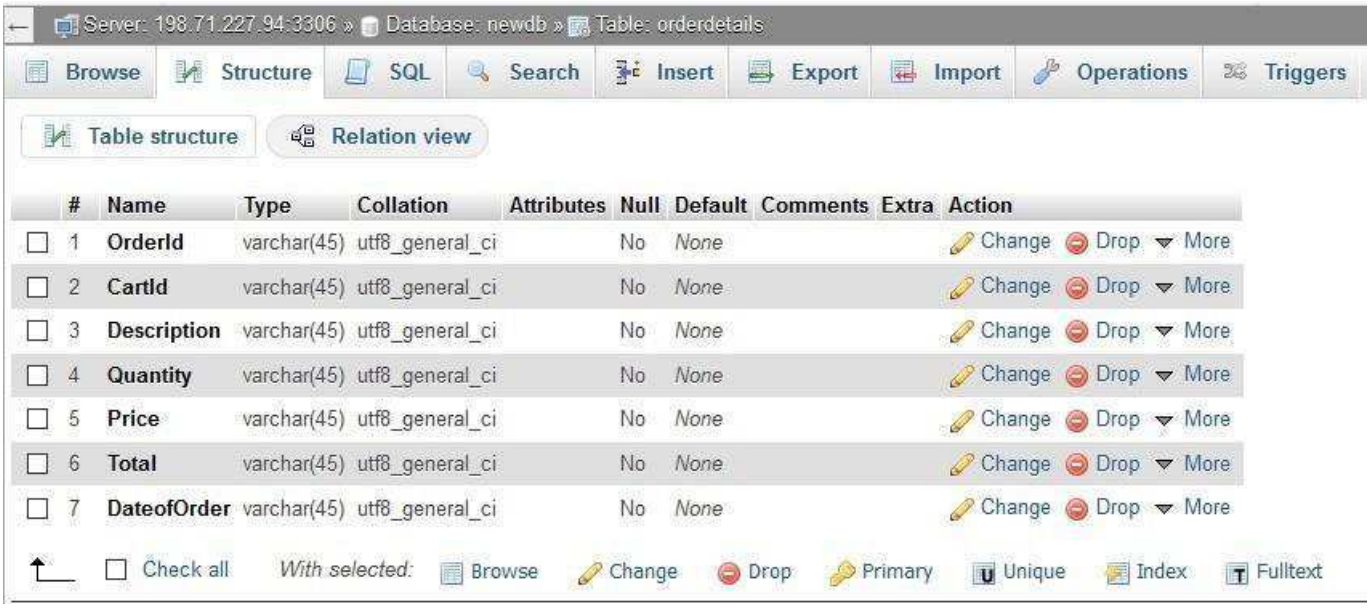
Table 4.6: Add to Cart



This is Add to cart table. It includes seven columns like Cartid, ImageName, Description, Quantity, Price and Total. The Cartid is the primary key and it will be auto incremented. We can easily change the record as well as drop the record and perform many more operations.

In this table we can store the product which can be added to cart by user. When user can increment or decrements the product quantity then changed is done in the quantity of the product. When user delete the product then it will be removed from table.

Table 4.7: Order Details



This is Orderdetails table. It includes seven columns like OrderId, CartId, Deccription, Quantity, Price and Total. The OrderId is the primary key and it will be auto incremented. The cartid is the foreign key.

In this table address of the user can be stored for the delivery the product and also store the history of that user.

Table 4.8: Feedback



This is Feedback table. It includes five columns like Id, Name, MiddleName, EmailId, MobileNo, Message. The Uid is the primary key and it will be auto incremented.

In this table use to store the feedback given by the user with their name, mobile no, email id and message.

Chapter 5

EXPERIMENTAL RESULTS / OUTPUTS

- Home Page: -

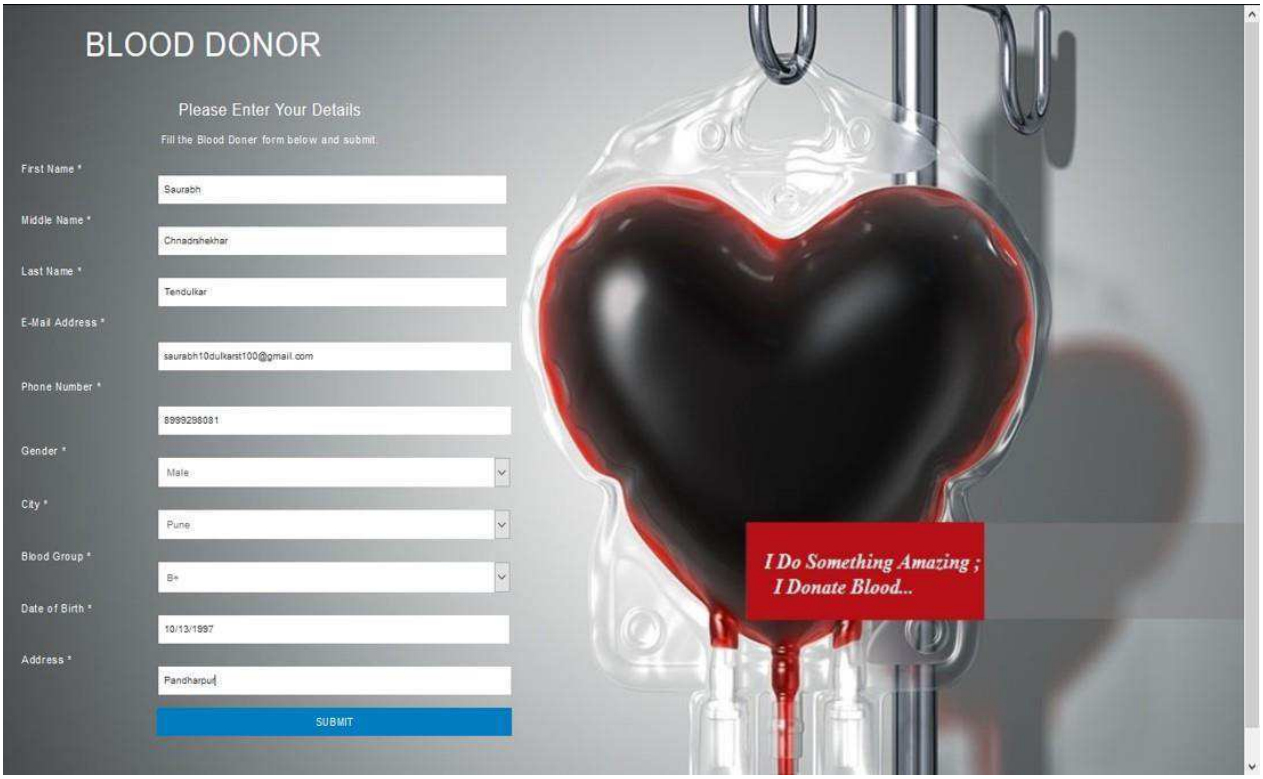


This is the home page of our website with different menus like product, services etc. as shown in figure. We also provide different features like Blood donate form, Become a Dealer form etc. Here also provide the user login for the user and admin login for the administrator.

- Blood Donation Page: -

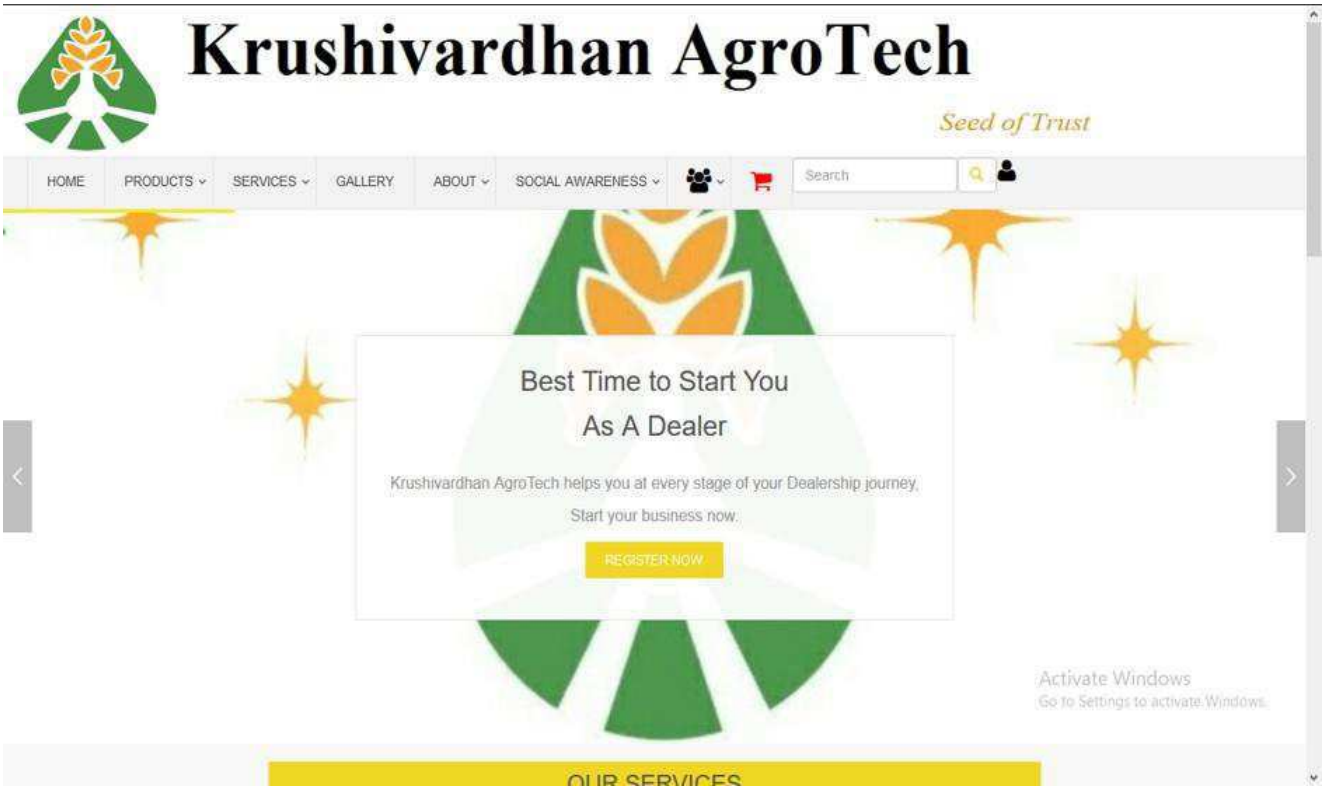


- Blood Donor Registration: -

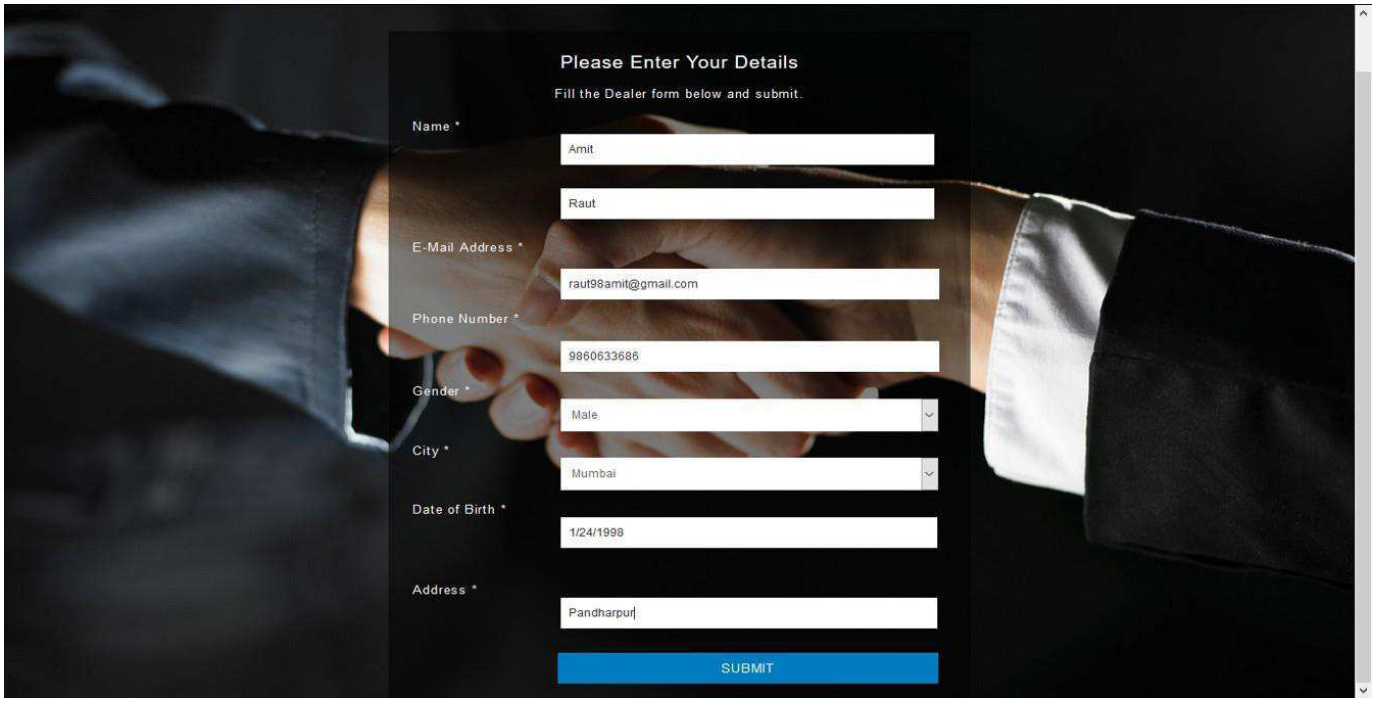


Any user wants to donate the blood then the user should fill the above form do not forget to fill the blood group and get certificate from the Director. We only store the information of the donor whenever any person wants to blood then that person request us and we give information of particular blood group.

- Dealership Page: -

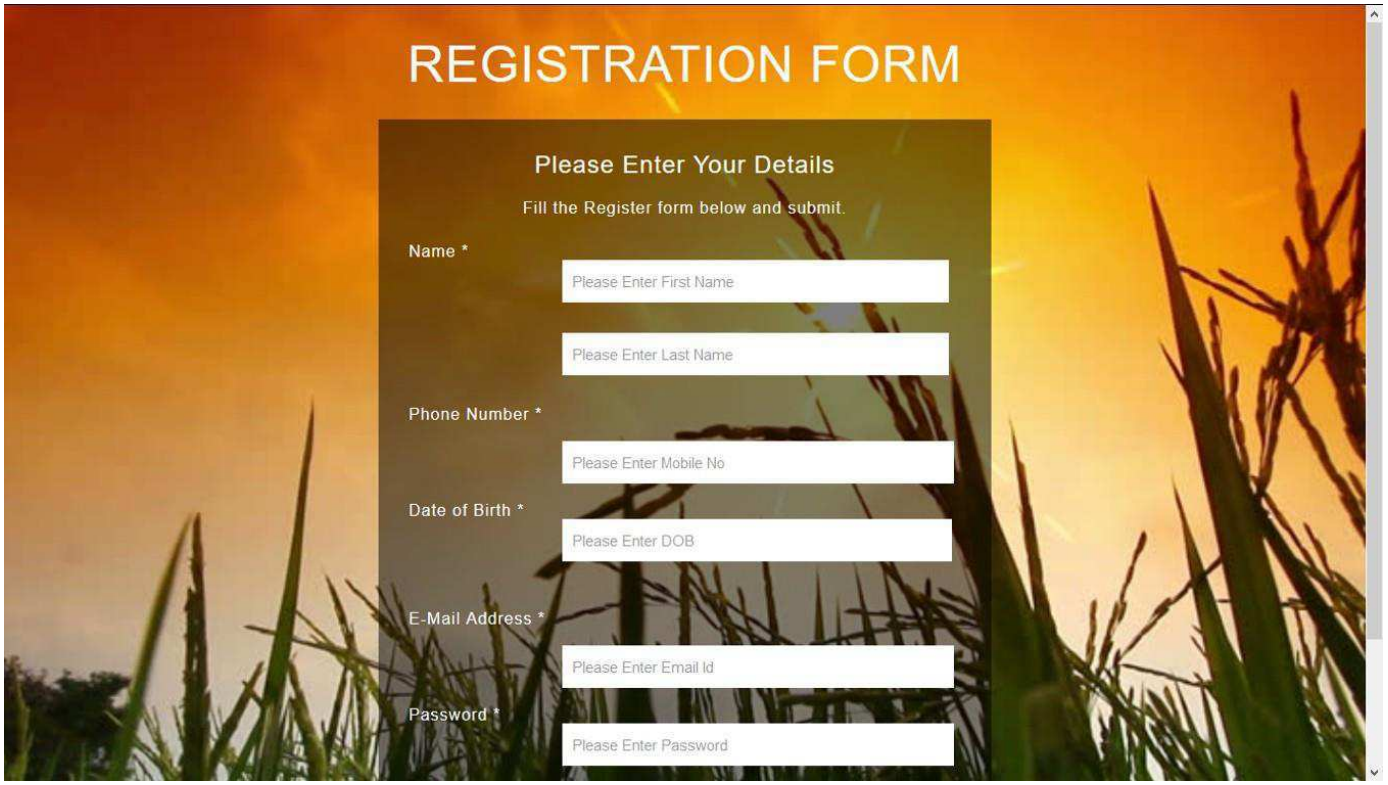


- Dealership Registration: -



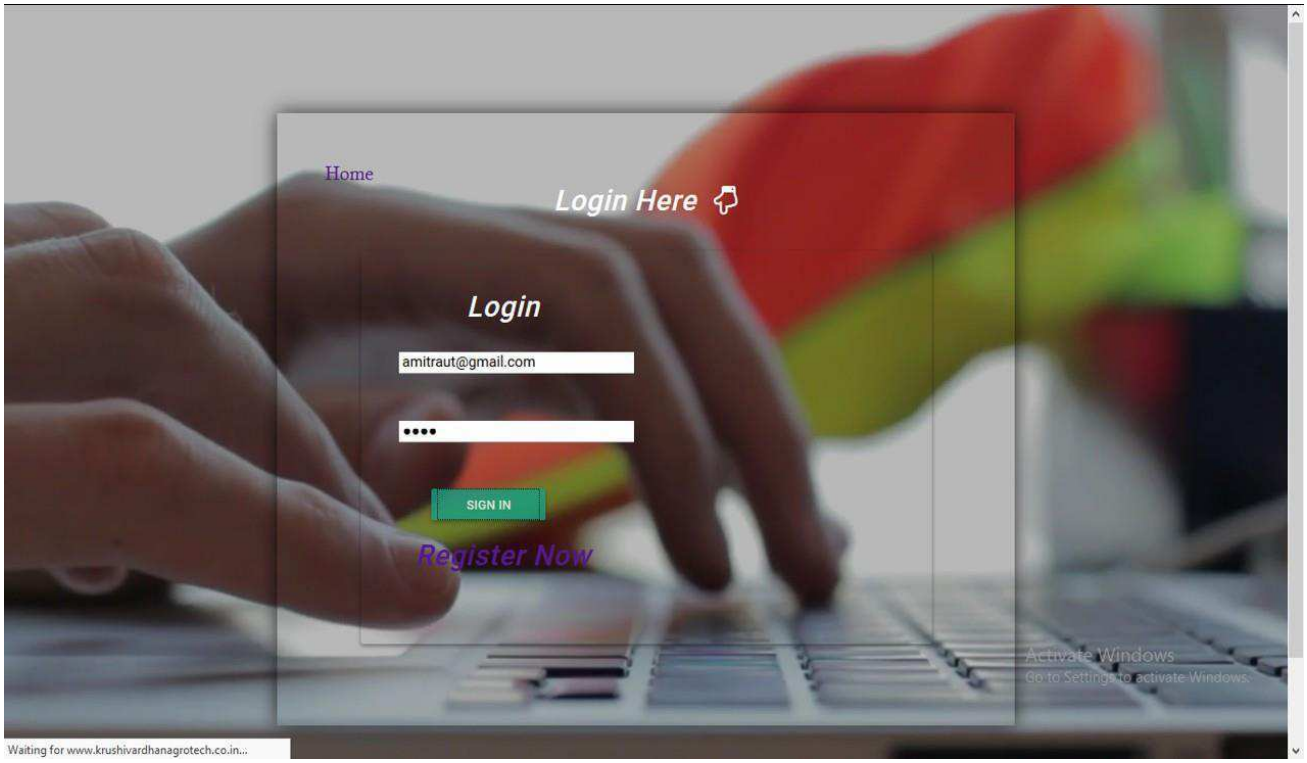
If any user wants to become a dealer the that user should fill this form. When user submit the information then user request goes to Director. The Director check the information of that user and approved the request by sending the Dealership Certificate to their registered Email id.

- Sign Up Page: -



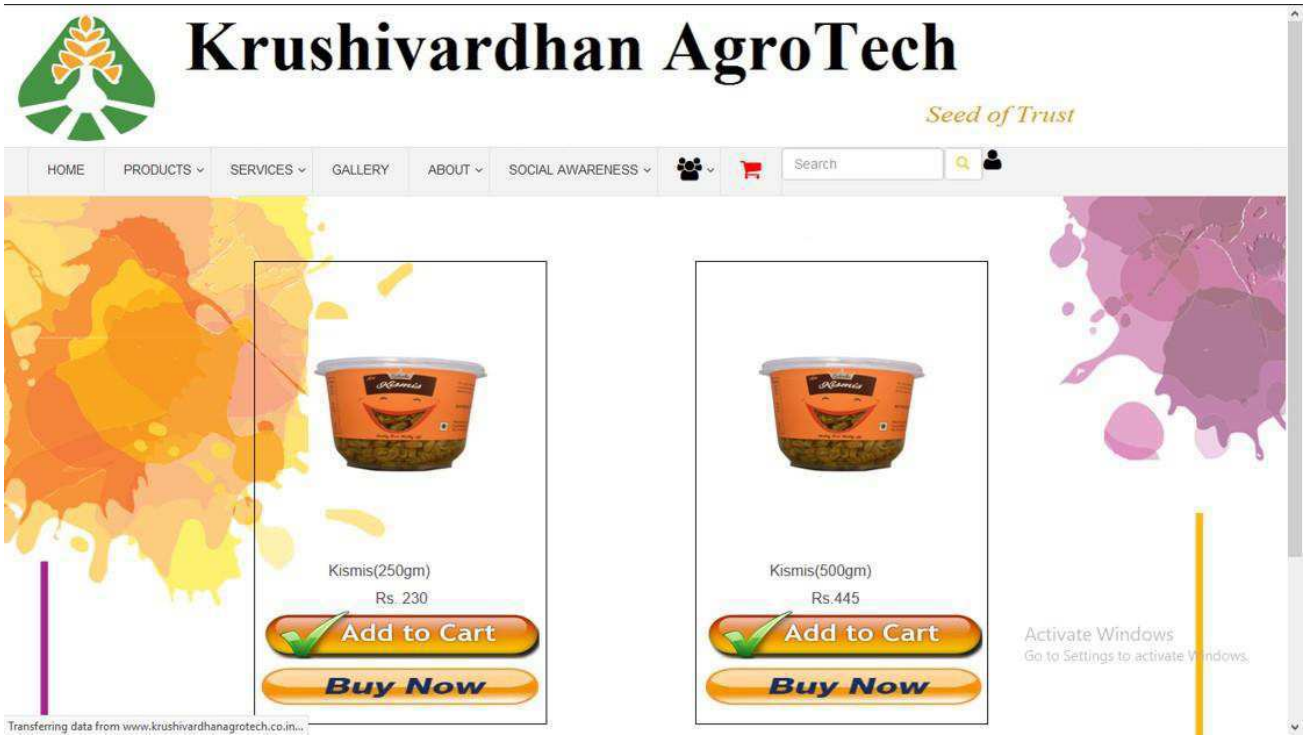
Here new user can register to get benefit from our websites. User can enter their details as mentioned in register form. User should enter their valid Email id because they will get notification on the registered Email Id. User should remember the email id and password during the registration for sign in next time.

- Sign in Page: -



This is Sign in Page. Here user can enter their registered email id and password. If the user enters invalid emailed or password, then he couldn't sign in and the message will display on the screen Enter Valid Email Id or Password. User can also Login with Facebook, Twitter and Gmail.

- Product Page: -



User can purchase the products click on Buy Now, and user can also add the particular product in their cart click on Add to Cart to purchase that product in future. In this product we can sell the dry foods like kaju, badam, pista and kishmis etc. We provide this in the 250gm and 500gm packets.

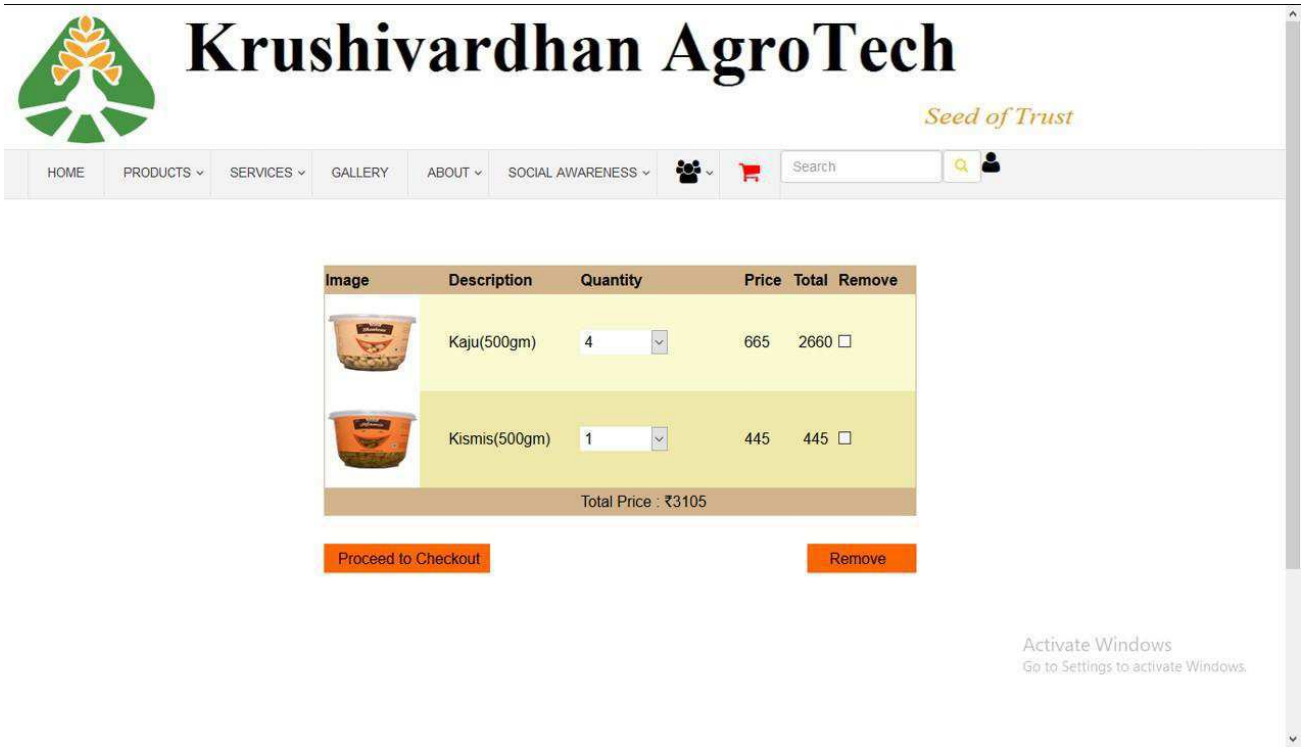

Krushivardhan AgroTech
Seed of Trust
HOME
PRODUCTS
SERVICES
GALLERY
ABOUT
SOCIAL AWARENESS
Search
CLASSROOM FURNITURES
LF 0235
Desk: 600 x 400 x 650 mm
Chair: 380 x 400 x 460/780 mm
LF 0429
Desk: L1200 x W500 x H760 mm
Chair: 380 x 400 x 460/780 mm
LF 0331
Desk: 600 x 400 x 610-750 mm
Chair: 360 x 360 x 340-440 mm
PSF - 562N

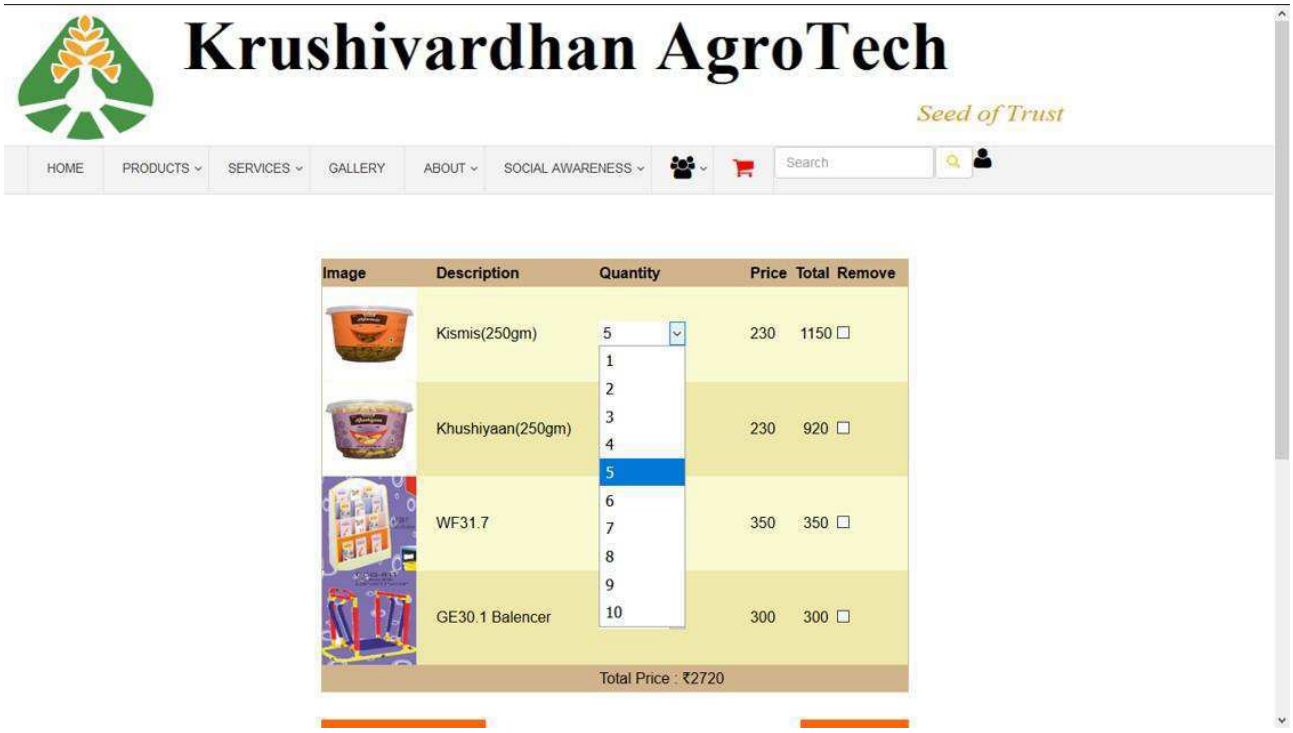

Krushivardhan AgroTech
Seed of Trust
HOME
PRODUCTS
SERVICES
GALLERY
ABOUT
SOCIAL AWARENESS
Search
GYM EQUIPMENTS
PCG-811
BALANCER
L26"xW17"xH34"
PCG-815
L19"xW12"xH35"
PCG-814
TREADMILL
L34"xW14"xH39"
PCG-816
TWISTER
L17"xW12"xH39"
Transferring data from www.krushivardhanagrotech.co.in...



User can purchase the products click on Buy Now, and user can also add the particular product in their cart click on Add to Cart to purchase that product in future. In this product user can select the product key from the drop down list which he wants to purchase. After that user can click on the Buy Now or Add to Cart button.

- Add to Cart: -


Krushivardhan AgroTech
Seed of Trust
HOME
PRODUCTS
SERVICES
GALLERY
ABOUT
SOCIAL AWARENESS
Search
Image
Description
Quantity
Price
Total
Remove
Kaju(500gm)
4
665
2660
Kismis(500gm)
1
445
445
Total Price : ₹3105
Proceed to Checkout
Remove
Activate Windows
Go to Settings to activate Windows.


Krushivardhan AgroTech
Seed of Trust
HOME
PRODUCTS
SERVICES
GALLERY
ABOUT
SOCIAL AWARENESS
Search
Image
Description
Quantity
Price
Total
Remove
Kismis(250gm)
5
1
2
3
4
5
6
7
8
9
10
230
1150
Khushiyaan(250gm)
230
920
WF31.7
350
350
GE30.1 Balencer
300
300
Total Price : ₹2720

The User can add the product in the cart for purchase in future. First up all the user cart is empty to add the product into the cart user should click on Add to Cart. The second image shows the products added in cart by the user. When user changes the quantities of product then user must click on Update Cart. To remove the products from the cart user should click on the Remove.

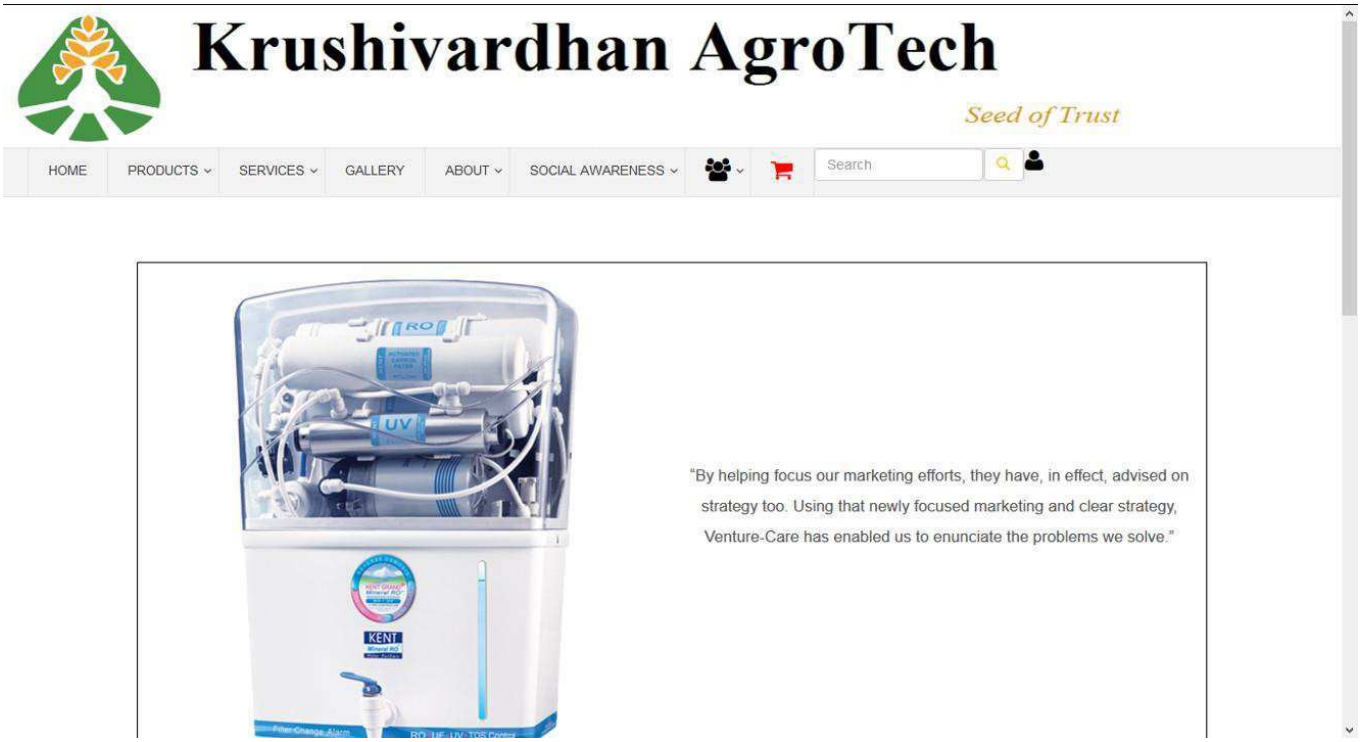
- Solar Solution: -



Solar energy is the technology used to harness the sun's energy and make it useable. The world's leading climate scientists now give us a little over a decade to stop and reverse climate change.

As time is running out, the brightest minds in renewable energy are looking up. Literally, Solar solutions are now easier, cheaper, and smarter than ever before, and the power is in the personal. The best way to save the planet, and your wallet, may well be one rooftop at a time.

- Water Solution: -



Water purification systems remove harmful chemicals before the water flows from your faucet, refrigerator, or is dispensed as ice from your ice maker. By installing a water purification system in your Charlotte home or workplace, your whole house can enjoy clean, fresh water without the inconvenience of having to fill up a filter jug.

Hard water is due to minerals and the presence of minerals in your water supply. Over time, this hard water can damage and clog your faucets and appliances.

- Contact Us: -



This page is used for connecting the user with us, by providing their name, email id, contact number the user can connect with us. If user can have any query or any suggestion them user can wrote in message box and then click on send message button.

Chapter 6

CONCLUSIONS AND FUTURE SCOPE

CONCLUSION:

World Wide Web has become a major resource in modern business it gives new opportunities to business. An online website can be compared to a shops interior. The website is attractive, provides easy navigation, multiple options in terms of brands, color and design the customer would stay on the site. This website supports a flexible, attractive and an easy to use environment for an online website along with the addition feature like an off-site add to cart. This website provides an easier design to implement and provides easy navigation, on site and off site add to cart, and online payment. The off-site add to cart is a new feature proposed in this website.

FUTURE SCOPE:

Based on current website status following features will be considering for future enhancement.

1. Multiple shopping carts can be provided per user.
2. A mobile application for the website can be developed.
3. Payment through e-wallets could be made possible.
4. Send SMS alerts to the users.

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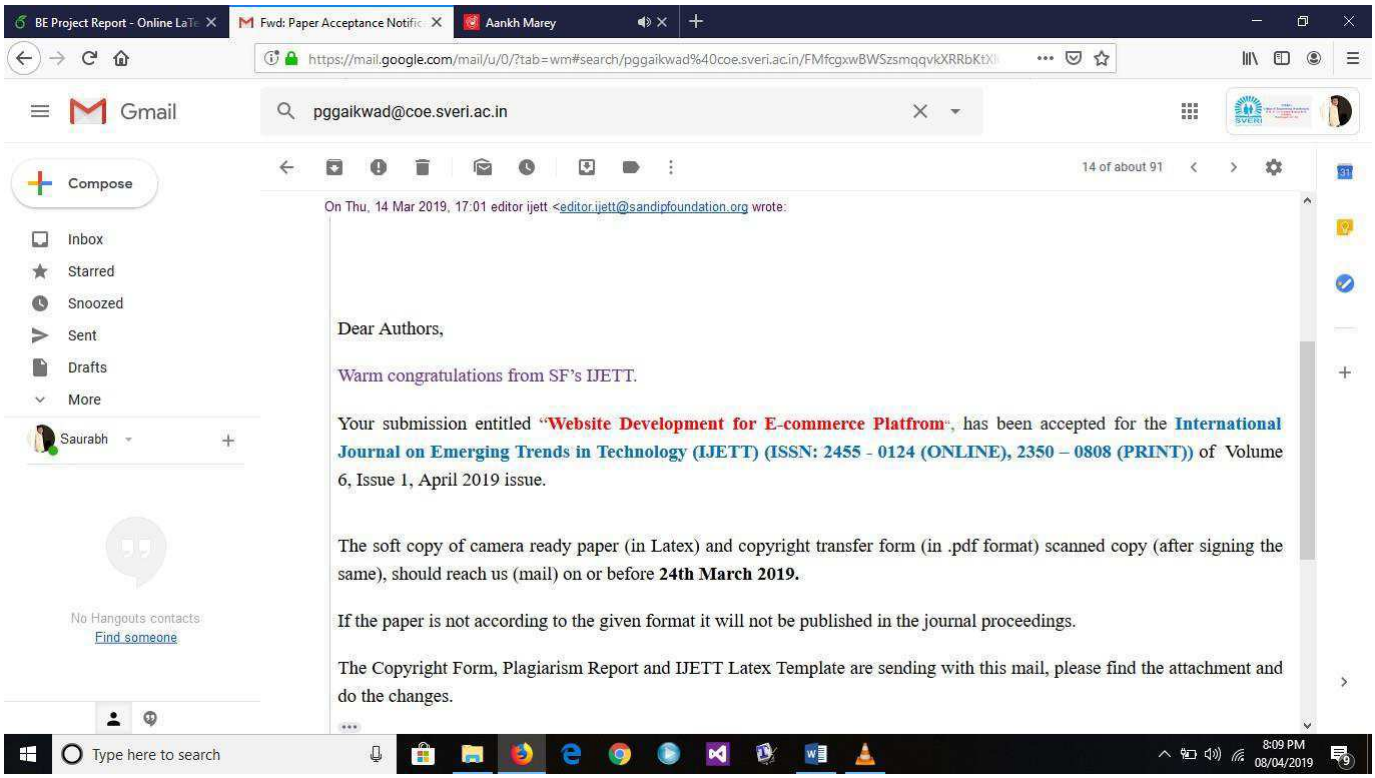
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pggaikwad@coe.sveri.ac.in

Compose

Inbox
Starred
Snoozed
Sent
Drafts
More

Saurabh

No Hangouts contacts
Find someone

14 of about 91

On Thu, 14 Mar 2019, 17:01 editor ijett <editor.ijett@sandipfoundation.org wrote:

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***Abstract*—E-commerce websites are used on daily basis by people from developed and developing countries to purchase their day to day's need. Here, we developed E-commerce website to bridge gap between farmers and end users. This website is user friendly for end user. We Provides services like branding, consultancy, water solution. We sell dry fruits like Badam, Kismish, Kaju, Pasta, etc. As information concerning dried fruits are hardly available, the recognition of consumer's preferences for dried fruit and products containing them in different contexts was undertaken. The objective of website is to deliver the online shopping product through web platform. This project is an attempt to provide the features of online shopping to customer of a healthy food and many different types of products. It helps buying the products in the shop anywhere through internet by using an Android Device, Laptop and Computer. Users can enjoying the shopping from anywhere, the shops won't be losing any more users to the trending online shops such as a flip cart or e-Bay. It includes all shop information such as Customers record keeping, user just have to enter the primary information about a user and his/her account. Thus our website is highly integrated. It also has an easy to use interface for customers, dealer and blood donner.**

***Index Term*—E-Commerce, Service, e-Bay, Dry Fruits, etc.**

I. INTRODUCTION

In today's world, people don't have time for their personal needs. The innovation is fast to the point that anybody can do anything by simply sitting in a room. So, it is an imperative issue as per observation. The internet is the way that helps a person in all aspects. In the event that somebody wish to purchase and view things, they can purchase online with the assistance of web. Commercial centers like Flipkart, Amazon and Snapdeal are giving gigantic chances to youthful under-studies, housewives just as little shop proprietors to scale their organizations and win great cash [1][13]. Not with standing, there are different variables that one needs to take a gander at before beginning up an online business. Setting up an online shop to move your items can be a valuable and beneficial method for working together.

It enables you to work without fundamentally requiring a conventional shopfront and gives your clients greater adapt-ability since they can purchase your items whenever of the day. Web based moving can likewise widen your client base, as you can pitch to individuals who are interstate or abroad. Internet shopping doesn't speak to everybody, so ensure your objective market is OK with purchasing on the web before you begin. You may discover you can achieve more clients by offering web based shopping close by a customary shop. Web based shopping makes utilization of advanced innovation for dealing with the stream of data, items, and instalment between shopper, website proprietors and providers.

In the event that you were move your item disconnected, at that point you will ready to move your items in constrained region where your shop is found, however when you are going to move your items online then you can move the items in various locales. For this situation, your benefit will be naturally expanded. Presently multi day everybody is occupied with their work they didn't get time for buying the items by going to specific shop, with the assistance of online commercial.[5] Centre's they will spare their profitable time just as they will ready to see clients audit and contrast and the results of different merchants [6].

The clients get limits through which they can spare their cash. Labour additionally diminishes because of online com-metrical center. Online stores offer item depiction, pictures, correlations, cost and significantly more. Shopping basket is one of the essential office gave in web based shopping, this lets client to peruse distinctive products and enterprises and once they select a thing to buy they can put the thing in shopping basket, and keep perusing till the last choice [12].

II. RESEARCH METHODOLOGY

The proposed application is implemented using HTML, ASP and MYSQL workbench [4]. The application was tested on DOT NET web browser to determine the functionality. The existing e-commerce shopping websites provide the features of a sophisticated shopping cart, on-site wish list. This paper proposes an e-commerce shopping application to sell and promote only the Indian products. The additional feature proposed in this paper is the off-site wish list.

A. Modular Design

The functionality of the proposed application is divided into number of sub modules. The modules to be taken into account are customer shopping cart, orders, payment and product module. These modules while integrated together give the functionality desired out of the application.

B. Customer

In this module the client information is processed. This information includes giving username and password to login

to this site. This is required to verify the user. The email id of the customer is used to confirm the customers' orders and also to send promotional emails [10].

C. Shopping Cart

This sub-module lets the user to select the items that they intend to buy to store in cart before placing the order. The items can be stored into the cart and it can be deleted from the cart.

D. Order

In this module customer order is processed. The user can place the order for the items they want to buy. It verifies the pin code and it confirms the order to delivered place. At the shipping address the product should be delivered.

E. Payment

In this sub module payment options for the order is given and processed. Payment would be through credit card, debit card, E-cash or cash on delivery. The total charges of the product are the sum of cost of the product and delivery charges will be deducted from the user's account in case of payment options other than cash on delivery.

F. Product

In this module product details can be added to the database. The tax per product and actual price of the products can be added. The product details can be edited. The products are stored as per category. Arrangement of products into categories enables the user to search the products based on its category. The database is normalized [13] so that the redundancy is minimized. The database for the proposed application is normalized up to third normal form.

DEVELOPMENT TOOLS

The entire development process has been subdivided into two: the front end development and the backend development. The front end comprises of the visually visible parts such as the home page, admin panel, contact page, shopping cart page. The back end contains the database and its interaction with the front-end.

1) Front End Development: The front end was initially raw coded using JavaScript. JavaScript is a client side scripting language which is a dedicated language for web development. JavaScript code was simply mixed with the Hypertext Mark-up Language (HTML) code. Hypertext mark-up language is the language used to design the web pages of an application. A static page is an HTML document that is stored on the web server and does not change.

This was performed by Cascading Style Sheet (CSS). CSS is a style sheet language used for describing the look and formatting a document written in a mark-up language. These CSS files are linked with the class files with. php extensions to put the panels in order, the text with correct font, size and color. JavaScript is a client side scripting language most commonly used as part of web browsers and its implementations allow client side scripts to interact with the user, control the browser and alter the document content which is displayed.

For example, in website for the client's registration, the system asks to provide their details which contains their name, email address, age, etc. If they missed any of the details, then immediately the browser asks them to fill the particular field. This is implemented and handled by a JavaScript. Bootstrap programs are also introduced in for web application which supports creation of animations.

2) Backend Development: The Database Management System (DBMS) provides support for the back end. The database management system is essentially software where admin can create the database, add, drop, alter and update tables. The tables can hold different types of data for example: integer, variable characters etc. in our application we have chosen the MySQL DBMS to hold the database. MySQL is a relational database management system. The main reason is MySQL development project has made its source code available under the terms of the General Public License (GNU) which is an open source web application.

3) Database Design: One of the most important and challenging task is the database design. The information passed by the customer while registering in the website is stored in the database. The products with their identification, description and image is stored in the database. Moreover, if admin update any of the featured products then update takes place in the database. So the program has a lot to do with the database.

Any query is run on the database by Structured Query Language (SQL). As stated earlier that PHP has some useful features one of them is the support to connect the database and run queries. The following diagram explains the details the database design [3].

The system has six tables in the database namely: advertise, brand, category, product, small add and registration. The formation of three tables are shown in the diagram. The table entitled "product" has the attributes namely: product id, product rate, category id, brand id, and product rate. Where product id is the primary key for this table i.e. each product will have a unique identity.

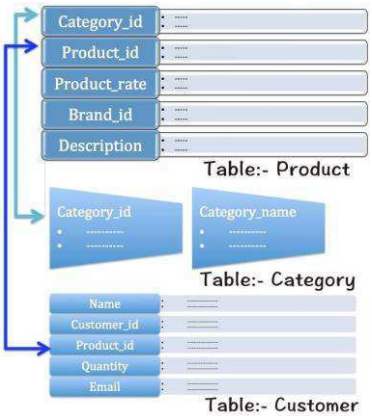


Fig. 1. Database Tables of product, category and customer database.

The attribute category id plays as a foreign key for this table i.e. this foreign key creates a link with table category having

two attributes: website his information will be stored in the customer table with the attributes- name, customer id, product id, quantity and email. Again customer id is the unique key for this table and product id is the foreign key to link with the product table.

III. SYSTEM ARCHITECTURE

The Admin side DFD [2][3] describe the functionality of Admin. Admin is an owner of the website. Admin can add category of item and then add items by category wise and admin can manage order and payment detail.

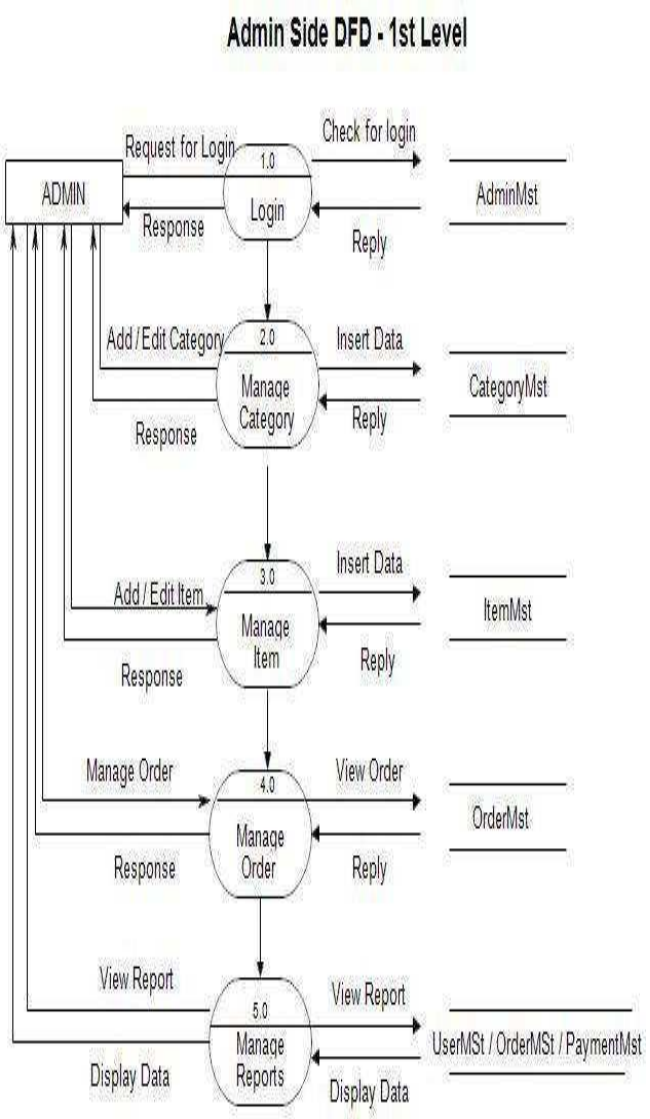


Fig. 2. System Structure of Admin.

The Customer side DFD describe the functionality of Customer. Customer should login with correct credentials. Customer select the product as per their requirements specification, description. Then it should place the order through the payments. Customer can pay the payment through net banking credit card, debit card and cash on delivery.

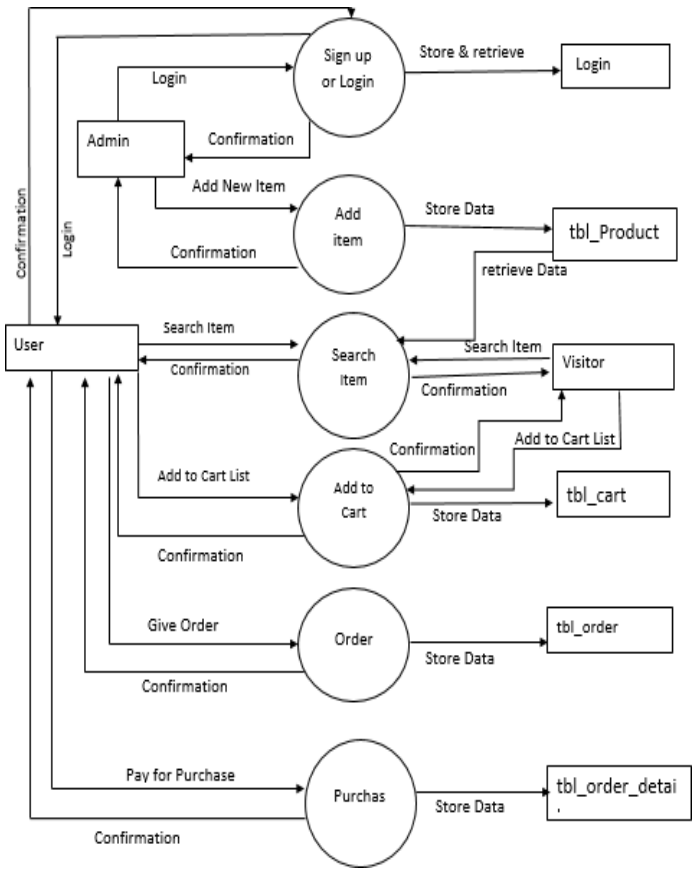


Fig. 3. System Structure of User.

IV. IMPLEMENTATION

The website design in this paper needs a web browser and a database for implementation at the server side and only a web browser at the client side. The user types the URL corresponding to the website in the address field of the browser, a web server is contacted to get the requested information. Web server accepts the incoming HTTP requests and returns the requested information in an HTTP response. The application is developed using HTML as, and MYSQL workbench as the backend.

A. Integrating the website and the database:

Customers' ordering the products from an e-commerce website should be able to get the information of products, ask questions, review, and give feedback on the products, select the products they would like to buy, submit payments. Admin should be able to keep track of the products ordered, payment details, customer inquiries. So a well-organized database is very essential for maintenance of an e-commerce website. The user must be able to access the data base and for this the remote database connectivity is established. The

user information is stored in and retrieved from the remote database. The database used in this paper is MYSQL Server.

B. Webpage design:

The web pages are designed in HTML and Java Script [8][9]. The web pages should be dynamic in nature as the user should be able to access the product details, make payment, post feedback, etc. The static web pages are used for displaying the product description, privacy policy and so on. ASP is used as middle tier that establishes the necessary connection with the database to retrieve the information from the remote database.

C. Working:

The administrator is given the benefits to change and refresh the database. The administrator includes new items, settles on the ideas on certain items. The items that are not sought after can be for all time erased from the database which implies that the closeout of those items on the site is ceased. The seller subtleties, installments to the merchant are to be taken consideration by the administrator. The transportation subtleties, for example, the regions where the delivery offices are accessible, the subtleties of the delivery organizations and the exchange between them are to be checked. The administrator can choose the money down office to make accessible in all territories or limit to certain regions as it were. The reports of the regular deal, benefit, the items are very on interest, etc. are produced according to the demand. The report age isn't feasible for the client. A client suspected to have broken the protection strategy can be hindered by the administrator.

Promotional mails can be sent to the customer's e-mail id based on their address. The heuristics analysis is to be made on a particular customer to know their interests. So that only on those products, the promotional mails can be sent to that customer. The customer accesses the website by typing the URL corresponding to the website as shown in Fig. 4. The user can request for product details by clicking the products menu. The user is provided with two types of wish lists – onsite wish list and offsite wish list. In the list the user is allowed to add any product available on the site to the list.

The customer should sign up for the first time to place order of a product. Later each time user to buy products he should login. The wish list of the user can be maintained if and only if the user has an account in the database. The product that user want to buy will be added to the cart, and if user to see some more products he can continue while one or more products are on the cart. The order of the products is placed from the cart as shown in Fig. 5. The products in the cart can be removed, more products can be added.

Once the order is placed the next step would be to give the order details as shown in Fig. 6. The user is asked to type his address, mobile number and pin code. Pin code is used to check the availability of the shipping service to given place.

The next step is payment. The payment can be done through credit card, debit card, pay pal and cash on delivery. If the user want to make the payment via credit card or debit card, then the card details are asked. Once the user enters the card details the user is directed to a payment gateway for the transaction. Once the order is placed then mail will be send to the user. The user is informed via e-mail while the order is processed, shipped, and delivered at the destination.

The user will be given an order id which will help in tracking the order. The order can be cancelled before it is being shipped. The return policy is specified by the admin. The recently viewed products are displayed on the user's home page. The user can assign rating to products, review the products and give feedback. The purchase history of the user is maintained.



Fig. 4. Home Page of Website.



Fig. 5. Product Details.

V. CONCLUSION

World Wide Web has become a major resource in modern business it gives new opportunities to business. An online website can be compared to a shop's interior. The website is attractive, provides easy navigation, multiple options in terms



Fig. 6. Add to cart from.

of brands, color and design the customer would stay on the site. This paper supports a flexible, attractive and an easy to use environment for an online website along with the addition feature like an offsite wish list. This paper provides an easier design to implement the website, provides easy navigation, onsite and offsite wish lists, and online payment. The off- site wish list is a new feature proposed in this paper. Hence as future enhancements to the proposed system the following features.

- Multiple shopping carts can be provided per user.
- A mobile application for the website can be developed.
- Payment through e-wallets could be made possible.
- Send SMS alerts to the users.

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1.3.3 Number of the student studied course on experimental learning through Project Work / Internship

Programme Name: Electronics & Tele-communication Engineering **Program Code:** 1-1408968324			
Year of offering: 2018-19			
Sr. No.	**Name of the Course that include experiential learning through project work/field work/internship**	**Course code**	**Number of the student studied course on experiential learning through project work/field work/internship**
1.	Seminar & Project	ET416	109
2.	Project	ET425	
3.	Vocational Training	ET417	
4.	Mini Project (Hardware)	ET327	119

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Department of Electronics & Tele-communication Engineering

Industrial Training Record

A.Y.: 2018-19

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Website : www. solarelectronics.in www.solarelectronics.tradeindia.com www.indiamart.com/solar-electronics/

Date : - 07/06/2019.

Ref. No: - SUR/19K06/473

CERTIFICATE

This is to certify that *Mr. Imran Hajisab Shaikh* student of *Shri Vithal Education & Research Institute's, College of Engineering, Pandharpur* Studying in *ENTC 2nd Year.* Undergone the *Industrial Training* in our Company *Solar Electronics, Solapur* for the period of *24th May 2019* to *07th June 2019.*

He has completed the training successfully.

Thanking you,

For Solar Electronics, Solapur.

J. Aslondhe

Authorised Signatory

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Date : - 07/06/2019.

Ref. No: - SUR/19K06/472

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This is to certify that, *Mr. Sameer Khajoddin Pathan* student of *Shri Vithal Education & Research Institute's, College of Engineering, Pandharpur* Studying in *ENTC 2nd Year.* Undergone the *Industrial Training* in our Company *Solar Electronics, Solapur* for the period of 24th *May 2019* to 07th *June 2019.*

He has completed the training successfully.

Thanking you,

For Solar Electronics, Solapur.

Authorised Signatory

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SHS/Sangola/1045

CERTIFICATE

This is to certify that **Ms. Pratiksha Rajaram Dhekale** student of second year B.E.(E&TC)

From the **Shri Vithal Education & Research Institute's College of Engineering, Pandharpur**

Has successfullycompleted internshipfrom 29-5-2019 to 12-6-2019 in **Shivharshad Electrical**

TransformerCompany.

During her internship, she was found regular and sincere.

Date: -13-6-2019

Place:-watambare/sangola

Yoursfaithfully,

M/s. Shivharshad Electrical

DIVYA ELECTRICAL COMPANY

Repairs of Transformers & All type of HT / LT Line & DTC Work

Ref:-DIV/TBN/26 **Dt. 15/06/2019**

To whom it may concern

This is to certify that

Miss. Madhuri Navanath Bagal.

Student of engineering .
From:- Electronics and Telecommunication

SVERI'S College Of Engineering, Pandharpur.
Has Successfully Completed her **INDUSTRIAL TRAINING**
From:-01/06/2019 To 15/06/2019

Our 's Best wishes

DIVYA ELECTRICAL COMPANY

Proprietor

Divya Electrical Company Tembhurni M.I.D.C.Plot No-A-3,Tal.Madha,Dist.Solapur
Lice No-32505

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Prop.B.S. Bhagat GOVT. ELECTRICAL CONTRACTOR

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SHE/Wodo/1032

CERTIFICATE

This is to certify that **Ms. Wadtile Vaishnavi Janardan** student of second year B.E.(E&TC)

From the **Shri Vithal Education & Research Institute's College of Engineering, Pandharpur**

has successfully completed internship from 25-5-2019 to 8-6-2019 in **Shivharshad Electrical**

Transformer Company.

During her internship, she was found regular and sincere.

Date: - 9-6-2019

Place:- Watambare/Sangola

Yours faithfully

M/s. Shivharshad Electrical

Proprietor

9 1 6

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This is to certify that Mr./Miss. DIGVIJAY GIRISH CHAKOTE.

has successfully completed the workshop IN PLANT TRAINING [45 DAYS]

on organized at APTRON TECH *. His/her performance has been*

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Coordinator

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Date : 07/06/2019.

Ref. No: SUR/19/06/447

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This is to certify that, *Miss. Shembade Janhavi Dilip* student of *Shri Vithal Education & Research Institute's College of Engineering, Pandharpur* Studying in *ENTC 3rd Year*. Undergone the *Industrial Training* in our Company *Solar Electronics, Solapur* for the period of *24th May 2019 to 07th June 2019*.

She has completed the training successfully.

Thanking you,

For Solar Electronics, Solapur

Authorised Signatory

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Date: 16/06/2019
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Certificate

To,
The Principal,
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Pandharpur- 413304

Subject: Industrial Training Certificate

Dear Sir,

This is to certify that **Mr. Rushikesh Hodade** student of your Institute has undergone through the training program for 15 days from **1st of June 2019 to 15th of June 2019** at Vedam Labs, Solapur.

During his internship, he was exposed to various activities in **IOT Application Development.**

We found him extremely inquisitive and hard working. He was very much interested to learn the functions of our core division and also willing to put his best efforts and get in to the depth of the subject to understand it better.

We wish good luck for his future.

Yours faithfully
Vedam Labs

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Authorized Signature

CERTIFICATE

Ref: SVERI's college of engineering ,Pandharpur Official letter

It is certified that **Mr.Sagar Aappasaheb Vhasale** student of **BE 3rd** year electronic branch have fairly participated and completed vocational trening in **SIGNAL AND TELECOMMUNICATION DEPARTMENT of central Railway Solapur** from **01 June 2019 to 15 June 2019.**

His performance during training period is to be appreciated.

Date : 15 june 2019

Place : Solapur

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Date. 15/6/2019
Senior Section Engineer(Tele-N)
C. Rly. SOLAPUR.

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Tel. 91-217-2602467 Tele/Fax : 91-217-2601713
Email : sclarlighting11@gmail.com
solarelectronics@rediffmail.com

Website : www.solarelectronics.in www.solarelectronics.tradeindia.com www.indiamart.com/solar-electronics/

Date : - 07/06/2019.

Ref. No: - SUR/19K06/165

CERTIFICATE

This is to certify that, *Mr. Mulani Salman Shahajahan* student of *Shri Vithal Education & Research Institute's, College of Engineering, Pandharpur* Studying in *ENTC 2nd Year.* Undergone the *Industrial Training* in our Company *Solar Electronics, Solapur* for the period of *24th May 2019* to *07th June 2019.*

He has completed the training successfully.

Thanking you,

For Solar Electronics, Solapur.

Authorised Signatory

Pune Office : Building No. 1, Flat No. 4, Zala Housing Society, Karishma Chowk, Karve Road, Behind Pepsi Jones, Pune 411 029. (M.S.) INDIA.
Factory : Plot No. 142, Hotgi Road, Industrial Estate, Solapur 413 003. Maharashtra, INDIA.

INDUSTRY CERTIFICATE

ApTron Tech

Beyond Innovation

CERTIFICATE

This is to certify that Mr./Miss. MAYURI SANJAY LOKHANDE *has successfully completed the workshop* IN PLANT TRAINING [15 DAYS] *on organized at* APTRON TECH *His/her performance has been outstanding during whole workshop.*

APTRON TECH SATARA

Coordinator

ApTron Tech, Satara

Address : F/A-1, Ashwini Heights, Behind Krishnanagar Bus Stop, Near Bombay Restaurant, Wanwaswadi, Satara - 415 002.
Email : info@aptrontech.in, aptrontech@gmail.com Website : www.aptrontech.in

KANAAD SERVICES AND TRAINING

SANGLI

कणाद

Certificate

We have pleasure to certify that

Mr./Miss/Mrs. Shweta Shantinath Mendhegiri

is awarded this certificate for having successfully completed

a vocational training Program / Workshop on

Electronic circuit Analysis

During the period from 29-5-2019 To 12-6-2019

PHOTO

Course Co-oradinater
KANAAD SERVICES AND TRAINING

KANAAD SERVICES AND TRAINING

SANGLI

Certificate

We have pleasure to certify that

Mr./Miss/Mrs. Monali Vilas Vhargat.

is awarded this certificate for having successfully completed

a vocational training Program / Workshop on

Electronic circuit Analysis

During the period from 29-05-2019 To 12-06-2019

PHOTO

Course Co-ordinator

KANAAD SERVICES AND TRAINING

SHIVHARSHAD ELECTRICAL
GOVT. ELECTRICAL CONTRACTOR
Prop.B.S. Bhagat
TRANSFORMER MGF./REPARING, ELECTRICAL ALL WORKS
At/Post. Watambare. Get No.674 Tal. Sangola Dist. Solapur Mob 09970200400 Email ID:- bhagatenter@gmail.com

SHE/3070/1044

CERTIFICATE

This is to certify that **Ms.Seema Ramdas Kumbhar** student of second year B.E.(E&TC)

From the **Shri Vithal Education & Research Institute's College of Engineering, Pandharpur**

Has successfullycompleted internshipfrom 29-5-2019 to 12-6-2019 in **Shivharshad Electrical**

TransformerCompany.

During her internship, she was found regular and sincere.

Date: -13-6-2019

Place:-watambare/sangola

Yoursfaithfully,
M/s. Shivharshad Electrical
Proprietor
13/6

Industry Certificate

SOLAR
ELECTRONICS
Future world is the today

Date :- 07/06/2019.
Ref. No :- SOLR/19/06/450

CERTIFICATE

This is to certify that, Miss. *Phalare Nikita Sham* student of *Shri Vithal Education & Research Institute's, College of Engineering, Pandharpur* Studying in *E&TC 2nd Year*, Undergone the *Industrial Training* in our Company *Solar Electronics, Solapur* for the period of 24th *May 2019* to 07th *June 2019*.

She has completed the training successfully.

Thanking you,
For Solar Electronics, Solapur

Authorised Signatory

Pune Office : Building No. 2, Flat No. 4, Zoa Housing Society, Kanakia Chowk, Kanak Road, Behind Kapil Jewels, Pune 411 029. (M.S.), INDIA.
Factory : Plot No. 142, Hotgi Road, Industrial Estate, Solapur 413 003, Maharashtra, INDIA.

KANAAD SERVICES AND TRAINING

SANGLI

Certificate

We have pleasure to certify that

Mr./Miss/Ms. Nisha Soudagar Khandekar

is awarded this certificate for having successfully completed

a vocational training Program / Workshop on

Electronic circuit Analysis

During the period from 29-05-2019 to 12-06-2019



Course Co-ordinator

KANAAD SERVICES AND TRAINING

SHIVHARSHAD ELECTRICAL

Prop.B. S. Bhagat GOVT. ELECTRICAL CONTRACTOR

TRANSFORMER MGF./REPARING, ELECTRICAL ALL WORKS

At/Post. Watambare, Get No.674 Tal. Sangola Dist. Solapur Mob:09970200400 Email ID:- bhagatenter@gmail.com

SHS/WO/0/1027

CERTIFICATE

This is to certify that **Ms.Laxmi Iranna Bennesur** student of second year B.E. (E&TC)

From the **Shri Vithal Education & Research Institute's College of Engineering, Pandharpur**

has successfully completed internship from 25-5-2019 to 9-6-2019 in **Shivharshad Electrical**

Transformer Company.

During her internship, she was found regular and sincere.

M/s. Shivharshad Electrical

Proprietor

Date: - 9-6-2019

Place:-watambare/sangola

Industry Certificate

CERTIFICATE

Ref: SVERI's college of engineering ,Pandharpur Official letter

It is certified that **Mr.Shubham Tukaram Ghodake** student of **BE 3rd** year electronic branch have fairly participated and completed vocational trening in **SIGNAL AND TELECOMMUNICATION DEPARTMENT of central Railway Solapur** from **01 June 2019 to 15 June 2019.**

His performance during training period is to be appreciated.

Date : 15 june 2019

Place : Solapur

SSE/Tele/SUR/CR/IR

SENIOR SECTION ENGINEER (Tele-III)
C Rly, SOLAPUR

Date: 15/6/2019

SE

SHIVHARSHAD ELECTRICAL

Prop.B.S. Bhagat GOVT. ELECTRICAL CONTRACTOR

TRANSFORMER MGF./REPARING, ELECTRICAL ALL WORKS

At/Post. Watambare, Get No.674 Tal. Sangola Dist. Solapur Mob:09970200400 Email ID - bhagatenter@gmail.com

SHE/WO/0/1038

CERTIFICATE

This is to certify that **Ms.Suranjali Bandu Jagtap** student of second year B.E.(E&TC)

From the **Shri Vithal Education & Research Institute's College of Engineering, Pandharpur**

Has successfullycompleted internshipfrom 27-5-2019 to 10-6-2019 in **Shivharshad Electrical TransformerCompany.**

During her internship, she was found regular and sincere.

Date: -11-6-2019

Place:-watambare/sangola

M/s. Shivharshad Electrical

Proprietor 11-6

KANAAD SERVICES AND TRAINING

SANGLI

कणाद

Certificate

We have pleasure to certify that

Mr./Miss/Mrs. Bhushan Siddheshwar Bachute

is awarded this certificate for having successfully completed a vocational training Program / Workshop on

Electronic circuit analysis

During the period from 29-5-2019 To 12-6-2019

PHOTO

Course Co-oradinater
KANAAD SERVICES AND TRAINING

Vedam Labs
Website: www.vedamlab.com
Office: 0217-2655512
Address: 155/5 Akkalkot Road, Solapur 413006

vedam
the knowledge of modern era

Date: 16/06/2019
Ref No. CER/TRAIN/2019/0063

Certificate

To,
The Principal,
SVERI, College of Engineering,
Pandharpur- 413304

Subject: Industrial Training Certificate

Dear Sir,

This is to certify that **Miss. Shraddha Repal** student of your Institute has undergone through the training program for 15 days from **1st of June 2019 to 15th of June 2019** at Vedam Labs, Solapur.

During her internship, she was exposed to various activities in **IOT Application Development.**

We found her extremely inquisitive and hard working. She was very much interested to learn the functions of our core division and also willing to put her best efforts and get in to the depth of the subject to understand it better.

We wish good luck for her future.

Yours faithfully
Vedam Labs

VEDAM LABS SOLAPUR

Authorized Signature

Industry Certificate

CERTIFICATE

Ref: SVERI's college of engineering ,Pandharpur Official letter

It is certified that **Mr.Akshay Rajendra Maske** student of **BE 3rd** year electronic branch have fairly participated and completed vocational trening in **SIGNAL AND TELECOMMUNICATION DEPARTMENT of central Railway Solapur** from **01 June 2019 to 15 June 2019.**

His performance during training period is to be appreciated.

Date : 15 june 2019

Place : Solapur

Date. 15/6/2019

SSE/Tele/SUR/CR/IR

C. Rly. SOLAPUR

SHIVHARSHAD ELECTRICAL

Prop.B.S. Bhagat GOVT. ELECTRICAL CONTRACTOR

TRANSFORMER MGF./REPARING, ELECTRICAL ALL WORKS

At/Post Watambare, Gat No 674 Tal. Sangola Dist. Solapur Mob:09970200400 Email ID:- bhagatenter@gmail.com

SHE/WOTO/1042

CERTIFICATE

This is to certify that **Ms. Pratiksha Ankush Walugade** student of second year B.E.(E&TC)

From the **Shri Vithal Education & Research Institute's College of Engineering, Pandharpur**

Has successfully completed internship from 28-5-2019 to 11-6-2019 in **Shivharshad Electrical**

Transformer Company.

During her internship, she was found regular and sincere.

Date: -12-6-2019

Place:-watambare/sangola

M/s. Shivharshad Electrical

Proprietor

SVERI'S COLLEGE OF ENGINEERING PANDHARPUR

Certificate

This is to certify that miss Chavan Rutuja Shivaji studying in TE(ENTC) has successfully completed the vocational training of 15 days at "Vedam Lab" and submitted the report to the Department of Electronics & Telecommunication Engineering.

30/10/19

Guide
(Prof.H.K.Bhaldar)

Coordinator
(Prof. M. S. Biswas)

HOD
(Prof. Dr. A.S.Vibhute)

Date:

Place:

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Office : 'Jijamata Bungllow', Near Maharashtra Bank, Sant Rasta, Solapur 413 003 (M.S.), India.
Tel. 91-217-2602467 Tele/Fax : 91-217-2601713
Email : solarlighting114@gmail.com
solar1989@rediffmail.com

Website : www. solarelectronics.in www.solarelectronics.tradeindia.com www.indiamart.com/solar-electronics/

Date : - 07/06/2019.

Ref. No: - SUR/19K06/464

CERTIFICATE

This is to certify that, *Mr. Chavare Bhushan Mahavir* student of *Shri Vithal Education & Research Institute's, College of Engineering, Pandharpur* Studying in *ENTC 2nd Year.* Undergone the *Industrial Training* in our Company *Solar Electronics, Solapur* for the period of 24th *May 2019* to 07th *June 2019.*

He has completed the training successfully.

Thanking you,

For Solar Electronics, Solapur.

S. Aslondhe

Authorised Signatory

Pune Office : Building No. 1, Flat No. 4, Zala Housing Society, Karishma Chowk, Karve Road, Behind Papa Jones, Pune 411 029, (M.S.), INDIA.
Factory : Plot No. 142, Hotgi Road, Industrial Estate, Solapur 413 003, Maharashtra, INDIA

SHIVHARSHAD ELECTRICAL

Prop.B.S. Bhagat

GOVT. ELECTRICAL CONTRACTOR

TRANSFORMER MGF./REPARING, ELECTRICAL ALL WORKS

At/Post. Watambare, Get No.674 Tal. Sangola Dist. Solapur Mob:09970200400 Email ID:- bhagatenter@gmail.com

SHE/Wat/1029

CERTIFICATE

This is to certify that **Ms.Pooja Digambar Tapise** student of second year B.E. (E&TC)

From the **Shri Vithal Education & Research Institute's College of Engineering, Pandharpur**

has successfully completed internship from 25-5-2019 to 9-6-2019 in **Shivharshad Electrical**

Transformer Company.

During her internship, she was found regular and sincere.

M/s. Shivharshad Electrical

Proprietor

Date: - 9-6-2019

Place:-watambare/sangola

Industry Certificate

संस्थापक



सहकार शिरोमणी
वसंतराव काळे सह. साखर कारखाना लि,
चंद्रभागानगर
पो. भाळवणी ता.पंढरपुर, जि.- सोलापुर
जिल्हा- सोलापुर (महाराष्ट्र राज्य)

SAHAKAR SHIROMANI
VASANTRAO KALE SAHAKARI SAKHAR
KARKHANA LTD; CHANDRABHAGANAGAR
POST-BHALWANI, TAL.-PANDHARPUR,
PIN-413304 DIST-SOLAPUR
Maharashtra State, INDIA

Phone (02186) 247255/247256 Fax No : (02186) 247297 E-mail : mdcasiksor@gmail.com

Date :- 13 /06 /2019

SSVKSSK/LWO/ 670 /2019-2020

CERTIFICATE

(TO WHOM SO EVER IT MAY CONCERN)

This is to certify that, **Miss.Khandare Darshana Rajesh** a student of SVERI'S College of Engineering (Polytechnic), Pandharpur studying in T.E. (E&TC) were completed In Plant Industrial Training in our Sugar Factory from dt.01.06.2019 to 15.06.2019 i.e. 15 days.

During above training period her behavior and enthusian are appreciable.

We give our best wishes to all the above student for her future.

Place :- Chandrabhaganagar,

Date :- 13 /06/2019

Managing Director

INDUSTRY CERTIFICATE

SOLAR ELECTRONICS
green world in the making

Office : 'Jijamata Bunglow', Near Maharashtra Bank, Saat Rasta, Solapur 413 003 (M.S.), India.
Tel. 91-217-2602467 Tele/Fax : 91-217-2601713
Email : solarlighting11@gmail.com
solar1989@rediffmail.com

Website : www. solarelectronics.in www.solarelectronics.tradeindia.com www.indiamart.com/solar-electonics/

Date : - 07/06/2019.

Ref. No: - SUR/19K06/459

CERTIFICATE

This is to certify that, ***Mr. Sanjay Shankar Pawar*** student of ***Shri Vithal Education & Research Institute's, College of Engineering, Pandharpur*** Studying in ***ENTC 2nd Year.*** Undergone the ***Industrial Training*** in our Company ***Solar Electronics, Solapur*** for the period of **24th *May 2019* to 07th *June 2019.***

He has completed the training successfully.

Thanking you,

For Solar Electronics, Solapur.

Authorised Signatory

Pune Office : Building No. 1, Flat No. 4, Zala Housing Society, Karishma Chowk, Karve Road, Behind Papa Jones, Pune 411 029, (M.S.), INDIA.
Factory : Plot No. 142, Hotgi Road, Industrial Estate, Solapur 413 003. Maharashtra, INDIA

INDUSTRY CERTIFICATE

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Office : 'Jijamata Bunglow', Near Maharashtra Bank, Sail Rasta, Solapur 413 003 (M.S.), India.
Tel. 91-217-2602467 Tele/Fax : 91-217-2601713
Email : solarlighting11@gmail.com
solar1969@rediffmail.com

Website : www.solarelectronics.in www.solarelectronics.tradeindia.com www.indiamart.com/solar-electronics/

Date : - 07/06/2019.

Ref. No: - SUR/19K06/460

CERTIFICATE

This is to certify that, ***Mr. Nitin Subhash Pachave*** student of ***Shri Vithal Education & Research Institute's, College of Engineering, Pandharpur*** Studying in ***ENTC 2nd Year.*** Undergone the ***Industrial Training*** in our Company ***Solar Electronics, Solapur*** for the period of **24th *May 2019* to 07th *June 2019.***

He has completed the training successfully.

Thanking you,

For Solar Electronics, Solapur.

Authorised Signatory

Pune Office : Building No. 1, Flat No. 4, Zala Housing Society, Karishma Chowk, Karve Road, Behind Papa Jones, Pune 411 029, (M.S.), INDIA.
Factory : Plot No. 142, Hotgi Road, Industrial Estate, Solapur 413 003, Maharashtra, INDIA

2019/5/31 13:06

INDUSTRIAL CERTIFICATE

SOLAR ELECTRONICS
green world in the making

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Tel. 91-217-2602467 Tele/Fax : 91-217-2601713
Email : solarlighting11@gmail.com
solar1989@rediffmail.com

Website : www. solarelectronics.in www.solarelectronics.tradeindia.com www.indiamart.com/solar-electonics/

Date : - 07/06/2019.

Ref. No: - SUR/19K06/457

CERTIFICATE

This is to certify that, *Miss. Shelake Puja Ramchandra* student of *Shri Vithal Education & Research Institute's, College of Engineering, Pandharpur* Studying in *ENTC 2nd Year.* Undergone the *Industrial Training* in our Company *Solar Electronics, Solapur* for the period of 24th *May 2019* to 07th *June 2019.*

She has completed the training successfully.

Thanking you,

For Solar Electronics, Solapur.

Authorised Signatory

Pune Office : Building No. 1, Flat No. 4, Zala Housing Society, Karishma Chowk, Karve Road, Behind Papa Jones, Pune 411 029, (M.S.), INDIA.
Factory : Plot No. 142, Hotgi Road, Industrial Estate, Solapur 413 003, Maharashtra, INDIA

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Office : 'Jijamata Bunglow', Near Maharashtra Bank,
Sast Rasta, Solapur 413 003 (M.S.), India.
Tel. 91-217-2602467 Tele/Fax : 91-217-2601713
Email : solarlighting11@gmail.com
solar1989@rediffmail.com

Website : www. solarelectronics.in www.solarelectronics.tradeindia.com www.indiamart.com/solar-electronics/

Date : - 07/06/2019.

Ref. No: - SUR/19K06/446

CERTIFICATE

This is to certify that, ***Miss. Mahajan Ishita Pradeep*** student of ***Shri Vithal Education & Research Institute's, College of Engineering, Pandharpur*** Studying in ***ENTC 2nd Year.*** Undergone the ***Industrial Training*** in our Company ***Solar Electronics, Solapur*** for the period of **24th *May 2019* to 07th *June 2019.***

She has completed the training successfully.

Thanking you,

For Solar Electronics, Solapur.

J. Ashondhe

Authorised Signatory

SOLAR ELECTRONICS

AN ISO 9001:2008 COMPANY

Pune Office : Building No. 1, Flat No. 4, Zala Housing Society, Karishma Chowk, Karve Road, Behind Papa Jones, Pune 411 029, (M.S.), INDIA.
Factory : Plot No. 142, Hotgi Road, Industrial Estate, Solapur 413 003. Maharashtra, INDIA

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Since 1992
Website : www.solarelectronics.in www.solarelectronics.tradeindia.com

Date : - 07/06/2019.

Ref. No: - SUR/19K06/449

CERTIFICATE

This is to certify that, *Miss. Harane Sanjivani Raju* student of *Shri Vithal Education & Research Institute's, College of Engineering, Pandharpur* Studying in *ENTC 2nd Year.* Undergone the *Industrial Training* in our Company *Solar Electronics, Solapur* for the period of 24th *May 2019* to 07th *June 2019.*

She has completed the training successfully.

Thanking you,

For Solar Electronics, Solapur.

Authorised Signatory

AN ISO 9001:2008 COMPANY

Pune Office : Building No. 1, Flat No. 4, Zala Housing Society, Karishma Chowk, Karve Road, Behind Papa Jones, Pune 411 029, (M.S.), INDIA.
Factory : Plot No. 142, Hotgi Road, Industrial Estate, Solapur 413 003. Maharashtra, INDIA

CERTIFICATE

Ref: SVERI's college of engineering ,Pandharpur Official letter

It is certified that **Mr.Vaibh**av Suryakant **Mukare** student of **BE 3rd** year electronic branch have fairly participated and completed vocational trening in **SIGNAL AND TELECOMMUNICATION DEPARTMENT of central Rail**way Solapur from **01 June 2019 to 15 June** 2019.

His performance during training period is to be appreciated.

Date : 15 june 2019

Place : Solapur

सीनियर सेक्शन इंजीनियर (दूर संचार-उत्तर)
मध्य रेल, सोलापुर
Date. 15/6/2019
Senior Section Engineer/Tele-N
C. Rly., SOLAPUR

SSE/Tele/SUR/CR/IR
सिनियर सेक्शन इंजीनियर (दूर संचार उत्तर)
SENIOR SECTION ENGINEER (Tele-N)
मध्य रेल, सोलापुर
C. Rly., SOLAPUR

KANAAD SERVICES AND TRAINING

SANGLI

कणाद

Certificate

We have pleasure to certify that

Mr./Miss/Mrs. Upendra Narsinna Dandawate.

is awarded this certificate for having successfully completed

a vocational training Program / Workshop on

Electronic circuit Analysis

During the period from 29-05-2019 To 12-06-2019

PHOTO

Course Co-oradinater
KANAAD SERVICES AND TRAINING

CS Scanned with CamScanner

INDUSTRY CERTIFICATE

SOLAR
ELECTRONICS
your world in the mid-up

Office : Gen-Jets Bungalow, Near Pandharpur Naka,
Solapur 413 003 (M.S.) India.
Tel. 91 217 2602462 Telefax : 91-217-2602512
Email : solarelectronics@gmail.com
www.solarelectronics.co.in

website : www.solarelectronics.in www.solarelectronics.indiamart.com www.indiamart.com/solar-electronics/

Date :- 03/06/2019.

Ref. No:- SUB/19/KD6/469

CERTIFICATE

This is to certify that, *Mr. Ubale Santosh Dattatraya* student of *Shri Vithal Education & Research Institute's, College of Engineering, Pandharpur* Studying in *ENTC 2nd Year*. Undergone the *Industrial Training* in our Company *Solar Electronics, Solapur* for the period of *24th May 2019 to 07th June 2019*.

He has completed the training successfully.

Thanking you,

For Solar Electronics, Solapur.

Authorised Signatory

Pune Office : Building No. 1, Flat No. 4, Zara Housing Society, Karishma Chowk, Kothrud, Behind Pepsi Xmas, Pune 411 029. (M.S.) INDIA.
Factory : Plot No. 140, Hotgi Road, Industrial Estate, Solapur 413 003. Maharashtra, INDIA.

Sn.7/13/1B, L.N.10, Karvenagar, Pune 52.
Email-bajajelevators.electricals@gmail.com, Mob: 9049836367

CERTIFICATE

This is to certify that Mr. Amit Ganpatrao Danure , S/O-Mr. Ganpatrao Danure, a student of Shri Vithal Education & Research Institute (SVERI Collage of Engineering Pandharpur) (Electronics & Telecommunication – summer semester), Solapur University, solapur has successfully completed months (From 1st June, 2019 to 15th June, 2019) long internship programme at this Bajaj Elevators and Eletronics Company . During the period of his internship programme with us he was found punctual,hardworking and inquisitive.We wish him every success in life.

Date : 15 th June 2019

Place: Pune

Bajaj Elevators and Eletronics Company

BAJAJ ELEVATIONS & ELECTRICALS PUNE

Authority Signature

For Bajaj Elevators & Electricals

Proprietor

KANAAD SERVICES AND TRAINING

SANGLI

कणाद

Certificate

We have pleasure to certify that

Mr./Miss/~~Mrs.~~ Smita Mahadev Kalekar.

is awarded this certificate for having successfully completed

a vocational training Program / Workshop on

Electronic circuit Analysis

During the period from 29-05-2019 To 12-06-2019



Course Co-ordinater
KANAAD SERVICES AND TRAINING

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Industry Certificate

SHIVHARSHAD ELECTRICAL

Prop.B.S. Bhagat GOVT. ELECTRICAL CONTRACTOR

TRANSFORMER MGF./REPARING, ELECTRICAL ALL WORKS

At/Post. Watambare, Gat No.874 Tal. Sangola Dist. Solapur Mob.09970200400 Email ID:- bhagatenter@gmail.com

SH/WAT/1035

CERTIFICATE

This is to certify that **Ms. Indi Shivganga Subhash** student of second year B.E.(E&TC)

From the **Shri Vithal Education & Research Institute's College of Engineering, Pandharpur**

Has successfully completed internship from 26-5-2019 to 9-6-2019 in **Shivharshad Electrical Transformer Company.**

During her internship, she was found regular and sincere.

Date:- 9-6-2019

Place:- watambare/sangola

M/s. Shivharshad Electrical

Proprietor

SHIVHARSHAD ELECTRICAL

Prop.B.S. Bhagat GOVT.ELECTRICAL CONTRACTOR

TRANSFORMER MGF./REPARING, ELECTRICAL ALL WORKS

At/Post. Watambare, Get No.674 Tal. Sangola Dist. Solapur Mob:09970200400 Email ID:- bhagatenter@gmail.com

SHE/WOTO/1042

CERTIFICATE

This is to certify that **Miss. Pratiksha Hanumant Wagaj** Student of S. E. (ENTC) form the SVERI's College of Engineering Pandharpur has successfully completed Internship from Date 29/05/2019 to 12/06/2019 in shivharshad Electrical Transformer company.

During her internship, she was found regular and sincere.

Date : 13/06/2019

Place : Watambare / Sangola

Your faithfully

M/s. Shivharshad Electrical

Proprietor

KANAAD SERVICES AND TRAINING

BARGLI

कणाद

Certificate

We have pleasure to certify that

Mr./Mrs./Ms. Suretha vilas Gunjal.

is awarded this certificate for having successfully completed

a vocational training Program / Workshop on

Electronic circuit Analysis

During the period from 29-05-2019 To 12-06-2019



KANAAD SERVICES AND TRAINING

Certificate

SOLAR ELECTRONICS
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Tel. 91-217-2602467 Tele/Fax 91-217-2601713
Email : solarlighting11@gmail.com
solar1999@rediffmail.com

site : www. solarelectronics.in www.solarelectronics.tradeindia.com www.indiamart.com/solar-electronics/

Date : - 07/06/2019.

Ref. No: - SUR/19K07/423

CERTIFICATE

This is to certify that, *Miss. Vrushali Arun Jadhav* student of ***Shri Vithal Education & Research Institute's, College of Engineering, Pandharpur*** Studying in ***ENTC 2nd Year.*** Undergone the *Industrial Training* in our Company ***Solar Electronics, Solapur*** for the period of 24th *May* [illegible] 17th *June 2019.*

She has completed the training succes[illegible]

Thanking you,

For Solar Electronics, Solapur.

A.S. Londhe

Authorised Signatory

Pune Office : Building No. 1, Flat No. 4, Zala Housing Society, Karishma Chowk, Karve Road, Behind Papa Jones, Pune 411 029, (M.S.), INDIA.
Factory : Plot No. 142, Hotgi Road, Industrial Estate, Solapur 413 003. Maharashtra, INDIA

Industry Certificate

CERTIFICATE

Ref: SVERI's college of engineering ,Pandharpur Official letter

It is certified that **Ms.Shruti Nagesh Godase** student of **BE 3rd** year electronic branch have fairly participated and completed vocational trening in **SIGNAL AND TELECOMMUNICATION DEPARTMENT of central Railway Solapur** from **01 June 2019 to 15 June 2019.**

Her performance during training period is to be appreciated.

Date : 15 june 2019

Place : Solapur

Date 15/6/2019

SSE/Tele/SUR/CR/IR

SENIOR SECTION ENGINEER (Tele-II)
C. Rly., SOLAPUR

SHIVHARSHAD ELECTRICAL

Prop.B.S. Bhagat GOVT. ELECTRICAL CONTRACTOR

TRANSFORMER MGF./REPARING, ELECTRICAL ALL WORKS

At/Post. Watambare, Get No.674 Tal. Sangola Dist. Solapur Mob:09970200400 Email ID - bhagatenter@gmail.com

SHS/2007/1045

CERTIFICATE

This is to certify that **Ms.Ashwini Bramhdev Randive**student of second year B.E.(E&TC)

From the **Shri Vithal Education & Research Institute's College of Engineering, Pandharpur**

Has successfullycompleted internshipfrom 29-5-2019 to 12-6-2019 in **Shivharshad Electrical**

TransformerCompany.

During her internship, she was found regular and sincere.

Date: -13-6-2019

Place:-watambare/sangola

Yours faithfully,

M/s. Shivharshad Electrical

Proprietor 1316

KANAAD SERVICES AND TRAINING

SANGLI

कणाद

Certificate

We have pleasure to certify that

Mr. Miss/Mrs. Shraddha Bharat Mirgane

is awarded this certificate for having successfully completed

a vocational training Program / Workshop on

Electronic circuit Analysis

During the period from 29-05-2019 To 12-06-2019



Course Co-oradinater
KANAAD SERVICES AND TRAINING

KANAAD SERVICES AND TRAINING

SANGLI

कणाद

Certificate

We have pleasure to certify that

Mr./ Miss/ Mrs. Komal Kiran Kale

is awarded this certificate for having successfully completed

a vocational training Program / Workshop on

Electronic Circuit Analysis

During the period from 29-05-2019 To 12-06-2019



Course Co-ordinater
KANAAD SERVICES AND TRAINING

Industry Certificate

SHIVHARSHAD ELECTRICAL

Prop.B.S. Bhagat GOVT. ELECTRICAL CONTRACTOR

TRANSFORMER MGF./REPARING, ELECTRICAL ALL WORKS

At/Post. Watambare, Gat No.674 Tal. Sangola Dist. Solapur Mob:09970200400 Email ID:- bhagatenter@gmail.com

SHE/Wodd/1043

CERTIFICATE

This is to certify that **Ms.Dhudhal Rutuja Suresh** student of second year B.E.(E&TC)

From the **Shri Vithal Education & Research Institute's College of Engineering, Pandharpur**

Has successfullycompleted internshipfrom 27-5-2019 to 11-6-2019 in **Shivharshad Electrical**

TransformerCompany.

During her internship, she was found regular and sincere.

Date: - 12-6-2019

Place:-watambare/sangola

Yoursfaithfully

M/s. Shivharshad Electrical

Proprietor

12/6

SE

SHIVHARSHAD ELECTRICAL

Prop.B.S. Bhagat

GOVT. ELECTRICAL CONTRACTOR

TRANSFORMER MGF./REPARING, ELECTRICAL ALL WORKS

At/Post. Watambare, Get No.674 Tal. Sangola Dist. Solapur Mob:09970200400 Email ID:- bhagatenter@gmail.com

She/wed of 10/40

CERTIFICATE

This is to certify that **Ms.Gayatri Chichalappa Devakate** student of second year B.E.(E&TC)

From the **Shri Vithal Education & Research Institute's College of Engineering, Pandharpur**

Has successfullycompleted internshipfrom 27-5-2019 to 10-6-2019 in **Shivharshad Electrical**

TransformerCompany.

During her internship, she was found regular and sincere.

Date: -11-6-2019

Placc:-watambarc/sangola

Yoursfaithfully

M/s. Shivharshad Electrical

Proprietor

SE

SHIVHARSHAD ELECTRICAL

Prop.B.S. Bhagat

GOVT. ELECTRICAL CONTRACTOR

TRANSFORMER MGF./REPARING, ELECTRICAL ALL WORKS

At/Post. Watambare, Get No.674 Tal. Sangola Dist. Solapur Mob:09970200400 Email ID:- bhagatenter@gmail.com

SHE/Wot0/1030

CERTIFICATE

This is to certify that **Ms. Bhosale Utkarsha Bharat** student of second year B.E. (E&TC)

From the **Shri Vithal Education & Research Institute's College of Engineering, Pandharpur**

has successfully completed internship from 25-5-2019 to 9-6-2019 in **Shivharshad Electrical**

Transformer Company.

During her internship, she was found regular and sincere.

M/s. Shivharshad Electrica

Proprietor 9/6

Date: - 9-6-2019

Place:-watambare/sangola

IndustryCertificate

CERTIFICATE

Ref: SVERI's college of engineering ,Pandharpur Official letter

It is certified that **Ms. Jyoti Sanjay Shinde** student of **BE 3rd** year electronic branch have fairly participated and completed vocational trening in **SIGNAL AND TELECOMMUNICATION DEPARTMENT of central Railway Solapur** from **01 June 2019 to 15 June 2019.**

Her performance during training period is to be appreciated.

Date : 15 june 2019

Place : Solapur

वरिष्ठ खंड अभियंता (दूर संचार-उत्तर)
मध्य रेल, सोलापुर.
Date. 15/6/2019
Senior Section Engineer(Telecom)
C. Rly., SOLAPUR

SSE/Tele/SUR/CR/IR
वरिष्ठ खंड अभियंता (दूर संचार उत्तर)
SENIOR SECTION ENGINEER (Tele-N)
मध्य रेल, सोलापुर
C. Rly., SOLAPUR

SE

SHIVHARSHAD ELECTRICAL

Prop.B.S. Bhagat GOVT. ELECTRICAL CONTRACTOR

TRANSFORMER MGF./REPARING, ELECTRICAL ALL WORKS

At/Post. Watambare, Get No.674 Tal. Sangola Dist. Solapur Mob:09970200400 Email ID:- bhagatenter@gmail.com

SHE/WOT0/1037

CERTIFICATE

This is to certify that **Ms.Suhashini Balaji More** student of second year B.E.(E&TC)

From the **Shri Vithal Education & Research Institute's College of Engineering, Pandharpur**

Has successfullycompleted internshipfrom 26-5-2019 to 9-6-2019 in **Shivharshad Electrical**

TransformerCompany.

During her internship, she was found regular and sincere.

Date: -10-6-2019

Place:-watambare/sangola

M/s. Shivharshad Electrical

Proprietor

SHIVHARSHAD ELECTRICAL

Prop.B.S. Shagat

GOVT. ELECTRICAL CONTRACTOR

TRANSFORMER MGF./REPARING, ELECTRICAL ALL WORKS

At/Post. Watambare, Get No.674 Tal. Sangola Dist. Solapur Mob.09970200400 Email ID - shagatenter@gmail.com

SHE/1070/19-20

CERTIFICATE

This is to certify that **Ms.Swati Shivalingappa Bharama** student of second year B.E. (E&TC)

From the **Shri Vithal Education & Research Institute's College of Engineering, Pandharpur**

has successfully completed internship from 25-5-2019 to 9-6-2019 in **Shivharshad Electrical**

Transformer Company.

During her internship, she was found regular and sincere.

M/s. Shivharshad Electrical

Proprietor

Date: - 9-6-2019

Place:-watambare/sangola

Industry Certificate

CERTIFICATE

Ref: SVERI's college of engineering ,Pandharpur Official letter

It is certified that **Mr.Shrinivas Dattatray Katkamwar** student of **BE 3rd** year electronic branch have fairly participated and completed vocational trening in **SIGNAL AND TELECOMMUNICATION DEPARTMENT of central Railway Solapur** from **01 June 2019 to 15 June 2019.**

His performance during training period is to be appreciated.

Date : 15 june 2019

Place : Solapur

वरिष्ठ खंड अभियंता इंजीनियर (दूर संचार-उत्तर)
मध्य रेल, सोलापुर.
Date. 15/6/2019
Senior Section Engineer(Tele-N)
C. Rly., SOLAPUR

SSE/Tele/SUR/CR/IR
सिनियर सेक्शन इंजीनियर (दूर संचार उत्तर)
SENIOR SECTION ENGINEER (Tele-N)
मध्य रेल, सोलापुर
C. Rly., SOLAPUR

SHIVHARSHAD ELECTRICAL

Prop.B.S. Bhagat GOVT. ELECTRICAL CONTRACTOR

TRANSFORMER MGF./REPARING, ELECTRICAL ALL WORKS

At/Post. Watambare, Get No.674 Tal. Sangola Dist. Solapur Mob:09970200400 Email ID:- bhagatenter@gmail.com

SHE/wad/1036

CERTIFICATE

This is to certify that **Ms. Yogini Siddhappa Jamagi** student of second year B.E.(E&TC)

From the **Shri Vithal Education & Research Institute's College of Engineering, Pandharpur**

Has successfully completed internship from 26-5-2019 to 9-6-2019 in **Shivharshad Electrical**

Transformer Company.

During her internship, she was found regular and sincere.

Date: -10-6-2019

Place:-watambare/sangola

M/s. Shivharshad Electrical

Proprietor

SVERI's
College of Engineering, Pandharpur

Department of Electronics & Tele-communication Engineering

Sponsored Project Record

A.Y.: 2018-19

SVERI's College of Engineering, Pandharpur
Department of E& TC Engineering

Sponsored Project List 2018-19

Sr. No.	Class & Div	Name of Students	Title of Project	Name of Guide	Sponsored by
1	BE B	Kamble Ananda Nagnath Dhaware Ganesh Bhimarao Kadam Shrikant Uttamrao Khadbade Akash	Thumb Impression opertaed locking system for multiple user	Dr. A S Vibhute	Shri Samarth Industries, Aurangabad
2	BE A	Upase Sidharth Ravindra Panpude Ajay Balak Kandi Nikhil Mallikarjun	Cost effective E-rickshaw using Battery and Paddle	Mr. D A Kumbhar	S.G.Hightech, Aurangabad
3	BE B	Adhvalkar Mayureshwar Hanmant Kumthe Kutuboddin H Patil Mahesh Jivan Naiknavare Tushar A	Electronic system to reduce setup time of Tube Mill Machine	Mr. J N Mohite	Shree Tube Mfg. Co. Pvt. Ltd., Aurangabad
4	BE A	Jadhav Nilesh Dnyaneshwar Patil Gaurav Dnyandev Adhatrav Madhav Prakash	Electronic Trolley for 50 KG	Mr. H K Bhaldar	S.G.Hightech, Aurangabad
5	TE A&B	Ranaware Rohit Suhas Misal Pandurang Dhondiram Tate-Deshmukh Krishna Rajendra	Universal test rig for multiple harnesses using Arduino.	Mr. D A Kumbhar	Coretech Aurangabad Pvt.Ltd.
6	TE B	Yelsange Anjali Mahadeo Myakal Samita Balaji Katkar Anjali Pandurang	LDR based light ON/OFF with accuracy	Mr. D A Kumbhar	Coretech Aurangabad Pvt.Ltd.

S. G. Hightech

(TOOL ROOM WORK & SS. MS. FABRICATION.)

Off. : 0240-2551121
Mob. : 9373710967
9822010967

Add. : Plot No. 23-A, Gut No.23, Near Cosmo Flim, MIDC, Waluj Aurangabad. 431 136. India
E-mail : sghitech@rediffmail.com / sghitech@yahoo.co.in / sghitech1096@gmail.com

Ref .

Date :

Date: 11.04.2019

The Principal,

SVERI's COE,

Pandharpur

Subject: Sponsored Project completion Certificate

Respected Sir,

With reference industry visit of Mr. Kumbhar D A and team on 08.08.2018, a sponsored project **"Electronic trolley for 50 KG (Prototype)"** was offered under Students Innovation Projects by MSME and MASSIA.

Following students have worked on the project and **successfully completed** the project as per our requirements.

1. Mr. MadhavAdhatrao (BE ENTC)
2. Mr. Gaurav Patil (BE ENTC)
3. Mr. NileshJadhav (BE ENTC)

The student's performance during project completion found satisfactory and we wish them all the best for their future.

Thanking you.

Regards,

Mr. Nikesh M. Gaikwad

Director

S. G. Hightech
Waluj Aurangabad

S. G. Hightech

(TOOL ROOM WORK & SS. MS. FABRICATION.)

Off. : 0240-2551121
Mob. : 9373710967
9822010967

Add. : Plot No. 23-A, Gut No.23, Near Cosmo Flim, MIDC, Waluj Aurangabad. 431 136. India
E-mail : sghitech@rediffmail.com / sghitech@yahoo.co.in / sghitech1096@gmail.com

Date :

Ref .

Date: 11.04.2019

The Principal,

SVERI's COE,

Pandharpur

Subject: Sponsored Project completion Certificate

Respected Sir,

With reference industry visit of Mr. Kumbhar D A and team on 08.08.2018, a sponsored project **"Cost Effective E-Rickshaw Using Battery & Paddle"** was offered under Students Innovation Projects by MSME and MASSIA.

Following students have worked on the project and **successfully completed** the project as per our requirements.

1. Mr. Nikhil Kandi (BE ENTC)
2. Mr. Ajay Panpude (BE ENTC)
3. Mr. SidharthUpase (BE ENTC)

The student's performance during project completion found satisfactory and we wish them all the best for their future.

Thanking you.

Regards,

Mr. Nikesh M. Gajbhiye

Director

S. Hightech Waluj Aurangabad

Core Tech Aurangabad Pvt. Ltd.

Gut No. 23, Plot No. 16
Kamlapur, Jogeshwari, Behind Cosmo Films
Tal. Gangapur, Dist. Aurangabad.
Email. : coretechaurangabad@gmail.com

Date: 19.11.2018

The Principal,

SVERI's COE,

Pandharpur

Subject: Sponsored Project completion status

Respected Sir,

With reference industry visit of Mr. Kumbhar D A and team on 08.08.2018, three sponsored projects were offered under Students Innovation Projects by MSME and MASSIA. Out of 3 projects following two projects reviewed today i.e. 19.11.2018.

1. Universal test rig for multiple harness using Arduino
2. LDR based light ON/OFF with accuracy

Both the projects are found working satisfactorily as per our requirement. We request you to submit the codes and design of the project up to 15.12.2018.

We extend a warm thank you towards your organization for quick response and completion of our requirements. I expect such endeavor in future from your end.

Thanking you.

Regards,

Mr. Manoj Shewale

Director

Core Tech Aurangabad Pvt. Ltd. WALUJ

Core Tech Aurangabad Pvt. Ltd.

Gut No. 23, Plot No. 16
Kamlapur, Jogeshwari, Behind Cosmo Films
Tal. Gangapur, Dist. Aurangabad.
Email. : coretechaurangabad@gmail.com

Date: 19.11.2018

The Principal,

SVERI's COE,

Pandharpur

Subject: Sponsored Project completion Certificate

Respected Sir,

With reference industry visit of Mr. Kumbhar D A and team on 08.08.2018, a sponsored project **"LDR based light ON/OFF with accuracy"** was offered under Students Innovation Projects by MSME and MASSIA.

Following students have worked on the project and successfully completed the project as per our requirements.

1. Ms. Anjali Pandurang Katkar (TE ENTC)
2. Ms. Samita Balaji Myakal (TE ENTC)
3. Ms. Anjali Mahadeo Yelsange (TE ENTC)

The student's performance during project completion found satisfactory and we wish them all the best for their future.

Thanking you.

Regards,

Mr. Manoj Shewale

Director

Core Tech Aurangabad Pvt. Ltd. WALUJ

Core Tech Aurangabad Pvt. Ltd.

Gut No. 23, Plot No. 16
Kamlapur, Jogeshwari, Behind Cosmo Films
Tal. Gangapur, Dist. Aurangabad.
Email. : coretechaurangabad@gmail.com

Date: 19.11.2018

The Principal,

SVERI's COE,

Pandharpur

Subject: Sponsored Project completion Certificate

Respected Sir,

With reference industry visit of Mr. Kumbhar D A and team on 08.08.2018, a sponsored project **"Universal test rig for multiple harnesses using Arduino"** was offered under Students Innovation Projects by MSME and MASSIA.

Following students have worked on the project and successfully completed the project as per our requirements.

1. Mr. Rohit Suhas Ranaware (TE ENTC)
2. Mr. Pandurang Dhondiram Misal (TE ENTC)
3. Mr. Krisha Rajendra Tate-Deshmukh (TE ENTC)

The student's performance during project completion found satisfactory and we wish them all the best for their future.

Thanking you.

Regards,

Mr. Manoj Shewale

Director

Core Tech Aurangabad Pvt. Ltd. WALUJ

Students

Sr No	Name		Email-Id	Amount	Signature (I have received this amount for working on MSME Project)
1	Mayureshwar Adhvalkar	8208109248	mayuradhvalkar@gmail.com	5000	Mayur
2	Jokare MayurManik	8999846623	Jokarem1@gmail.com	5000	Mayur
3	Ms. Shraddha P. Danave	8485022994	shraddhadanave3010@gmail.com	5000	Shraddha
4	Tupe Shashikant Tanaji	9156835247	Shashikanthtupe11@gmail.com	5000	Tupe
5	Pise Jagdish Milind	9130329229	jagadishmpise@coep.sveri.ac.in	5000	Jagadish
6	Kadam Nitin Kisan	7387419153	milinkradam@coepsveri.ac.in	5000	Nitin
7	Moholkar Kshitij	8855080750	Kshitijdmoholkar@coep.sveri.ac.in	5000	
8	Siddharth R.Upase	9730974956	siddharthrupase@coep.sveri.ac.in	5000	Upase
9	Adhatrao Madhav P.	9804788706	madhavpadhatrao@coep.sveri.ac.in	5000	
10	Dubewar Ganesh Vinodrao	8600372623	ganeshvdubewar@coep.sveri.ac.in	5000	
11	Akash Khadbade	8698252922	akashskhadbade@coep.sveri.ac.in	5000	Akash
12	Krishna Tate-Deshmukh	8308200832	krishnartatedeshmukh@coep.sveri.ac.in	5000	Krishna
13	Samita Myakal	7020262761	samitabmyakal@coep.sveri.ac.in	5000	Samita
14	Bhosale Vishal Shahaji	7057740477	Vishalsbhosale@coepsveri.ac.in	5000	

Coordinator Sign

B.B.ange
Principal (Director)
PRINCIPAL
College of Engineering
PANDHARPUR

124231/1-2 PPP034110

Invoice from Appraiser or Consultant and confirmation of furnishing of services by the officer responsible for the contract and cooperation

INVOICE (2 pages)

to GIZ Office, New Delhi
B 5/1 Safdarjung Enclave , New Delhi- 110029

25 OCT 2018

GIZ-Office No.

Invoice Date : 28/09/2018	Invoice No.006/2018/SME INNO

Appraiser/Consultant (name and full address)	Payment Mode
Dr. B. P. Ronge, Principal, Shree Vithal Education and Research Institute's, College of Engineering, Pandharpur-413304 Email:bpronge@sveri.ac.in, :jnmohite@coe.sveri.ac.in	☐ Bank Draft ☐ Cheque (Delhi only) ☑ Transfer to Bank Account **Bank Details:** **IndusInd Bank, IndusInd bank Limited, Pandharpur Branch.** **Account No: 100049823054** **IFSC:INDB0000892** **GST Registration No : 27AAHTS3090B1ZK** **PAN No :AAHTS3090B**

Bank details are complete only if accompanied by account title, name & address of bank, with account number.

☐ Request for an advance payment (please only fill lines 1, 4 , 10 & 13)
☐ Partial Invoice
☐ Final invoice
Period invoiced:.....to .....

Mandatory information ! Available on your contract !! (First three bits of information on the contract document !!!)

Contract no.	Project :	Project Number:

If this is a request for Advance Payment then please fill only rows 1,10 & 13)

	Particulars	**Amount (Rs.)**	**Reserved for GIZ**
1	Advance payment		
1.1	Fees	87,500	70,000.
1.2	Travel (indicate amount / Nil if there is no claim)		
2	**Lump sum according to contract**		
3	**Fees** Dates; ..... Number of days:.....x daily fee-rate		
4	**GST (as applicable)**		

5	**Daily allowances (Lumpsum)** Dates: ..... Number of days:.....x daily rate ..... Number of days:.....x reduced daily rate		
6	**Accommodation allowances (Lumpsum)** Dates: ..... Number of nights:.....x rate/ night ..... *or* Actual cost according to attached hotel invoices (room charges + taxes)		
7	**Air / train ticket** (please supply documentary evidence)		
8	**Travel cost** (airport tax, taxi etc.) (***if not lump sum,*** please supply documentary evidence)		
9	**Other reimbursement** according to contract (***if not lump sum,*** please supply documentary evidence)		
10	**Gross Total**	87,500	70,000
11	**Tax Deducted at source (as applicable)** 10%		7000-00
12	**Deduction of advance payment** (if any, formerly received under this contract		
13	**Net Payment**	87,500	63000-00

GIZ-Office (99.9245.4-001.00)

Date 1/10/18

22-10-18

22-10-18 22/10/18

Bank / Cash

Sub

R.C.P. 13/11/18

DLA

U02-4

Mandatory fields

28/09/18	Pandharpur	
Date	Place	Consultant's Signature

College of Engineering,
PANDHARPUR

Confirmation of Services

(Not applicable to advance payments at signing of contracts)

To be filled by the officer responsible for commission

Services have been delivered/ results provided according to the contract

- ☐ in full
- ☑ only partially (please comment) Advance.
- ☐ no (please comment)

Comments:

FOR CHAMAL LAL 22-10-18

AV/AP name Date Signature

D.C. 70,000.00 10% 7,000.00 63,000.00

SVERI's
College of Engineering, Pandharpur

Department of Electronics & Tele-communication Engineering

Industrial Training

Sample Report

A.Y.: 2018-19

A

Vocational Training Report

At

"BSNL,Solapur"

Submitted By,

Miss. Punam Laxman Patil

TE(EXTC)

Roll No: B-37



College of Engineering, Pandharpur

Department of Electronics and Telecommunication Engineering

Solapur University, Solapur.

2018-2019

SVERI's COLLEGE OF ENGINEERING, PANDHARPUR

Certificate

This is to certify that **Miss. Punam Laxman Patil** studying in **TE (ENTC)** has successfully completed the vocational training of 15 days at **"BSNL, Solapur"** and submitted the report to the Department of Electronics & Telecommunication Engineering.

Guide	**Coordinator**	**HOD**
(Prof. J.S.Hallur)	(Prof. M. S. Biswas)	(Prof. Dr. A.S.Vibhute)

Date: 09/05/2019

Place: Pandharpur.

INDUSTRY CERTIFICATE

Office of the General Manager Telecom,
Telephone Bhavan, Sangli-416 [illegible]
Tel No. 0233-[illegible]

BSNL

Bharat Sanchar Nigam Limited

(A Govt of India Enterprise)

CERTIFICATE

This is to certify that

PATIL PUNAM LAXMAN

has completed successfully the following Course conducted by
Bharat Sanchar Nigam Limited, Sangli

Name of the Course : Vocational Training For Diploma Engg Students

Course Subject : Overview of Telecom Systems & Its Functioning

Commencing Date : 24-05-2018

Duration : 2 Week

Course Code : SPRVTFESB24 Course Schedule Code

ACKNOWLEDGEMENT

I feel happiness in forwarding this Vocational training report as an image of sincere efforts. The success reflects my work and efforts of my guide in guidance. Any successful endeavor requires an opportunity, an opening and proper direction. Such an opportunity was provided to us by **BSNL,SOLAPUR.**

It is with a great sense of gratitude that I acknowledge the support given to me by number of individuals in the preparation of this report.

I thank to the staff of the company for their kind support and help which proved to be a source of knowledge and addition to the learning of Engineering in a better way. I would like to thank to Prof. Dr.A.S.Vibhute, Head of ENTC Engineering Department and the other teachers whose unending efforts, advise, motivation and encouragement at every step made this work possible. I take this opportunity to also thank Principal of the college for being a source of inspiration for us students.

Lastly I thank my all friends who have helped directly or indirectly to bring this report to stage of completion.

I am very thankful to **Mr.Zingate Sir** (Branch Manager) that he accepted my training request and allowed access to **BSNL,SOLAPUR** facilities. In **BSNL,SOLAPUR** I was provided with constant encouragement and inputs related to my work. The work, culture and willingness of all officials and staff that helped me in my way possible were truly amazing.

Miss .Punam Laxman Patil.

(TE B-37)

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1.INTRODUCTION OF INDUSTRY:



Fig.A .BSNL Industry

Bharat Sanchar Nigam Ltd. was incorporated on 15th september2000 . It took over the business of providing of telecom services and network management from the erstwhile Central Government Departments of Telecom Services (DTS) and Telecom Operations (DTO), with effect from 1st October' 2000 on going concern basis.It is one of the largest & leading public sector units providing comprehensive range of telecom services in India.

BSNL has installed Quality Telecom Network in the country & now focusing on improving it, expanding the network, introducing new telecom services with ICT applications in villages & winning customer's confidence. Today, it has about 36.42 million line basic telephone capacity, 7.13 million WLL capacity, 95.96 million GSM capacity, 34,727 fixed exchanges, 1,17,090 GSM BTSs, 9,594 CDMA Towers, 102 Satellite Stations, 7,73,976 RKm. of OFC, 4751 RKm. of microwave network connecting 646 districts, 4519cities/towns & 6.25 lakhs villages .

2.BSNL BROADBAND SERVICES:

2.1 Mobile broadband

BSNL has a world class, multi-gigabit, multi-protocol, convergent IP infrastructure through National Internet Backbone, through which it is providing convergent services through the same backbone and broadband access network. The Broadband service is available on ADSL technology (on the same copper cable that is used for connecting telephone), on a countrywide basis.

In terms of infrastructure for broadband services NIB has put India at par with most advanced nations. The services that are supported includes:

- Always-on broadband access to the Internet for residential and business customers
- Content based services
- Internet Protocol TV (IPTV)
- Games on Demand
- Music and Video on Demand

The Broadband Service is being given through the state of the art Multi Protocol Label Switching (MPLS) based IP Infrastructure, which is designed to provide reliable routes to cover all possible destinations within and outside the country. Layer 1 of the network consist of a high speed Backbone comprising of 29 powerful Core Routers connected with high speed 2.5 Gbps(STM-16) links. The routers are located on the national DWDM network interfacing at STM-16 optical level to provide for high transmission speeds.

2.2 Wi-max broadband:

WiMAX is a unique technology being deployed by BSNL for the first time in India. This technology provides fixed as well as fully mobile high speed broadband connectivity alongwith roaming feature. It provides users a thrilling Internet browsing experience.

2.2.1Connecting to Wi-MAX :

BSNL offers large variety of Customer Premises Equipments (CPE) including Outdoor, Indoor and USB dongles from which customers can choose as per their application requirements.

Indoor :Best suited for Home/Office users. Can be used in moving vehicle also
Dongle:Small Dongle can be connected directly to PC / Laptop via USB port.
Outdoor:Suitable for remote and rural areas. Can be used upto 15 Km distance (Line of sight) from BTS site.

2.2.2Wi-MAX Services:

- High speed broadband connectivity upto 7Mbps
- Leased Lines
- VPN Services
- Web based Video Conferencing

3.TRAINING CONTENT:

3.1 BSNL SERVER MACHINE'S:

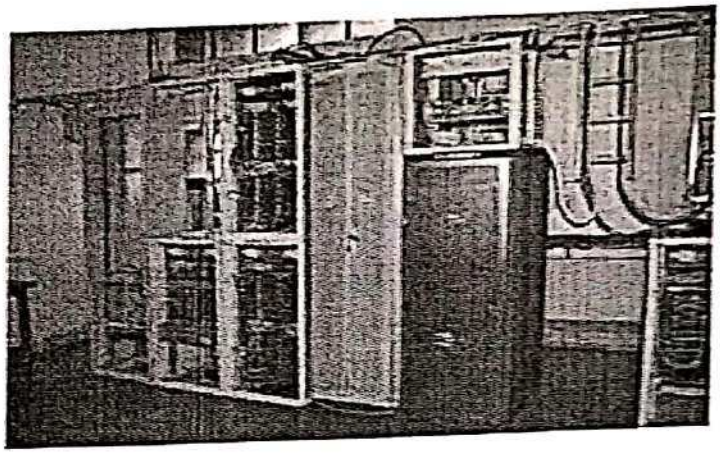


Fig.1. server machine's

A communications server is a computing system platform that is used for various network communication applications and allows vendors to add multiple values at different levels of architecture.

Communications servers include the following primary characteristics:

- Flexibility: Communications server architecture is scalable, multilevel, highly flexible, is designed to easily support added values at any level and has multiple server repurposing options.
- Openness: Communications servers are based on industry standards. Different tools and services may be further integrated on an as-needed basis.
- Carrier Grade: Communications server upgrades and updates are non-disruptive. Each associated system aspect and feature follows and fulfills network-building regulations.

3.2 GLOBAL SYSTEM FOR MOBILE COMMUNICATION (GSM):

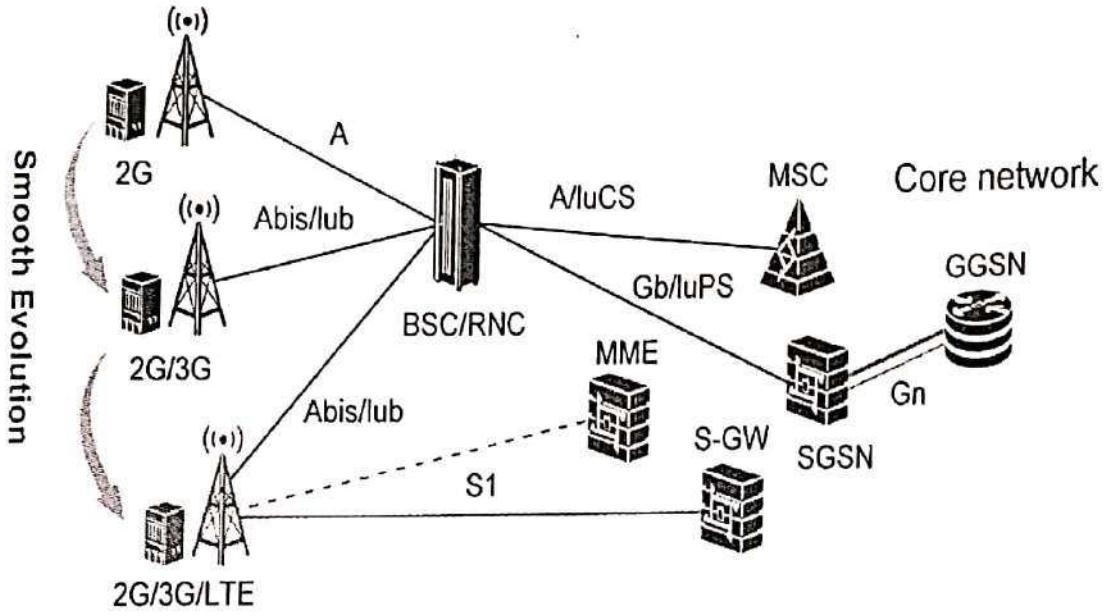


fig2:GSMSystem

The GSM Association is a unique organization, with a truly global reach, offering a full range of business and technical services to its members. Now as the wireless family unfolds the association is deriving forward its vision of seamless, limitless, world of wireless communication.

Throughout the evolution of cellular telecommunications, various systems have been developed without the benefit of standardized specifications. This presented many problems directly related to compatibility, especially with the development of digital radio technology. The GSM standard is intended to address these problems. Global system for mobile communication (GSM) is a globally accepted standard for digital cellular communication. GSM is the name of a standardization group established in 1982 to create a common European mobile telephone standard that would formulae the specifications for a pan-European mobile cellular radio system operating at 900 MHz. It is estimated that many country outside of Europe will join the GSM partnership.

3.3 CALL PROCESSING INBSNL:

What happens when we make a call?

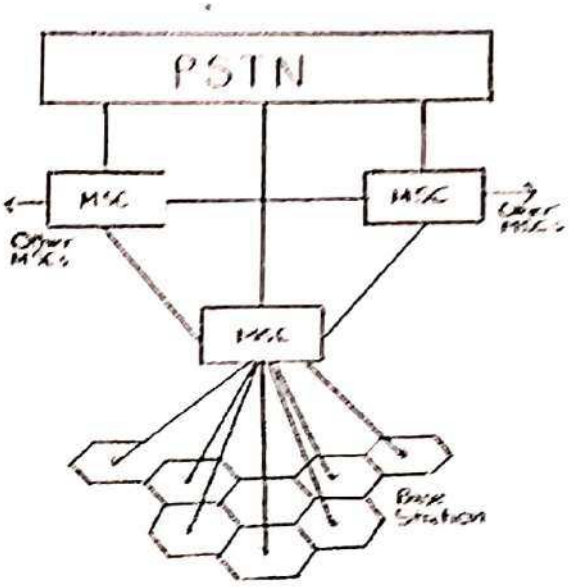


Fig.3.Call Processing

1. When we switch on the mobile phone, it tries for an SID on the Control channel. The Control channel is a special frequency that the phone and base station use to talk to one another. If the Mobile phone finds difficulty to get link with the control channel, it displays a "no service" message.
2. If the Mobile phone gets the SID, it compares the SID with the SID programmed in the phone. If both SID match, the phone identifies that the cell it is communicating is the part of its home system.
3. The phone also transmits a registration request along with the SID and the MTSO keeps track of your phone's location in a database. MTSO knows in which cell you are when it wants to ring the phone.
4. The MTSO then gets the signal, it tries to find the phone. The MTSO looks in its database to find the cell in which the phone is present. The MTSO then picks a frequency pair to take the call.

5. The MTSO communicates with the Mobile phone over the control channel to tell it what frequencies to use. Once the Mobile phone and the tower switch on those frequencies, the call is connected.
6. When the Mobile phone move toward the edge of the cell, the cell's base station will note that the signal strength is diminishing. At the same time, the base station in the cell in which the phone is moving will be able to see the phone's signal strength increasing.
7. The two base stations coordinate themselves through the MTSO. At some point, the Mobile phone gets a signal on a control channel and directs it to change frequencies. This will switch the phone to the new cell.

4.DATA TRANSMISSION MEDIA:

A communication channel or simply channel refers either to a physical transmission medium such as a wire, or to a logical connection over a multiplexed medium such as a radio channel in telecommunications and computer networking. A channel is used to convey an information signal, for example a digital bit stream, from one or several senders (or transmitters) to one or several receivers. A channel has a certain capacity for transmitting information, often measured by its bandwidth in Hz or its data rate in bits per second.

GUIDD MEDIA:

4.1. OPTICAL CABLE-

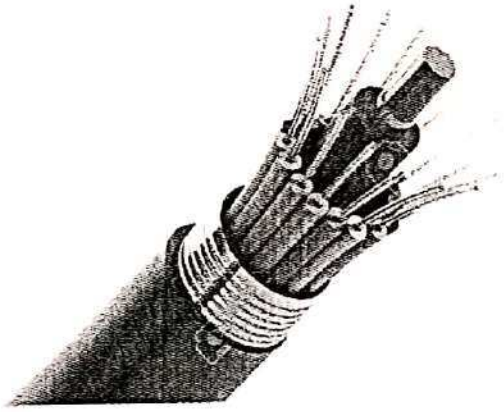


Fig.4. optical cable

An optical fiber cable, also known as a fiber optic cable, is an assembly similar to an electrical cable, but containing one or more optical fibers that are used to carry light. The optical fiber elements are typically individually coated with plastic layers and contained in a protective tube suitable for the environment where the cable will be deployed.

4.2.TWISTED PAIR CABLE-

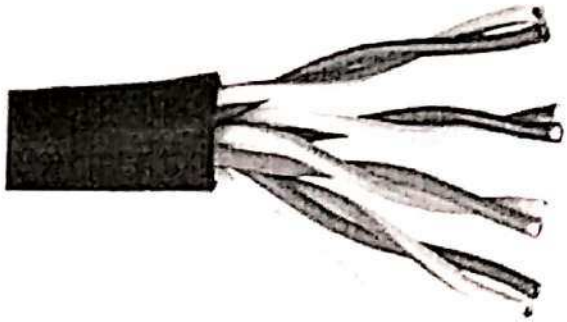


Fig.5.Twisted pair cable

Twisted pair cabling is a type of wiring in which two conductors of a single circuit are twisted together for the purposes of improving electromagnetic compatibility. Compared to a single conductor or an untwisted balanced pair, a twisted pair reduces electromagnetic radiation from the pair and crosstalk between neighboring pairs and improves rejection of external electromagnetic interference.

b)Unguided media-Unguided medium transport electromagnetic waves without using a physical conductor. This type of communication is often referred to as wireless communication. Signals are normally broadcast through free space and thus are available to anyone who has a device capable of receiving them.

5.MAIN DISTRIBUTION FRAME :

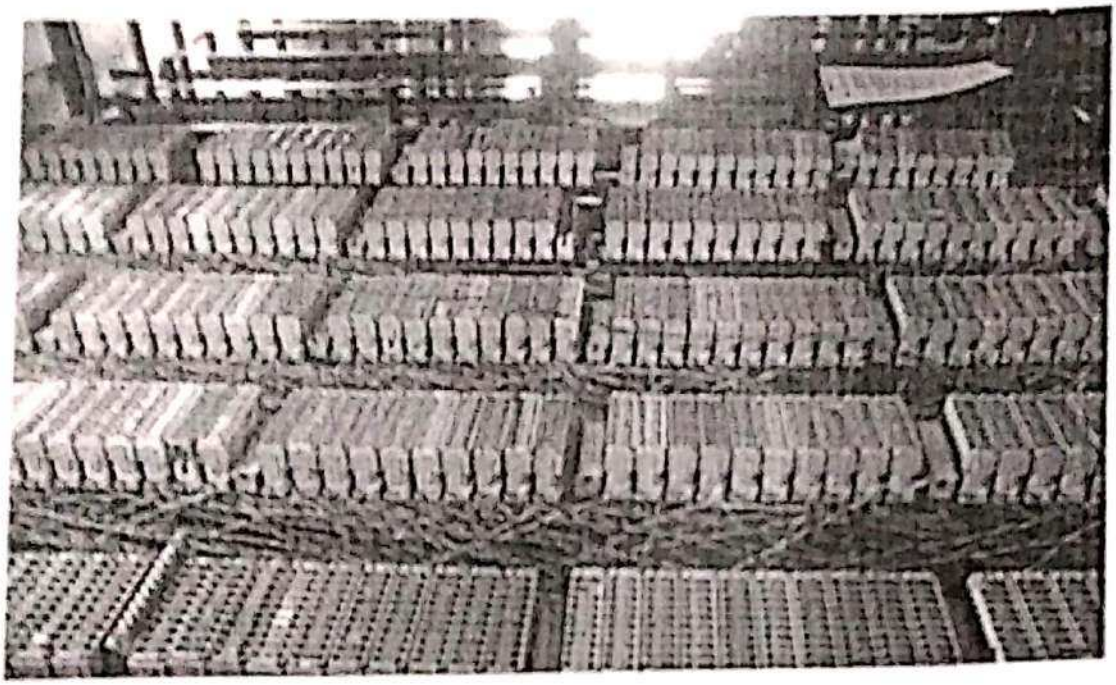


Fig.6 main distribution frame

The MDF is a termination point within the local telephone exchange where exchange equipment and terminations of local loops are connected by jumper wires at the MDF. All cable copper pairs supplying services through user telephone lines are terminated at the MDF and distributed through the MDF to equipment within the local exchange e.g. repeaters and DSLAM. Cables to intermediate distribution frames (IDF) terminate at the MDF. Trunk cables may terminate on the same MDF or on a separate trunk main distribution frame (TMDF).

Like other distribution frames the MDF provides flexibility in assigning facilities, at lower cost and higher capacity than a patch panel.

5.1 POWER SUPPLY UNIT:

The system shall be capable of meeting the load requirements of various telecom equipment and battery bank in Telecom Network. The system should be expandable at rack level itself or by additional racks using the basic FR/FC and/ or FR/BC modules of the same rating. The prescribed FR/FC and FR/BC ratings are 25A, 50A, 100A and 200A. These power plants may be mainly classified in two categories:

1. Large capacity Power plants systems: These types of power plants are envisage for large or very large telecom systems. Power plant systems with ultimate capacity of 600A/1000A/1500A and above are envisaged for this application. Battery back-up for these systems shall be as per Annexure – I letter No. 7-1/2013-NWO-CFA/MSE (Ch.II) Dated: 14.03.2014 Issued by BSNL C.O, New Delhi – 110 001. SMPS power plants based on 100A basic modules are envisaged for 600A/1000A/1500A and 100A/200A basic modules for above 1500A for these application. All these power plants use three phase supply.

2. Small capacity Power plants systems: These type of power plants are envisage to serve small telecom systems in rural and semi-urban areas. Battery back-up for these systems shall be as per Annexure – I letter No. 7-1/2013-NWO-CFA/MSE Dated: 14.03.2014 Issued by BSNL C.O, New Delhi – 110 001. This type of power plant may also be used with small telecom systems such as mobile base stations etc. in the urban and metros areas. SMPS power plants with ultimate capacity of less than 150A (single phase) based on 25A/50A single phase module are envisaged and these power plants shall operate on single or three phase / 4 wire A.C input power distribution. The power plants with ultimate capacity 150A/300A/450A based on 50A basic modules shall operate on three phase / 4 wire A.C input power distribution. Higher rated modules in place of 50A basic modules (60A/75A) is also permissible, but counting of modules will be as per the ultimate capacity fixed for 50A basic module (i.e 150A/300A/450A). 1.1.3 The power plant system shall consist of a Distribution, Switching, Control, Alarm and Monitoring arrangement (DSCA) and Float Rectifier-cum-Float 7 Chargers (FR/FCs) and Float

Rectifier-cum-Battery Chargers (FR/BCs) in a rack. It shall employ modular configuration for flexible provision of DC power.

5.2 CONCEPT OF INTRANET:

An intranet is a private network that is contained within an enterprise. It may consist of many interlinked local area networks and also use leased lines in the wide area network. Typically, an intranet includes connections through one or more gateway computers to the outside Internet. The main purpose of an intranet is to share company information and computing resources among employees. An intranet can also be used to facilitate working in groups and for teleconferences.

An intranet uses TCP/IP, HTTP, and other Internet protocols and in general looks like a private version of the Internet. With tunneling, companies can send private messages through the public network, using the public network with special encryption/decryption and other security safeguards to connect one part of their intranet to another.

Typically, larger enterprises allow users within their intranet to access the public Internet through firewallservers that have the ability to screen messages in both directions so that company security is maintained. When part of an intranet is made accessible to customers, partners, suppliers, or others outside the company, that part becomes part of an extranet.

5.3 CONCEPT OF PROTOCOL:

- BSNL VVOBB uses 'Voice over Internet Protocol' (VoIP) technology and it's just a great new way to make and receive phone calls using your broadband connection instead of your standard phone line. BSNL converts your phone calls into data that zips through your high? speed broadband connection just like e-mail.
- A protocol is a set of rules and guidelines for communicating data. Rules are defined for each step and process during communication between two or more computers. Networks have to follow these rules to successfully transmit data.

- A network protocol defines rules and conventions for communication between network devices. Network protocols include mechanisms for devices to identify and make connections with each other, as well as formatting rules that specify how data is packaged into sent and received messages.

Similar to programming languages, protocols are based on specific rules and regulations for computing and are designed for efficiency. Each rule is defined in different terms and is assigned a unique name. Protocols specify the standards for communication and provide detailed information on processes involved in data transmission. Such processes include:

- Type of task
- Process nature
- Data flow rate
- Data type
- Device management

A single process can be handled by more than one protocol simultaneously. This coordination of protocols creates a protocol family.

6.CODE DIVISION MULTIPLE ACCESS (CDMA):

With CDMA transmission from earth station are spread over the time frequency plane by a code transformation. These techniques are referred to as Spread Spectrum Systems. In addition to their multiple access capabilities, they are useful in combating jamming, and are for this reason principally used in military systems.

6.1Featurs

- All stations operate on the same transponder frequency using a large bandwidth than needed for the data rate.
- Network needs no time for frequency coordination.
- Provide anti jam capabilities or protection against interference.
- Provide for a graceful degradation of network performance as the number of simultaneous users increases.
- Low spectral density compared to conventional emissions.
- It yields same capacity as FDMA.

6.2Limitations of CDMA:

- Require large transponder ratio.
- Due to imperfect code orthogonalities, expected simultaneous users may be limited.
- Requires a highly central earth station called HUB using star configuration.
- SAT technology using SSMA is presently available only for low bit rate application

7.COOLING SYSTEM:

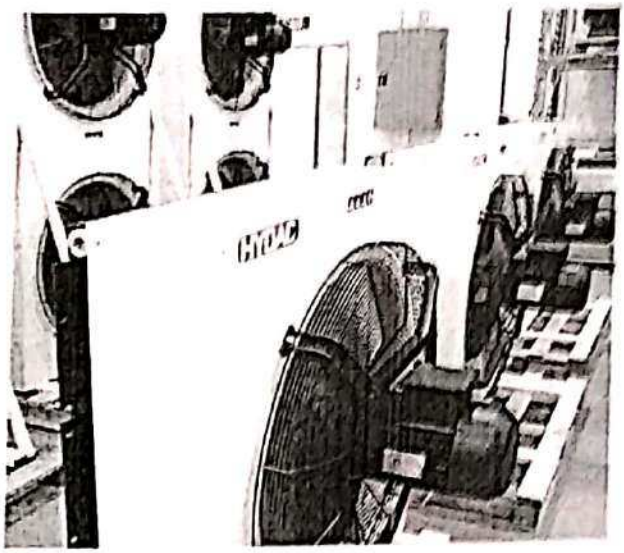


Fig.7.cooling system

Air cooling is a simple means of dissipating heat within industrial and mobile machines. The fluid – usually oil or water-glycol – flows through a cooler. A fan draws air and drives it through the cooling element. Thus, there is a temperature difference and heat exchange takes place. Of this results an increase in air temperature which is then released into the environment.

A wide range of coolers is available, with either axial and radial fan designs. AC, DC electric drives, and hydraulic motors ensure versatility in catering to a variety of applications and ambient conditions.

8. Conclusion:

I am satisfied with my training. I have learned new techniques. acquire a number of new technical skills .other than those gained by college laboratorieesstepped through a basic telecommunication system. we learned telecommunication services about how is data transmitting and receiveing .

I like most about my training that is related to mobile communication.

It was first experience as an intern in the industry.During the training I have gained practical knowledge about the various technology.I will try my best to use this knowledge to brighten my future in industry.

Reference:

1.https://www.scribd.com/doc/57622186/BSNL-Training

2.www.calcutta.bsnl.co.in/NSCBTTCWEBPAGE/training

SVERI's
College of Engineering, Pandharpur

Department of Mechanical Engineering

Sample Project Report

A.Y.: 2018-19

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

A

PROJECT REPORT

ON

"Design and Development of Human Following Trolley"

Submitted by

Ms. Priyanka Sunil Dixit (Roll No. B-21)

Ms. Sayali Nandkumar Joshi (Roll No. B-34)

Ms. Vaishnavi Kiran Patki (Roll No. B-47)

(Project Group No. BE-B 02)

B.E. Electronics and Telecommunication

Under the guidance of

Prof. H. K. Bhaldar

Department of Electronics and Telecommunication

Engineering

SVERI

College of Engineering, Pandharpur

Academic Year: 2018-2019

SVERI

SVERI's COLLEGE OF ENGINEERING, PANDHARPUR

Certificate

This is to certify that the Project report entitled

"Design and Development of Human Following Trolley"

is submitted by

Ms. Priyanka Sunil Dixit	(Roll No. B21)
Ms. Sayali Nandkumar Joshi	(Roll No. B34)
Ms. Vaishnavi Kiran Patki	(Roll No. B47)

(Project Group No. BE-B 02)

For partial fulfillment of BE in Electronics and Telecommunication as per requirement of Punyashlok Ahilyadevi Holkar Solapur University, Solapur for the academic year 2018-2019.

(Prof. H. K. Bhaldar)	(Prof. Dr. A. S. Vibhute)	(Prof. Dr. B. P. Ronge)
GUIDE	**H.O.D.**	**PRINCIPAL**

(Prof. A-A Shinde)
EXTERNAL EXAMINER

Date: 27/04/2019
Place: Pandharpur

DECLARATION

We hereby declare that the project work entitled as **"Design and Development of Human Following Trolley"** is an authentic record of our own work carried out at SVERI's College of Engineering, Pandharpur as required for the award of degree of B.E. (Electronics and Telecommunication Engineering) and it is not copied from any source.

Roll No	Name of Student	Sign
B-21	Priyanka Sunil Dixit	
B-34	Sayali Nandkumar Joshi	
B-47	Vaishnavi Kiran Patki	

ACKNOWLEDGEMENT

We feel happy in forwarding this project report as an image of sincere efforts. The successful project reflects our work, effort of our guide in giving us good information.

Our sincere thanks to our respected guide **Prof. H. K. Bhaldar** who has been a constant source of inspiration and guiding star in achieving our goal.

We give our special thanks to respected HOD **Prof. Dr. A.S. Vibhute** for his constant interest and constant encouragement throughout the completion of our project.

We express deep gratitude to all staff members who lend us their valuable support and co-operation to enable us to complete our project successfully.

We are also equally indebted to our Principal **Dr. B. P. Ronge** for his valuable help whenever needed.

Ms. Dixit Priyanka Sunil.
Ms. Joshi Sayali Nandkumar.
Ms. Patki Vaishnavi Kiran.

ABSTRACT

In the recent years both the researchers in the industry and academia have invested a lot of their time and hard work in the region of automation, smart living. As a part of automation and smart living, smart shopping also plays a key role in enhancing the life of people in the modern life. In this communication between trolley and person is most important factor. In this project a trolley automatically avoids an obstacle and in order to interact and communicate with the person trolley should follow that particular person.

To achieve this target the goal of our work is to design and fabricate a robot that not only tracks the target but also move towards by avoiding obstacles while tracking. To make things simpler, a unique tag is placed on the person that should be followed by trolley. A small pi camera continuously captures the images of the unique tag and continuously compares it to the original captured image. If it is matched then trolley moves further also it makes its way to move further by avoiding obstacles by using ultrasonic sensors. Tag plays important role as per as uniqueness is concern and makes task easy. The trolley is mechanically designed and electrical components are also used. All processing is carried out using raspberry pi.

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CHAPTER NO. 1

INRODUCTION:

People prefer to go shopping online rather than getting them by hand. Internet has become everywhere, compare to the final decades where internet is just wired, and people needs to become while watching computer to gain access to the web but now a days, internet is simply in the tip of the finger. This really an advantage where we are able to introduce robot for different works. The robot is build robotically and electrical components were also accustomed to build the automatic arm.

Robotic technology plays vital role in this moving world in couple of past years. In this robotic world, it is necessary to make trolley such as "Human following trolley" which interacts and co-exists with them. To perform this task accurately, trolley needs to avoid obstacles and also it must be intelligent enough to follow a person in crowded area, vivid environment and indoor and outdoor places. Here raspberry pi is credit-card-sized single board which is developed by UK based raspberry pi foundation.

The raspberry pi has GPIO pins. Using L293D motor driver board, the robot is controlled by GPIO pins. Here a pi-camera is connected to a raspberry pi. DC motors are being used for movement of robotic wheels i.e. to move right-left, forward or backward direction. Raspberry Pi uses ARM11 architecture and Linux-based system. In terms of control and interface, it has 8 GPIO, 1 UART, 1 I2C and 1 SPI, basically to meet the control requirement. The wheels of trolley are controlled by DC motors which are dependent on driving motor.

CHAPTER NO. 2

2.1 LITERATURE SURVEY:

Kinect sensor is used to capture the 3D image of body and store it into database and continuously captured images are being compared to original and trolley follows that particular person. But it increases cost.[1]

Robotic cart is implemented to track and follow the target in the unstructured environment. Here microcontroller and ultrasonic sensor are used to identify and follow a targeted person.[2]

A trolley follows with carrying good with it also the bar code reader is placed in a trolley to save the time of billing.[3]

Robot can be controlled by using the android app. It gives commands to the robot to move upward, backward, left, right. As per signal generated by the android app, raspberry pi is given to the raspberry pi, and controlling process is done.[4]

Robotic ARM, android application, raspberry pi is used. In this robotic arm performs the same like human hand works. Application is built in android platform, the indication is given to raspberry pi for further process. In this technique, the delay and server problems are reduced as the Wi-Fi is used.[5]

This paper discuss about person following robot, a robot that should help human in an environment such as hospitals, schools, or shopping malls.[6]

A robot automatically follows the particular person as a unique tag is placed on the person that should be followed by a robot.[7]

Robot can be implemented wirelessly as it uses Integrated circuit, Parallel port, Atmega 168 Microcontroller, Arduino, X-bee, Zigbee. The Robot could be guided with absolute freedom and autonomy without using wires.[8]

The concept of building a robot able to pursue a specific person through an airport while assisting with carrying that person's luggage is described.[9]

Intelligent Space for the achievement of the human-centered robotic system was developed. The positions of targeted objects in the iSpace are measured with multiple DINDs installed in a wide area.[10]

2.2 PROBLEM STATEMENT:

From literature survey we come to know that, In first paper, a robot was developed and controlled through the parallel port of the computer with an implementation of Arduino + X-bee, resulting that the robot could be guided with a certain freedom and autonomy without using wires.

In second paper, the android phone and raspberry pi board is connected through Wi-Fi, so that we can control the robot using android phone. In the same way in 3rd and 4th paper robot can be controlled by android, raspberry pi and Wi-Fi so that delays and server problem are reduced.

To overcome the problems like server issues, delay problem in above paper project named "Design and Development of Human Following Trolley" which uses ultrasonic sensors, and raspberry pi board, RFID to control and monitor the robot. This project can reduce the human labors as well as human errors and will give us better result.

➢ OBJECTIVES

1. To design a system which will follow a particular human.
2. To select proper components for designing the system.
3. To test the detection module and tag identification module.
4. To combine both the modules.

CHAPTER NO. 3

METHODOLOGY

3.1 BLOCK DIAGRAM

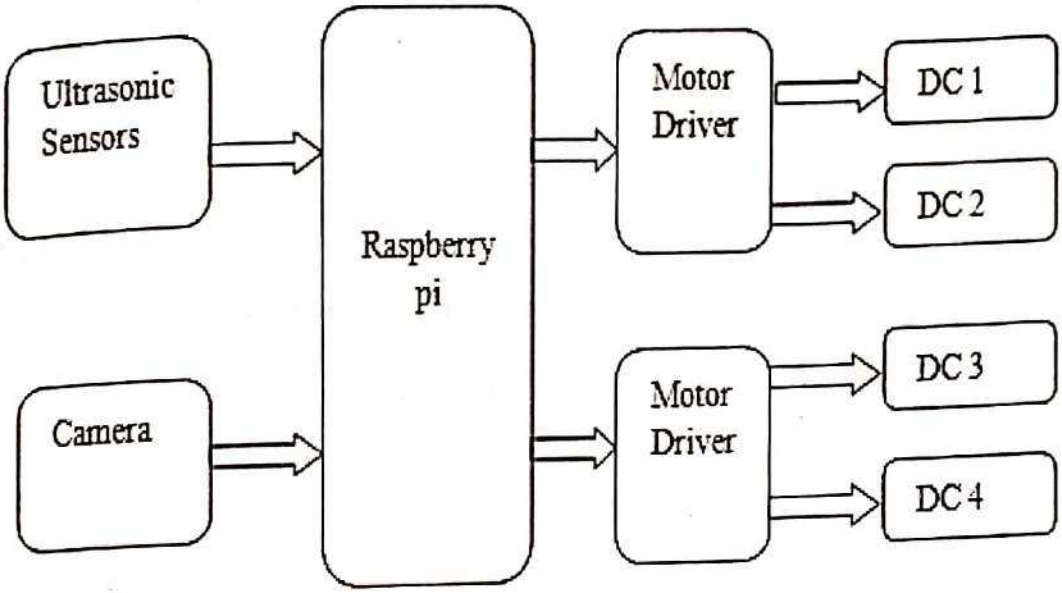


Fig 1: Block diagram of human following trolley

Trolley consists of robotic vehicle having 2 wheels and 1 freewheel mounted along with different sensors and modules i.e. ultrasonic sensor and camera. The camera is vertically adjusted and is initially mounted at height of 4ft from ground to enhance the visual capability and effectiveness. This trolley is controlled by the user as it follows a particular person by a unique identification tag. Pi camera captures the image continuously and compares it with original. If it is matched then it follows that person. Also it checks for the obstacles and avoid them by using ultrasonic sensor.

There are several features of the project such as design of circuit, tag identification, obstacles avoidance and human detection system. Continuously image capturing is done for identifying unique tag. We have used computer vision camera for recognizing the tag at the back of person and an Open CV python platform to develop this algorithm. Continuously image capturing is done for identifying unique tag.

We have used computer vision camera for recognizing the tag at the back of person and an OpenCV python platform to develop this algorithm. Ultrasonic sensors transmit sound waves at a frequency which is too high for humans to hear. Then they wait for the sound to be reflected back and calculate the distance based on the time required. This is similar to the radar measures time it takes a radio wave to return after hitting object.

3.2 Hardware Prototype:

3.2.1 Raspberry Pi:

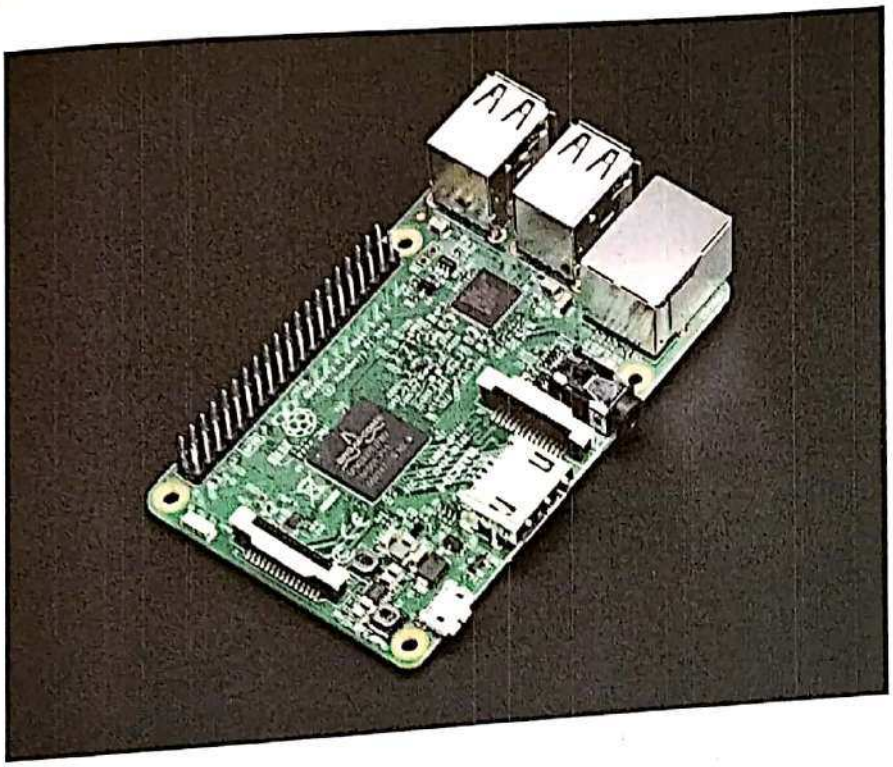


Fig 2: Raspberry pi 3

➢ **Description:**

The Raspberry Pi is a series of small single-board computers developed in the United Kingdom by the Raspberry Pi Foundation to promote teaching of basic computer science in schools and in developing countries. This proposed system has a major component as raspberry pi 3. The Raspberry Pi 3 Model B is the third generation Raspberry Pi. This powerful credit-card sized single board computer can be used for many applications and supersedes the original Raspberry Pi Model B+ and Raspberry Pi 2 Model B.

Whilst maintaining the popular board format the Raspberry Pi 3 Model B brings you a more powerful processor, 10x faster than the first generation Raspberry Pi. Additionally it adds wireless LAN & Bluetooth connectivity making it the ideal solution for powerful connected designs. It has 4 USB ports and mouse, keyboard, pen drive can be connected to it, also it has an Ethernet compatible port to which we can connect Ethernet cable. Raspberry pi 3 has 40 GPIO pins and we can connect various sensors like ultrasonic, air, temperature etc to it. Raspberry pi has 2 special slots to which we can connect pi camera and screen touch display.

Also for installing the os and storing the program we require a memory card of 16GB.We can use raspberry pi as music system. It has 3.5mm audio jack to which we can connect headphones, home theater. Raspberry pi has power slot, we can connect 5v 2A charger to it also we can design separate power circuit for it. Raspberry pi has HDMI port by which we can connect it to the projector, external desktop.

➢ **Features:**

- CPU: quad core64 bit ARM Cortex A53 clocked at 1.2GHz.
- GPU: 400MHz video core IV multimedia.
- Memory: 1GB LPDDR2-900 SDRAM (i.e. 900MHz)
- USB Port: 4
- Video outputs: HDMI, composite video(PAL and NTSC)via 3.5mm jack
- Network: 10/100Mbps Ethernet and 802.11n wireless LAN.

➢ **Pin Diagram:**

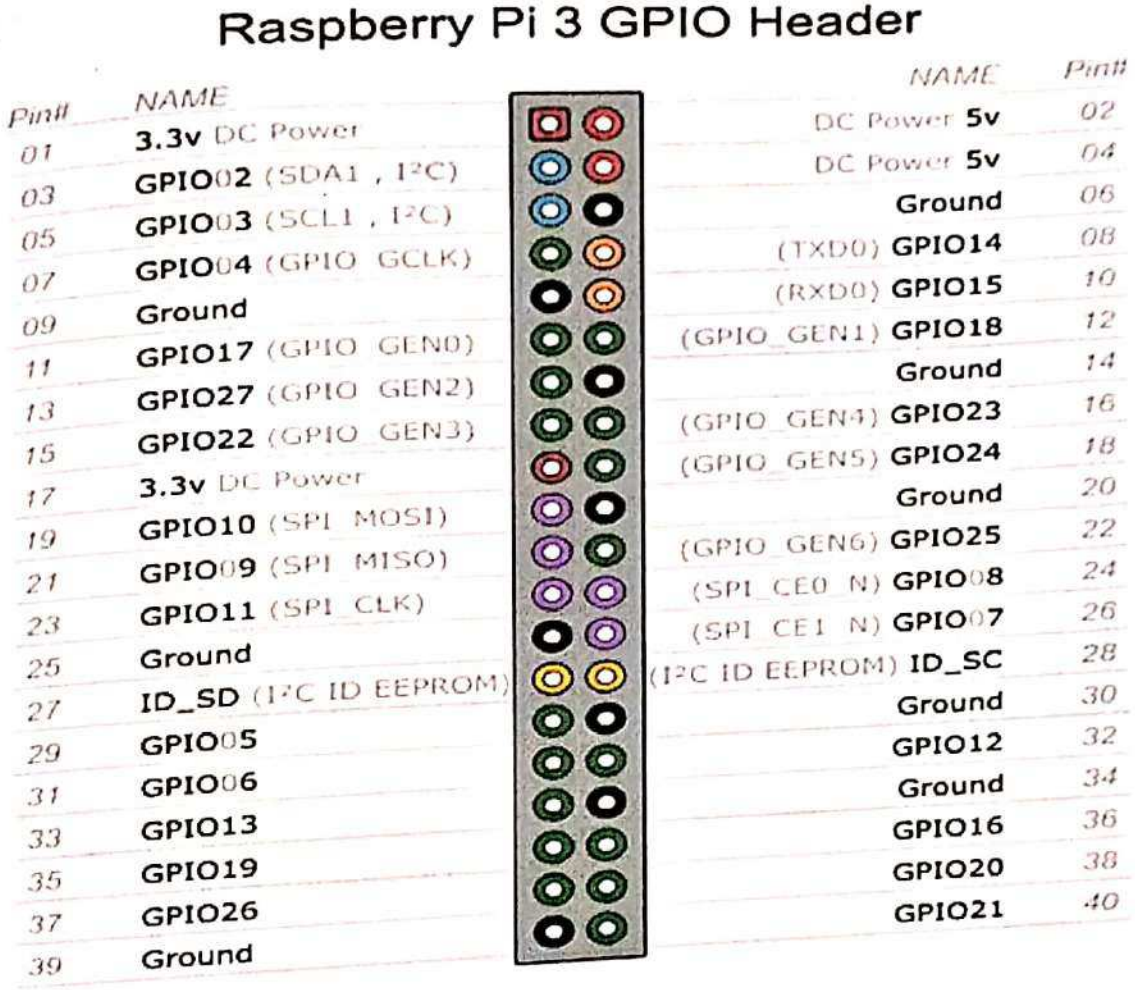


Fig 3: GPIO pins of the Raspberry Pi

All the remaining pins are known as the General Purpose Input Output (GPIO). The GPIO is a generic pin on a circuit whose behavior, including whether it is an input or output, may be controlled by the user at run-time.

➢ Pin Description

PIN GROUP	PIN NAME	DESCRIPTION
POWER SOURCE	+5V, +3.3V, GND and Vin	+5V -power output +3.3V -power output GND – GROUND pin
COMMUNICATION INTERFACE	UART Interface(RXD, TXD) [(GPIO15,GPIO14)]	UART (Universal Asynchronous Receiver Transmitter) used for interfacing sensors and other devices.
	SPI Interface(MOSI, MISO, CLK,CE) x 2 [SPI0-(GPIO10 ,GPIO9, GPIO11 ,GPIO8)] [SPI1--(GPIO20 ,GPIO19, GPIO21 ,GPIO7)]	SPI (Serial Peripheral Interface) used for communicating with other boards or peripherals.
	TWI Interface(SDA, SCL) x 2 [(GPIO2, GPIO3)] [(ID_SD,ID_SC)]	TWI (Two Wire Interface) Interface can be used to connect peripherals.
INPUT OUTPUT PINS	26 I/O	Although these some pins have multiple functions they can be considered as I/O pins.
PWM	Hardware PWM available on GPIO12, GPIO13, GPIO18, GPIO19	These 4 channels can provide PWM (Pulse Width Modulation) outputs. *Software PWM available on all pins
EXTERNAL INTERRUPTS	All I/O	In the board all I/O pins can be used as Interrupts.

Table No1: GPIO pin description of Raspberry Pi

➢ Technical Specifications:

PIN	DESCRIPTION
Microprocessor	Broadcom BCM2837 64bit Quad Core Processor
Processor Operating Voltage	3.3V
Raw Voltage input	5V, 2A power source
Maximum current through each I/O pin	16mA
Maximum total current drawn from all I/O pins	54mA
Flash Memory (Operating System)	16Gbytes SSD memory card
Internal RAM	1Gbytes DDR2
Clock Frequency	1.2GHz
GPU	Dual Core Video Core IV® Multimedia Co-Processor. Provides Open GLES 2.0, hardware-accelerated Open VG, and 1080p30 H.264 high-profile decode. Capable of 1Gpixel/s, 1.5Gtexel/s or 24GFLOPs with texture filtering and DMA infrastructure.
Ethernet	10/100 Ethernet
Wireless Connectivity	BCM43143 (802.11 b/g/n Wireless LAN and Bluetooth 4.1)
Operating Temperature	-40°C to +85°C

Table 2: Technical Specifications of Raspberry Pi

- **Board Connectors:**

Name	Description
Ethernet	Base T Ethernet Socket
USB	2.0 (Four sockets)
Audio Output	3.5mm Jack and HDMI
Video output	HDMI
Camera Connector	15-pin MIPI Camera Serial Interface (CSI-2)
Display Connector	Display Serial Interface (DSI) 15 ways flat flex cable connector with two data lanes and a clock lane.
Memory Card Slot	Push/Pull Micro SDIO

Table 3: Board Connectors

3.2.2 Pi Camera:

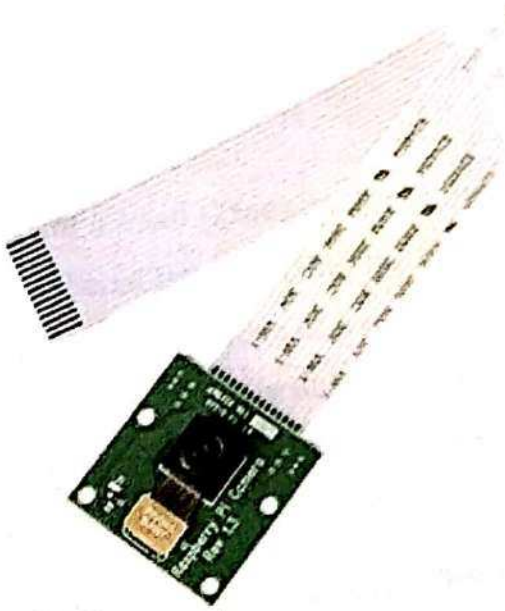


Fig 4: Pi Camera

➢ **Description:**

The Raspberry Pi camera module can be used to take high-definition video, as well as stills photographs. It's easy to use for beginners, but has plenty to offer advanced users if you're looking to expand your knowledge. There are lots of examples online of people using it for time-lapse, slow-motion and other video cleverness. You can also use the libraries we bundle with the camera to create effects.

If you're interested in the nitty-gritty, you'll want to know that the module has a five megapixel fixed-focus camera that supports 1080p30, 720p60 and VGA90 video modes, as well as stills capture. It attaches via a 15cm ribbon cable to the CSI port on the Raspberry Pi. It can be accessed through the MMAL and V4L APIs, and there are numerous third-party libraries built for it, including the Pi camera Python library. The camera module is very popular in home security applications, and in wildlife camera traps. You can also use it to take snapshots.

➢ **Features:**

- 5MP sensor
- Wider image, capable of 2592x1944 stills, 1080p30 video
- 1080p video supported
- CSI
- Size: 25 x 20 x 9 mm

➢ **Camera Details:**

The camera consists of a small (25mm by 20mm by 9mm) circuit board, which connects to the Raspberry Pi's Camera Serial Interface (CSI) bus connector via a flexible ribbon cable. The camera's image sensor has a native resolution of five megapixels and has a fixed focus lens. The software for the camera supports full resolution still images up to 2592x1944 and video resolutions of 1080p30, 720p60 and 640x480p60/90.Installation involves connecting the ribbon cable to the CSI connector on the Raspberry Pi board.

This can be a little tricky, but if you watch the videos that demonstrate how it is done, you shouldn't have any trouble. When you purchase the camera, you will receive a small camera board and cable. You'll want to devise some method of supporting the camera in order to use it. Some camera stands and Raspberry Pi cases are now available. You can also rig up something

simple yourself if you wish. I attached mine to a case using a small piece of plastic and double-sided tape.

➢ ***Connect to the camera:***

The flex cable inserts into the connector situated between the Ethernet and HDMI ports, with the silver connectors facing the HDMI port. The flex cable connector should be opened by pulling the tabs on the top of the connector upwards then towards the Ethernet port. The flex cable should be inserted firmly into the connector, with care taken not to bend the flex at too acute an angle. The top part of the connector should then be pushed towards the HDMI connector and down, while the flex cable is held in place.

- Update the SD card

In order to use the camera you must be using a recent operating system that knows that the camera exists. The easiest way to do this is to grab the latest Raspbian image from the RaspberryPi.org site and create a fresh SD card.

- Enable camera in raspi-config settings

Reboot. If you are using a fresh image the raspi-config utility should load. If it doesn't then you can run it manually using: sudo raspi-config Select the "Camera" option and press "Enter".

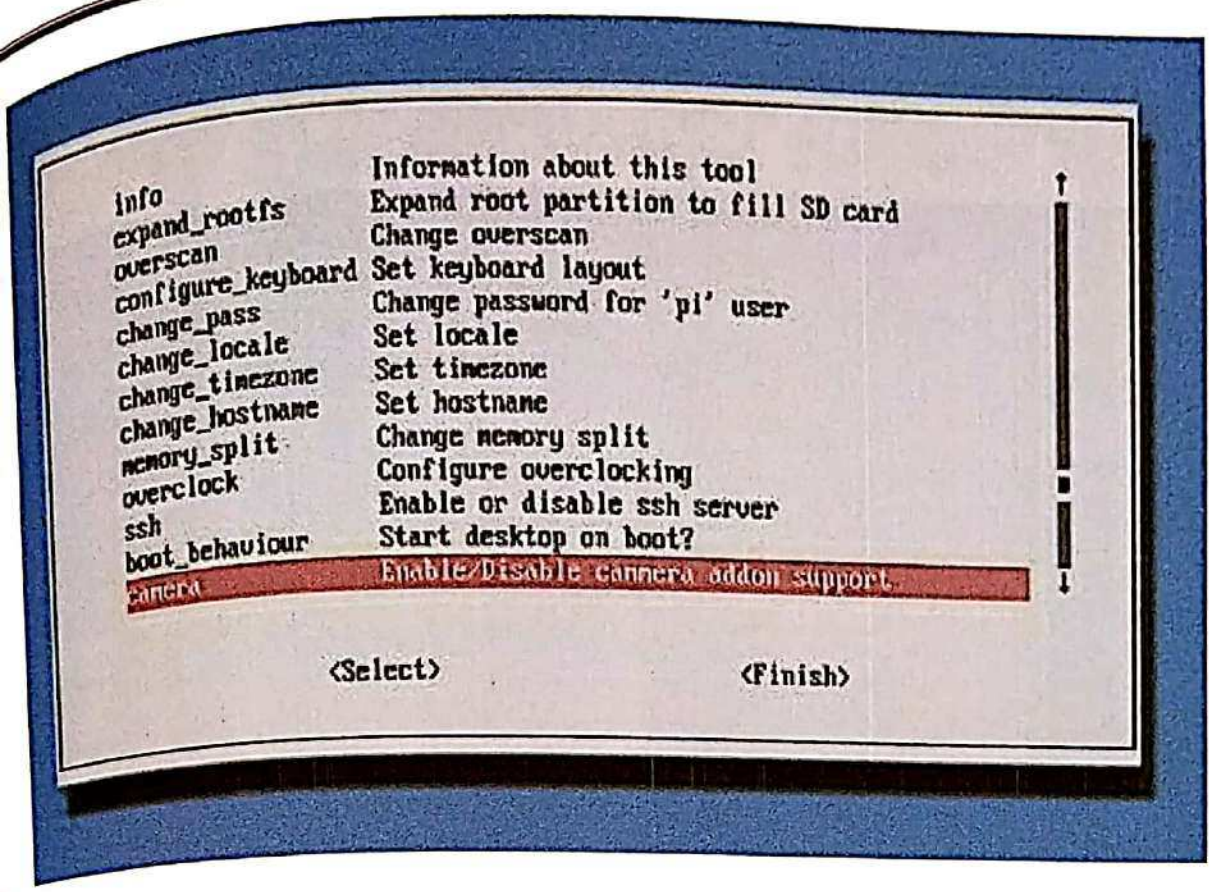
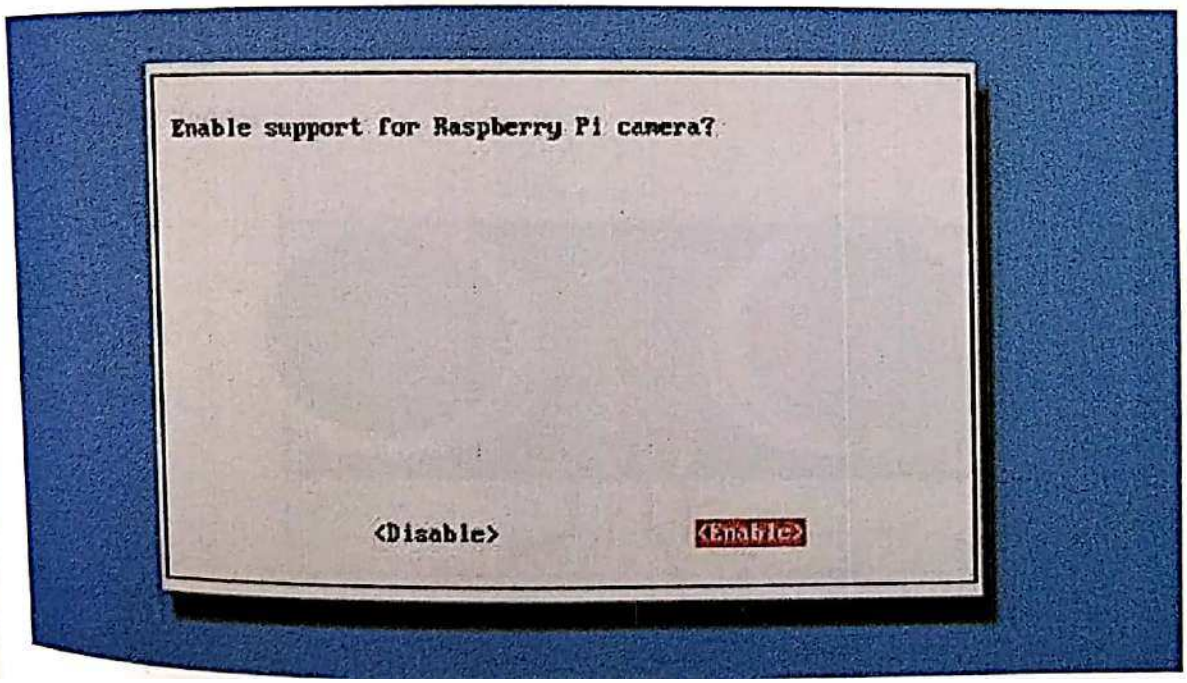


Fig 5: Settings for pi camera

Select "Enable" and press "Enter".



Select "Yes" and press "Enter". Your Pi will reboot.

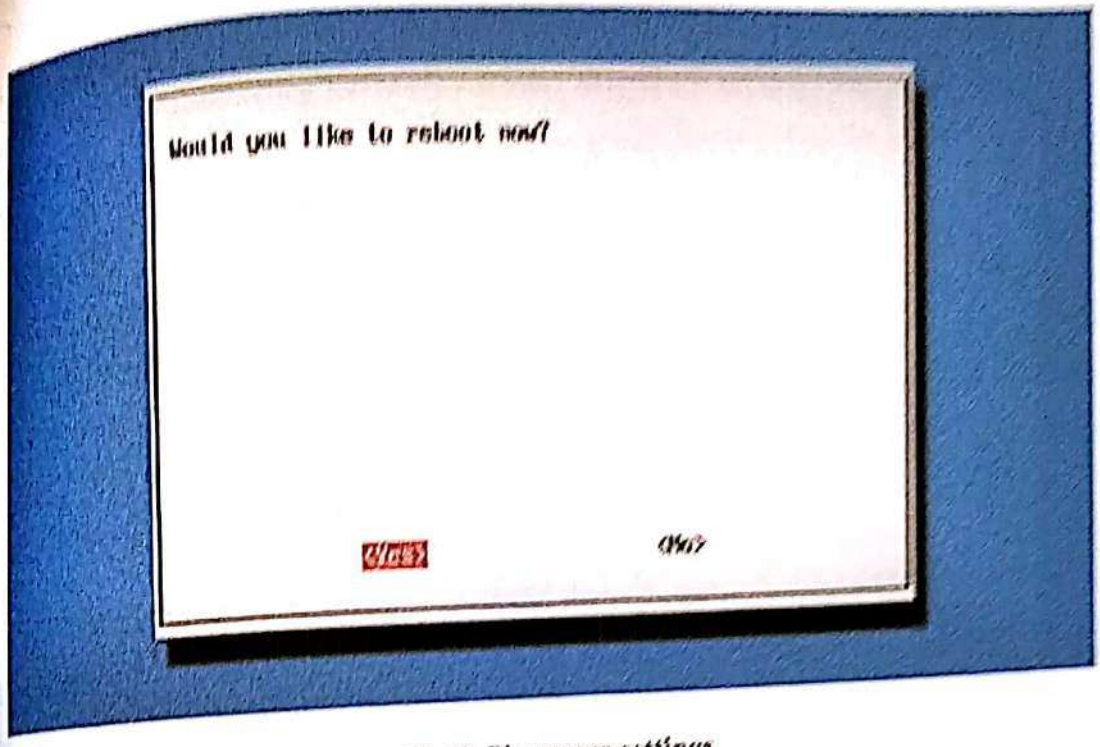


Fig 7: Pi camera settings

Updating your operating and enabling the camera using raspi-config did two things. It told your Pi that there is a camera attached and it added two command line utilities raspistill raspivid These allow you to capture still photos and HD video respectively.

3.2.3 Ultrasonic Sensor :

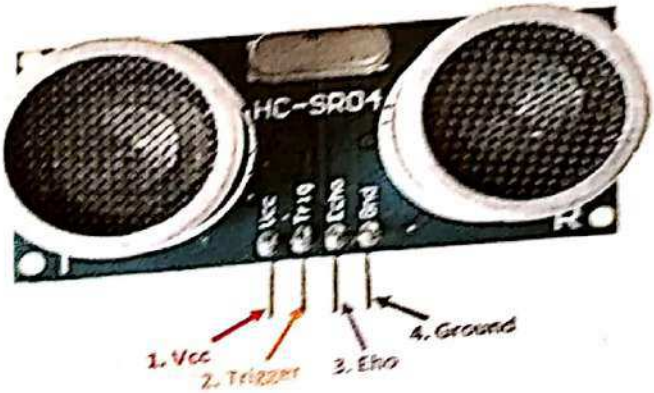


Fig 8: Ultrasonic Sensor

➢ **Description:**

The HC-SR04 Ultrasonic (US) sensor is a 4 pin module, whose pin names are Vcc, Trigger, Echo and Ground respectively. This sensor is a very popular sensor used in many applications where measuring distance or sensing objects are required. The module has two eyes like projects in the front which forms the Ultrasonic transmitter and Receiver. The sensor works with the simple high school formula that

$$\text{Distance} = \text{Speed} \times \text{Time}$$

The Ultrasonic transmitter transmits an ultrasonic wave, this wave travels in air and when it gets objected by any material it gets reflected back toward the sensor this reflected wave is observed by the Ultrasonic receiver module.

Now, to calculate the distance using the above formulae, we should know the Speed and time. Since we are using the Ultrasonic wave we know the universal speed of US wave at room conditions which is 330m/s. The circuitry inbuilt on the module will calculate the time taken for the US wave to come back and turns on the echo pin high for that same particular amount of time, this way we can also know the time taken. Now simply calculate the distance using a microcontroller or microprocessor.

➢ **Pin Configuration**

Pin Number	Pin Name	Description
1	Vcc	The Vcc pin powers the sensor, typically with +5V
2	Trigger	Trigger pin is an Input pin. This pin has to be kept high for 10us to initialize measurement by sending US wave.
3	Echo	Echo pin is an Output pin. This pin goes high for a period of time which will be equal to the time taken for the US wave to return back to the sensor.
4	Ground	This pin is connected to the Ground of the system.

Table 4: Pin description of Ultrasonic sensor

Features:

- Operating voltage: +5V
- Theoretical Measuring Distance: 2cm to 450cm
- Practical Measuring Distance: 2cm to 80cm
- Accuracy: 3mm
- Measuring angle covered: <15°
- Operating Current: <15mA
- Operating Frequency: 40Hz

Flow Chart of ultrasonic sensor:

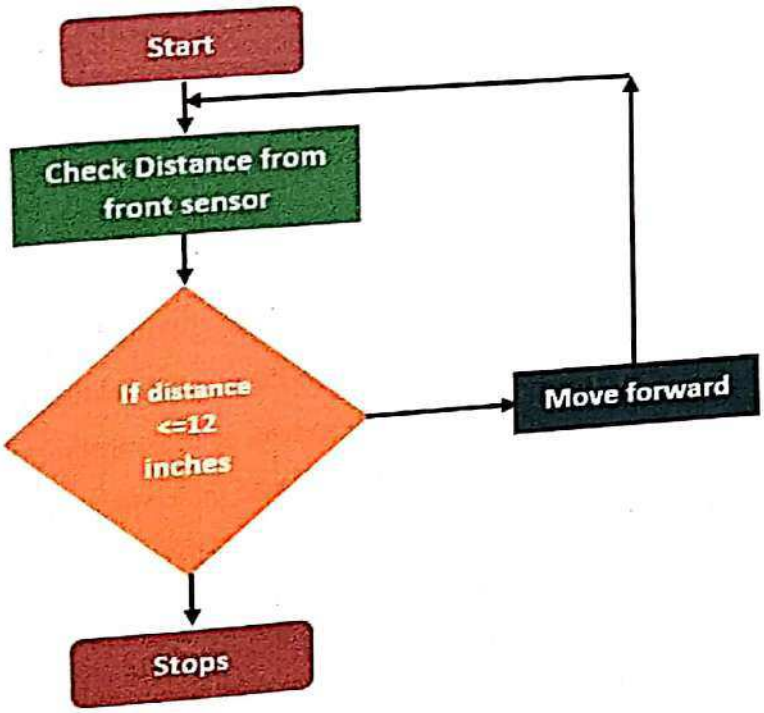


Fig 9 Flow chart of Ultrasonic sensor

3.2.4 L293D:

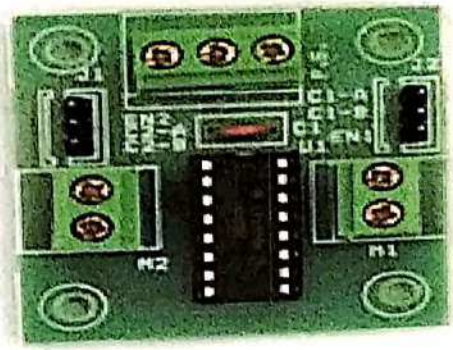


Fig 10 : L293D Motor driver IC

- **Description:**

L293D is a typical Motor driver or Motor Driver IC which allows DC motor to drive on either direction. L293D is a 16-pin IC which can control a set of two DC motors simultaneously in any direction. It means that you can control two DC motor with a single L293D IC. Dual H-bridge Motor Driver integrated circuit (IC). It works on the concept of H-bridge. H-bridge is a circuit which allows the voltage to be flown in either direction.

As you know voltage need to change its direction for being able to rotate the motor in clockwise or anticlockwise direction, hence H-bridge IC are ideal for driving a DC motor. In a single L293D chip there are two h-Bridge circuit inside the IC which can rotate two dc motor independently. Due its size it is very much used in robotic application for controlling DC motors. Given below is the pin diagram of a L293D motor controller.

There are two Enable pins on l293d. Pin 1 and pin 9, for being able to drive the motor, the pin 1 and 9 need to be high. For driving the motor with left H-bridge you need to enable pin 1 to high. And for right H-Bridge you need to make the pin 9 to high. If anyone of the either pin1 or pin9 goes low then the motor in the corresponding section will suspend working. It's like a switch.

➢ *Pin Diagram:*

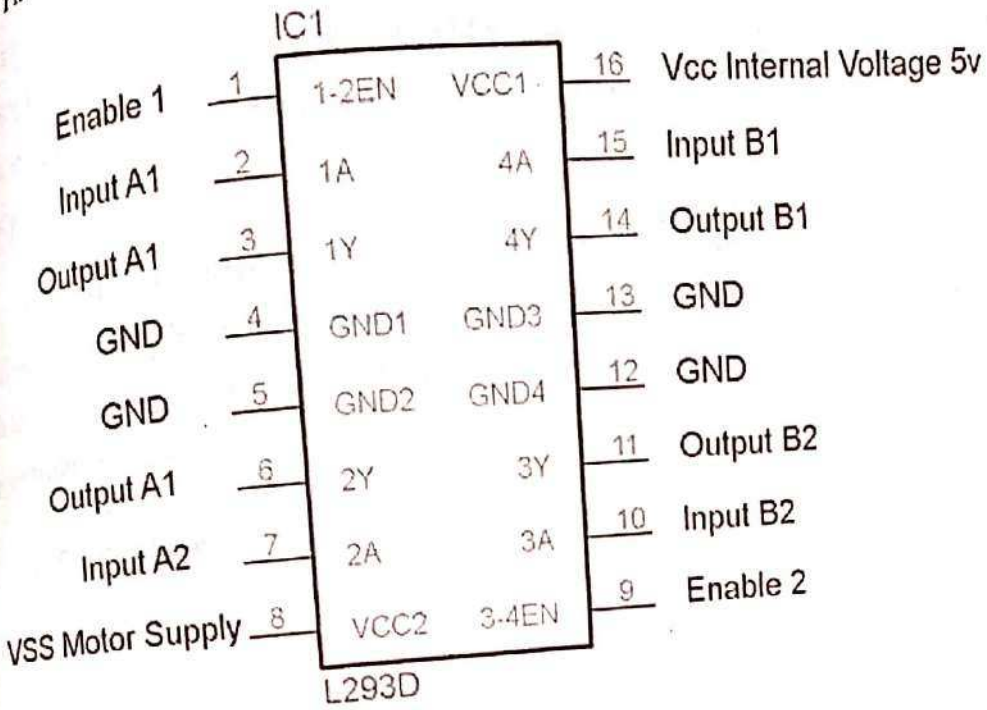


Fig 11: Pin Configuration of L293D

There are 4 input pins for l293d, pin 2, 7 on the left and pin 15, 10 on the right as shown on the pin diagram. Left input pins will regulate the rotation of motor connected across left side and right input for motor on the right hand side. The motors are rotated on the basis of the inputs provided across the input pins as LOGIC 0 or LOGIC 1.In simple you need to provide Logic 0 or 1 across the input pins for rotating the motor.

➢ **Logic Table**

Lets consider a Motor connected on left side output pins (pin 3, 6). For rotating the motor in clockwise direction the input pins has to be provided with Logic 1 and Logic 0.In a very similar way the motor can also operate across input pin 15, 10 for motor on the right hand side.

Pin 2 = Logic 1 and Pin 7 = Logic 0	Clockwise Direction
Pin 2 = Logic 0 and Pin 7 = Logic 1	Anticlockwise Direction
Pin 2 = Logic 0 and Pin 7= Logic 0	Idle [No rotation] [Hi-Impedance state]
Pin 2 = Logic 1 and Pin 7=Logic 1	Idle [No rotation]

➢ **Voltage Specification:**

VCC is the voltage that it needs for its own internal operation 5v; L293D will not use this voltage for driving the motor. For driving the motors it has a separate provision to provide motor supply VSS (V supply). L293d will use this to drive the motor. It means if you want to operate a motor at 9V then you need to provide a Supply of 9V across VSS Motor supply.

The maximum voltage for VSS motor supply is 36V. It can supply a max current of 600mA per channel. Since it can drive motors Up to 36v hence you can drive pretty big motors with this L293d.VCC pin 16 is the voltage for its own internal Operation. The maximum voltage ranges from 5v and up to 36v.

3.2.5 Dc Motor:



Fig 12: DC Motor

➢ **Description:**

A DC motor is any of a class of rotary electrical machines that converts direct current electrical energy into mechanical energy. The most common types rely on the forces produced by magnetic fields. Nearly all types of DC motors have some internal mechanism, either electromechanical or electronic, to periodically change the direction of current flow in part of the motor. DC motors were the first form of motor widely used, as they could be powered from existing direct-current lighting power distribution systems.

A DC motor's speed can be controlled over a wide range, using either a variable supply voltage or by changing the strength of current in its field windings. Small DC motors are used in tools, toys, and appliances. The universal motor can operate on direct current but is a lightweight brushed motor used for portable power tools and appliances. Larger DC motors are currently used in propulsion of electric vehicles, elevator and hoists, and in drives for steel rolling mills. The advent of power electronics has made replacement of DC motors with AC motors possible in many applications.

- **Stator:**

Stator consist of either a permanent magnet or electromagnetic windings and generates a stationary magnetic fields around occupies central part of the motor.

- **Rotor:**

The rotor is made up of one or more electric windings around armature arms. These electric windings generate a magnetic field when energized by the external current. The magnetic poles thus generated by this rotor field are attracted to the opposite poles generated by the stator field and repelled by the similar poles, which causes the rotor to rotate.

- **Commutator:**

The DC motor doesn't use an external current switching device, instead it uses a mechanical connector called the commutator which is a segmented sleeve usually made of copper, mounted on the rotating shaft. The current +/- is supplied to this commutator segments with the help of brushes.

- **Brushes:**

As the motor turns the brushes slide over the commutator segments hence creating the variable magnetic field in different arms through the commutator segments attached to the windings. Hence a dynamic magnetic field is generated in the motor when a voltage is applied across the brushes.

How DC motor works:

A magnetic field is produced as the current passes through the wire, or coil of wires. This magnetic field opposes against the permanent magnet set the right beside the coil. resulting in a force going up or down depends on the right hands rule.

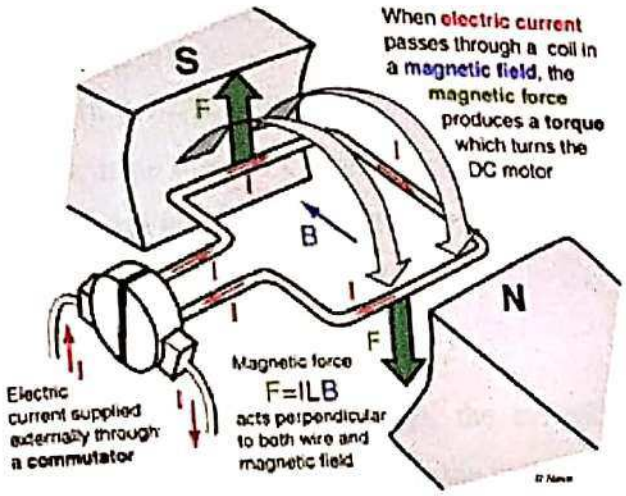


Fig.13 Working of DC motor

When the motor rotates the direction of the current will change to the other direction. Consequently, keeping the polarity of electromagnetic force always opposing the permanent magnet. Therefore, the motor keep rotating as long as electrical power is constantly supplied.

- **Important properties of DC motor:**

When you want to use a DC motor in a robotic or mechatronic project, you should considered some basic properties such as direction, speed, voltage, current, power and torque.

- **Direction:**

DC motors have mostly two terminals, across the voltage is applied. When the voltage is applied across these terminals, the motor starts to spin in one direction, and when the polarity of applied voltage is reversed the direction of the rotation is also reversed. Thus, the polarity of

...ed voltage determines the motor direction, while the amplitude of voltage determines speed ...ver.

- **Speed:**

The speed of a motor, measured in rotations per minute (rpm), depends on the applied ...tage and load.

- **Voltage:**

Each DC motor has a specified voltage that indicates the nominal voltage or the applied ...ltage that makes the motor run in its normal conditions. In practice, this nominal voltage is ...portant in a project, since it indicates the maximum recommended voltage.

- **Current:**

When motor is powered at the nominal voltage, the current depends on load, and ...creases with load. Therefore, it is important not to allow the motor to run with excessive loads ...at can stall it.

- **Power:**

A motor's power is the product of its voltage and current.

- **Torque:**

Torque is defined as the product of the force times the distance from the center of the ...shaft of a motor.

3.2.6 Operating System Used for Raspberry Pi:

To run the raspberry pi or to use it firstly we need to install an operating system i.e. OS ...on our Pi. There are many OS available on net so according to our model no. and need we have ...downloaded OS called Raspbian Stretch with Desktop.

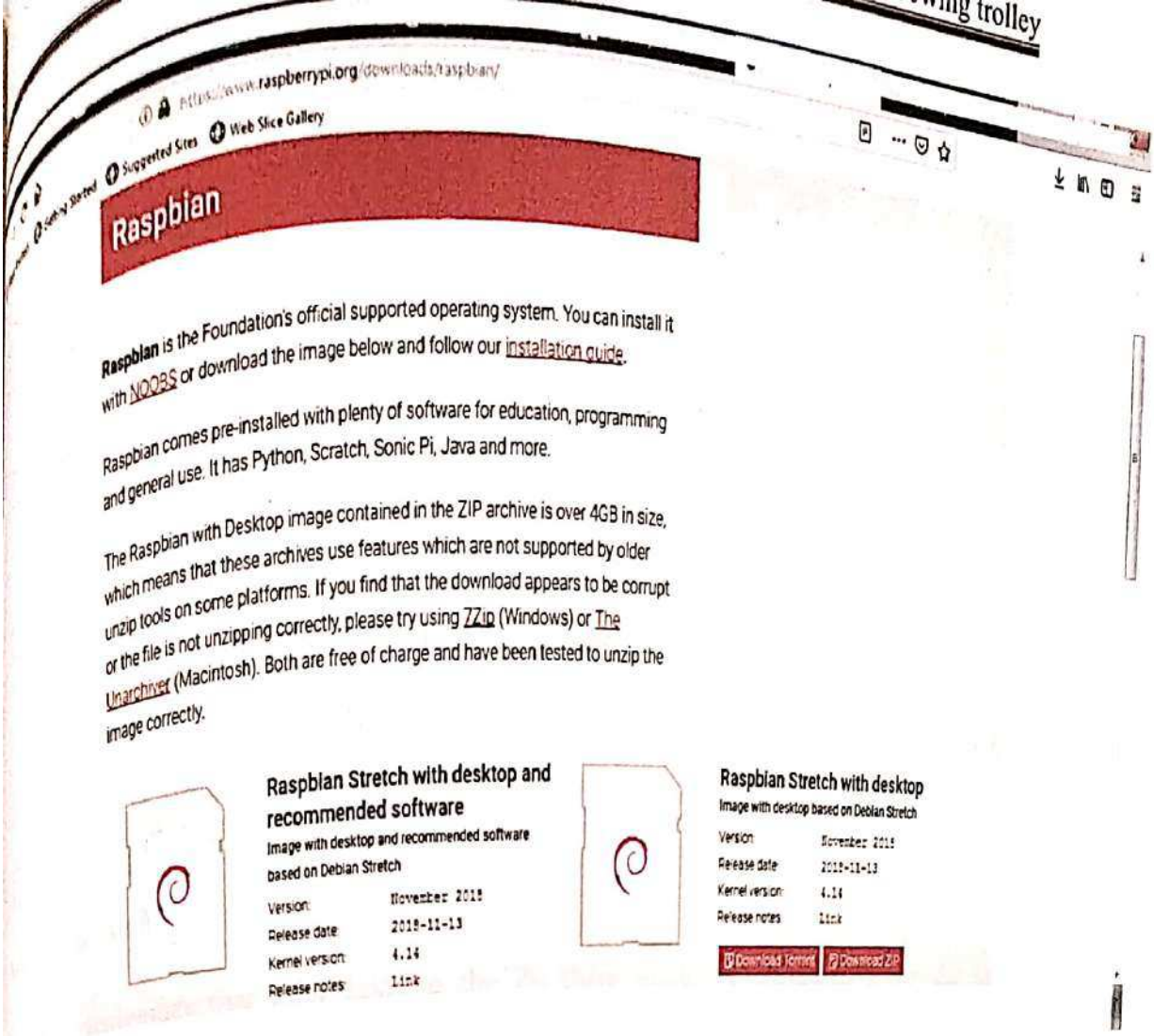


Fig.14 OS of Raspberry pi

➢ Stepwise procedure to download OS:

1. Downloading Raspbian and Image writer:

Download the latest version of Raspbian. You can download it directly or via the torrents. You will be needing an image writer to write the downloaded OS into the SD card (micro SD card in case of Raspberry Pi B+ model). So download the "win32 disk imager".

2. Writing the image:

Insert the SD card into the laptop/pc and run the image writer. Once open, browse and select the downloaded Raspbian image file. Select the correct device, that is the drive representing the SD card. If the drive (or device) selected is different from the SD card then the other selected drive will become corrupted. SO be careful.

After that, click on the "Write" button in the bottom. As an example, see the image below, where the SD cards (or micro SD) drive is represented by the letter "G:\"

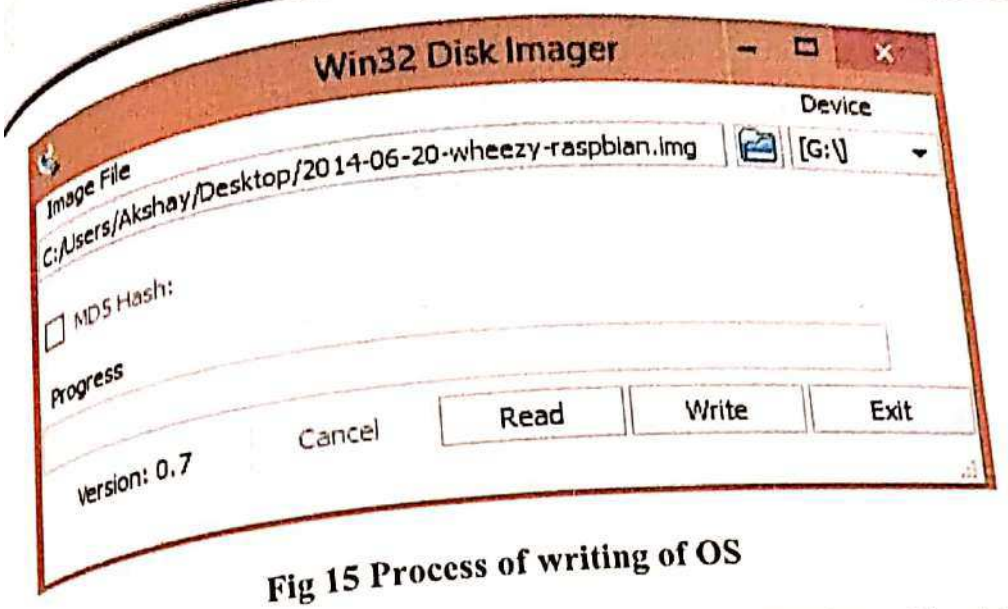


Fig 15 Process of writing of OS

the write is complete, eject the SD card and insert it into the Raspberry Pi and turn it on. It ld start booting up.

etting up the Pi:

Please remember that after booting the Pi, there might be situations when the user entials like the "username" and password will be asked. Raspberry Pi comes with a default name and password and so always use it whenever it is being asked. The credentials are:

me: pi

sword: raspberry

en the Pi has been booted for the first time, a configuration screen called the "Setup Options" uld appear and it will look like the image below.

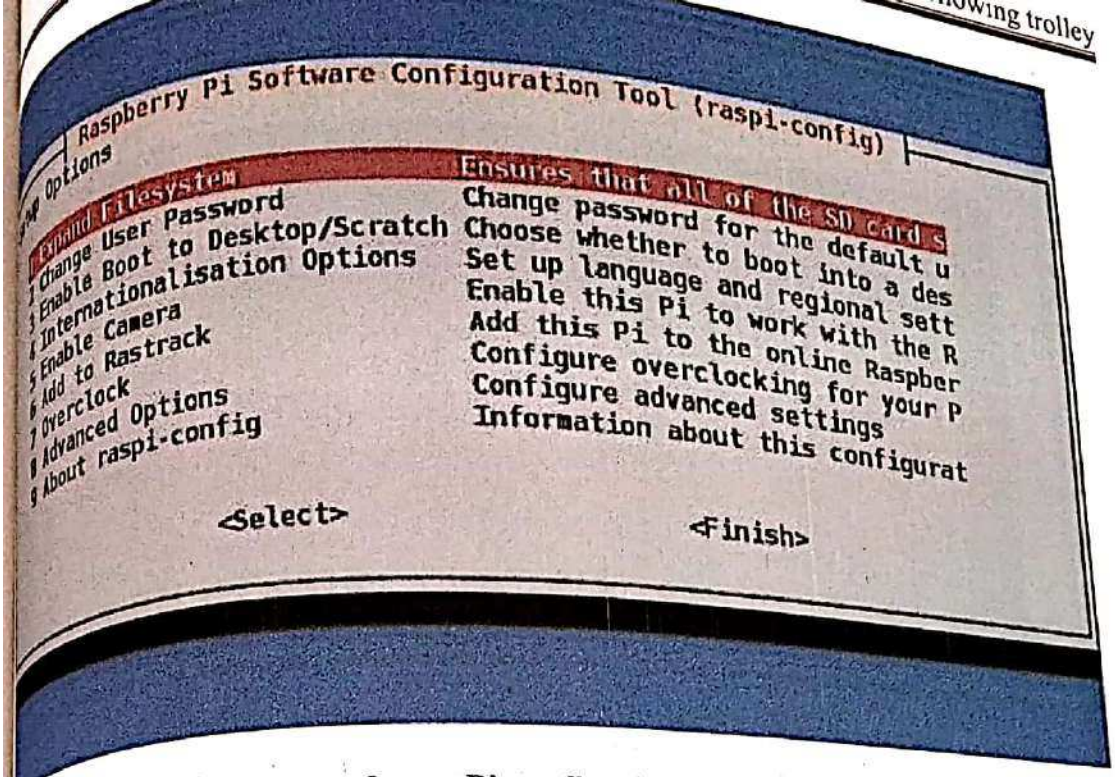


Fig 16:Raspberry Pi configuration setting process

If you have missed the "Setup Options" screen, it's not a problem, you can always get it by typing the following command in the terminal.

```
sudo raspi-config
```

Once you execute this command the "Setup Options" screen will come up as shown in the image above. Now that the Setup Options window is up, we will have to set a few things. After completing each of the steps below, if it asks to reboot the Pi, please do so. After the reboot, if you don't get the "Setup Options" screen, then follow the command given above to get the screen/window.

- **The first thing to do:**

Select the first option in the list of the setup options window, that is select the "Expand File system" option and hit the enter key. We do this to make use of all the space present on the SD card as a full partition. All this does is, expand the OS to fit the whole space on the SD card which can then be used as the storage memory for the Pi.

, The second thing to do:

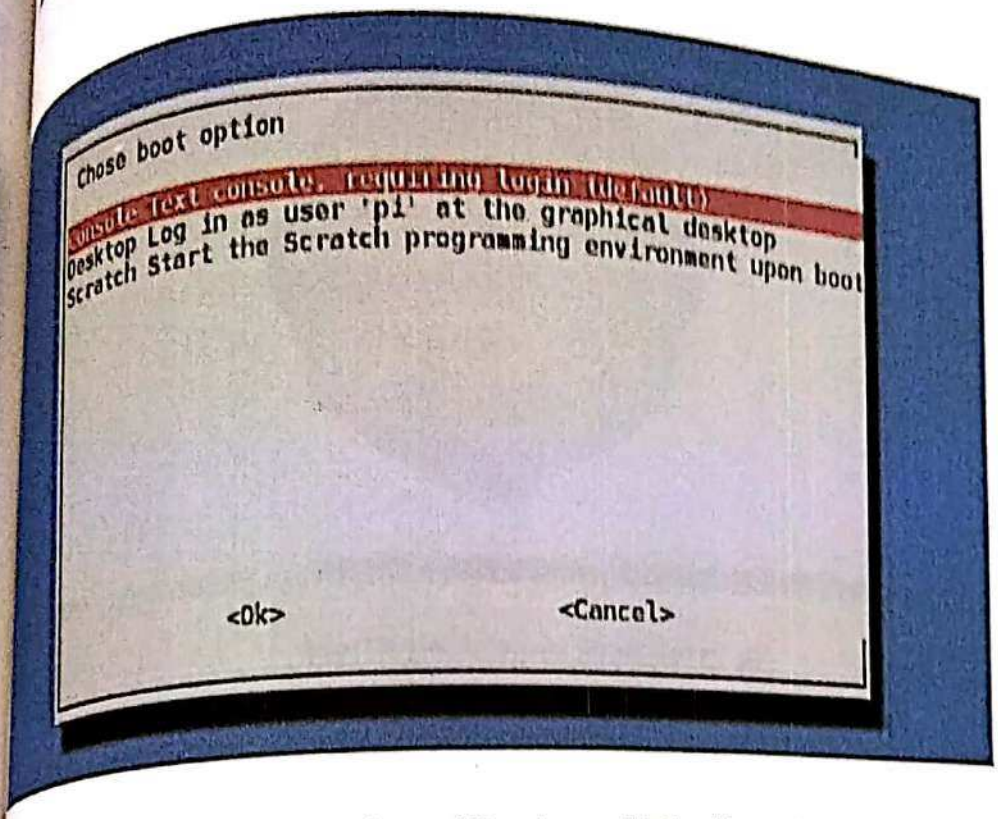


Fig 17:Settings of Raspberry Pi Configuration

In the "choose boot option window" select the second option, that is, "Desktop Log in as user 'pi' at the graphical desktop" and hit the enter button. Once done you will be taken back to the "Setup Options" page, if not select the "OK" button at the bottom of this window and you will be taken back to the previous window. We do this because we want to boot into the desktop environment which we are familiar with. If we don't do this step then the Raspberry Pi boots into a terminal each time with no GUI options.

Once, both the steps are done, select the "finish" button at the bottom of the page and it should reboot automatically. If it doesn't, then use the following command in the terminal to reboot.

Updating the firmware

After the reboot from the previous step, if everything went right, then you will end up on the desktop which looks like the image below.

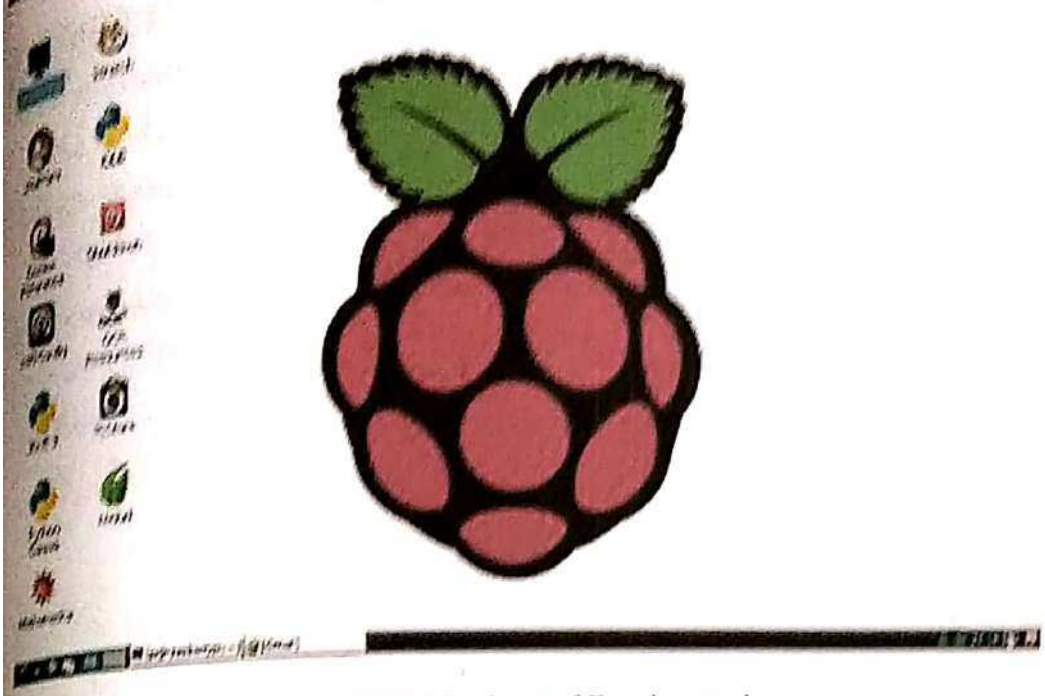


Fig.18 Desktop of Raspberry pi

Once you are on the desktop, open a terminal and enter the following command to update the firmware of the Pi.

Sudo rpi-update

Updating the firmware is necessary because certain models of the Pi might not have all the required dependencies to run smoothly or it may have some bug. The latest firmware might have the fix to those bugs, thus its very important to update it in the beginning itself.

4 OpenCV:

OpenCV (Open Source Computer Vision Library) is an open source computer vision and machine learning software library. OpenCV was built to provide a common infrastructure for computer vision applications and to accelerate the use of machine perception in the commercial products.

OpenCV-Python is a library of Python bindings designed to solve computer vision problems. OpenCV-Python makes use of Numpy, which is a highly optimized library for numerical operations with MATLAB-style syntax. All the OpenCV array structures are converted to and from Numpy arrays.

CHAPTER NO.4

Flow chart of system:

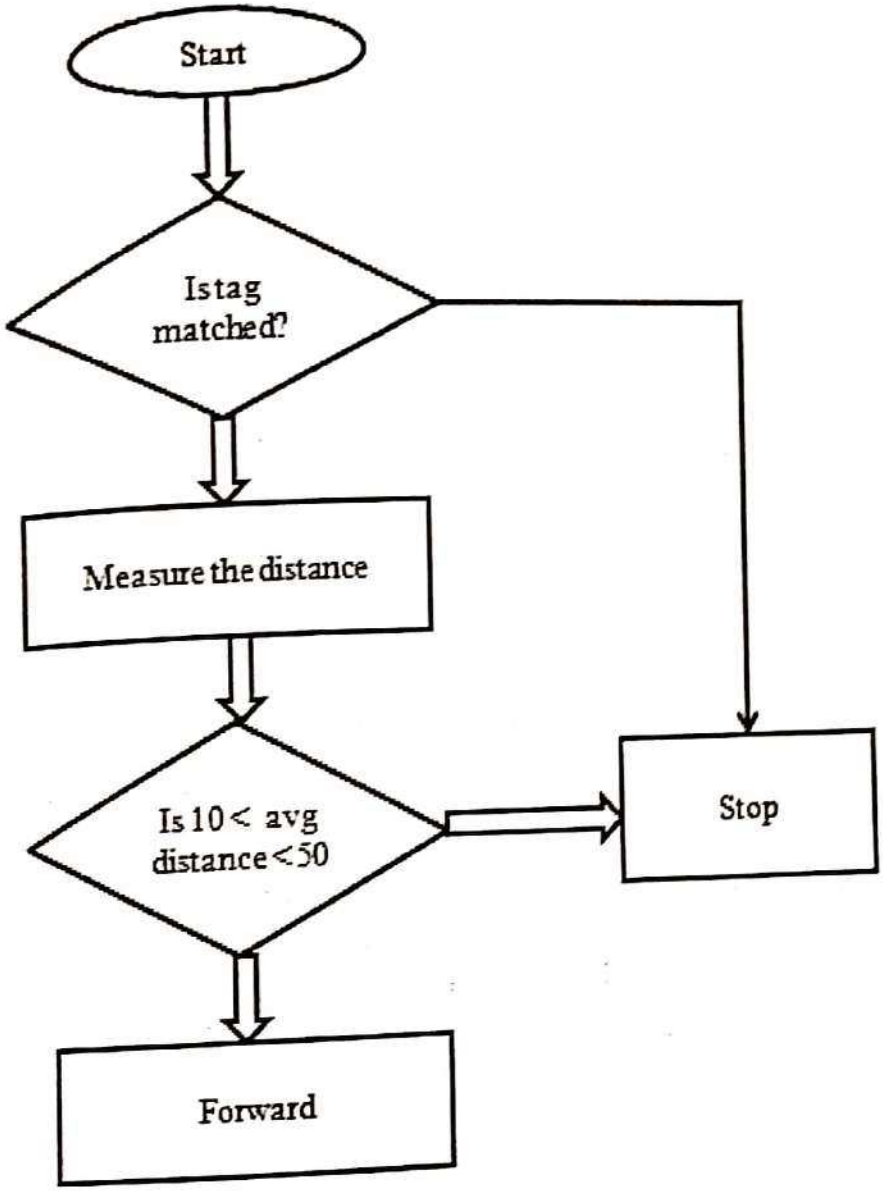


Fig 19.Flow chart of human following trolley

CHAPTER NO. 5

DVANTAGES

1. It reduces human efforts.
2. It is easy to handle.
3. Easy Maintenance.
4. It increases the security of luggage.

SADVANTAGES

1. It is a network oriented system so if network gets fail system will not work.
2. Tag needs to be unique so that it should not be merged into colors in a vivid environment.

PLICATIONS

1. It is used in medical application.
2. It is used in Railway stations.
3. It is used in shopping malls.
4. It is used in Airports.
5. It is used for military applications.

CHAPTER NO. 6

RESULT:

The objective of the follower trolley is to track and follow the person which is obtained. It achieved by using ultrasonic sensor and pi-camera which detects and follows the person and ids obstacles also and according to that raspberry pi executes further controlling actions. First was performed on the ultrasonic sensor. It was noted that sensor was working accurately. detection of tag can be done and trolley follows that tag accurately.

> Trolley moves forward when 10 < avgdistance < 50

> Trolley stops when 10 > avgdistance > 50

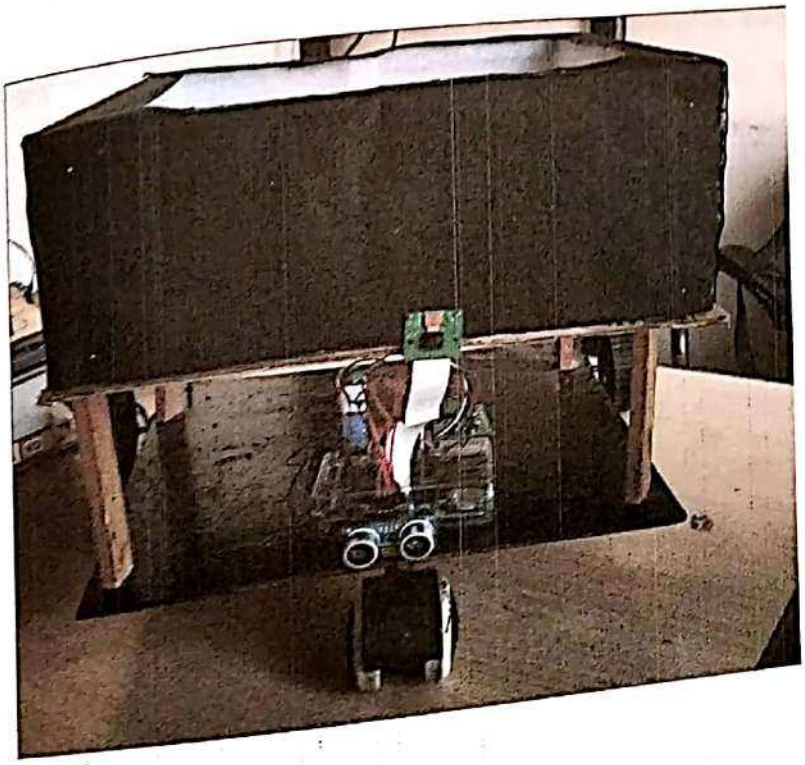


Fig.20: Physical Implementation of Project

6.2 CONCLUSION:

- This project is effectively experimented 10 times for different ranges of ultrasonic sensor, which follows the particular person within that ranges.
- It is a good alternative for the conventional shopping trolleys which are being used currently in the supermarkets. Huge amount of work, time and money could be saved by the implementation of the concept.
- This device is cost-effective and it reduces the human efforts. Also this device is utilized for various places like malls, hospitals, railway platforms etc.

6.3 FUTURE SCOPE

There are many interesting applications in the vast robotic world in different fields like military or medical. It can be implemented in the work could be used in other sectors such as in Medicare field as a nurse following trolley, in childcare or in material handling in manufacturing industries. Wireless communication functionality can be added in the robot to make it more versatile and control from a large distance. This capability of robot could be used for military by mounting real time video recorder. Also we can interface GPS to that trolley to track its location.

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Appendix:

Design and development of human following trolley

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Abstract: This paper represents the human following trolley using a raspberry pi. A trolley automatically avoids an obstacle, and to interact and communicate with the person trolley should follow that particular person. To achieve this target the goal of our work is to design and fabricate a robot that not only tracks the target but also move towards by avoiding obstacles while tracking. To make things simpler, a unique tag is placed on the person that should be followed by trolley. A small pi camera continuously captures the images of the unique tag and continuously compares it to the original captured image. If it is matched, then trolley moves further also it makes its way to proceed further by avoiding obstacles by using ultrasonic sensors. Tag plays essential role as per as uniqueness is a concern and makes the task easy. The trolley is mechanically designed, and electrical components are also used. All processing is carried out using a raspberry pi.

Keywords: - Raspberry pi, unique handmade tag, ultrasonic sensor, pi camera

III. INTRODUCTION

Robotic technology plays vital role in this moving world in a couple of past years. In this robotic world, it is necessary to make trolley such as "Human following trolley which interacts and co-exists with them. To perform this task accurately, trolley needs to avoid obstacles and also it must be intelligent enough to follow a person in a crowded area, rich environment and indoor and outdoor places.

- *Advantages:*
  - It provides the best possible result by maintaining accuracy.
  - It reduces human efforts.
  - It is easy to handle.

Here raspberry pi is a credit-card-sized single board which is developed by UK based raspberry pi foundation. The raspberry pi has GPIO pins. Using the L293D motor driver board, the robot is controlled by GPIO pins. Here a pi-camera is connected to a raspberry pi. DC motors are being used for movement of robotic wheels, i.e. to move right-left, forward or backward direction.

Raspberry Pi uses ARM11 architecture and a Linux-based system. Also, it has 8 GPIO, 1 UART, 1 I2C and 1 SPI, basically to meet the control requirement. The wheels of the trolley are controlled by DC motors which are dependent on driving motor.

IV. LITERATURE SURVEY

In [1] robot can be controlled by using the android app. It gives commands to the robot to move upward, backward, left, right. As per signal generated by the android app, raspberry pi is given to the raspberry pi, and controlling process is done. [1]

In [2] robotic ARM, android application, raspberry pi is used. In this robotic arm performs the same like human hand works. Application is built in android platform, the indication is given to raspberry pi for further process. In this technique, the delay and server problems are reduced as the Wi-Fi is used.

In [3] robot can be implemented wirelessly as it uses Integrated circuit, Parallel port, Atmega 168 Microcontroller, Arduino, X-bee, Zigbee. The Robot could be guided with absolute freedom and autonomy without using wires.

In [4] robotic cart is implemented to track and follow the target in the unstructured environment. Here microcontroller and ultrasonic sensor are used to identify and follow a targeted person.

In [5] a robot automatically follows the particular person as a unique tag is placed on the person that should be followed by a robot.

...g a trolley follows with carrying good with it also the bar ...e reader is placed in a trolley to save the time of billing.

...[7] Intelligent Space for the achievement of the human-...ntered robotic system was developed. The positions of ...rgeted objects in the iSpace are measured with multiple ...OMDs installed in a wide area.

V. WORKING METHODOLOGY

Trolley consists of a robotic vehicle having two wheels ...d one freewheel mounted along with different sensors and ...modules, i.e. ultrasonic sensor and camera. The camera is ...rtically adjusted and is initially mounted at the height of 4ft ...om the ground to enhance the visual capability and ...effectiveness. The user controls the trolley as it follows a ...particular person by a unique identification tag.

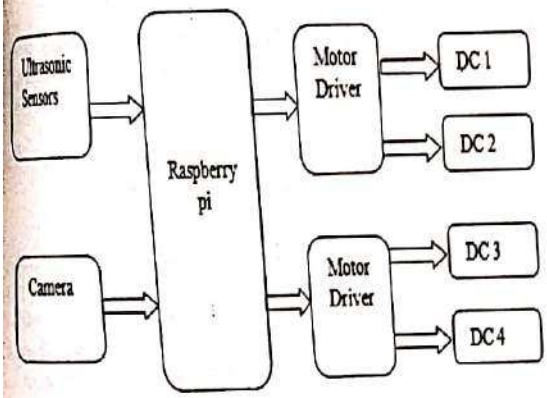


Fig 2: Block diagram of the system

The Pi camera captures the image continuously and compares it with the original. If it is matched, then it follows that person. Also, it checks for the obstacles and avoids them by using a ultrasonic sensor. There are several features of the project such as design of circuit, tag identification, obstacles avoidance and human detection system.

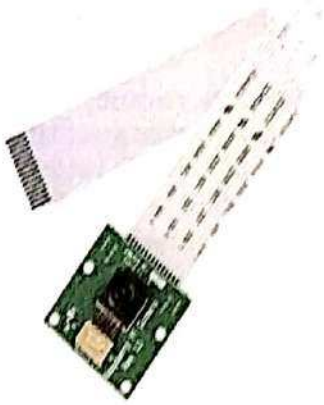


Fig 3: Pi camera

Continuously image capturing is done for identifying the unique tag. We have used computer vision camera for recognising the tag at the back of the person and an OpenCV python platform to develop this algorithm.

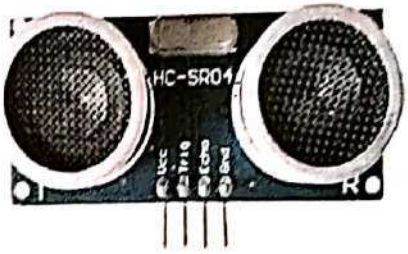


Fig 4: ultrasonic sensor

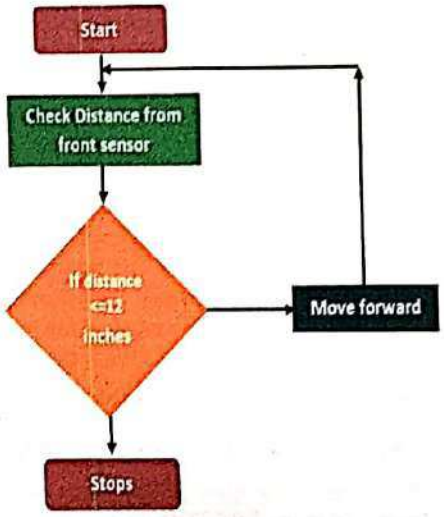


Fig 5: Flow Chart of Ultrasonic Sensor

Ultrasonic sensors transmit sound waves at a frequency which is too high for humans to hear. Then they wait for the sound to be reflected back and calculate the distance based on the time required. This is similar to the radar measures time it takes a radio wave to return after hitting the object.

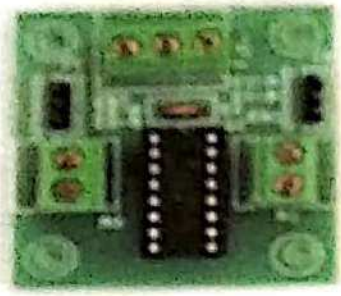


Fig 6: Motor driver IC

L293D is a motor driver IC which we have used to drive the DC motors in both the directions. L239D is a 16 pin IC who can control set of two DC motors simultaneously.

VI. RESULTS

The objective of the follower robot is to track and follow the person who is obtained. It is achieved by using ultrasonic sensor and pi-camera which detects and follows the person and avoids obstacles also and according to that raspberry pi executes further controlling actions.

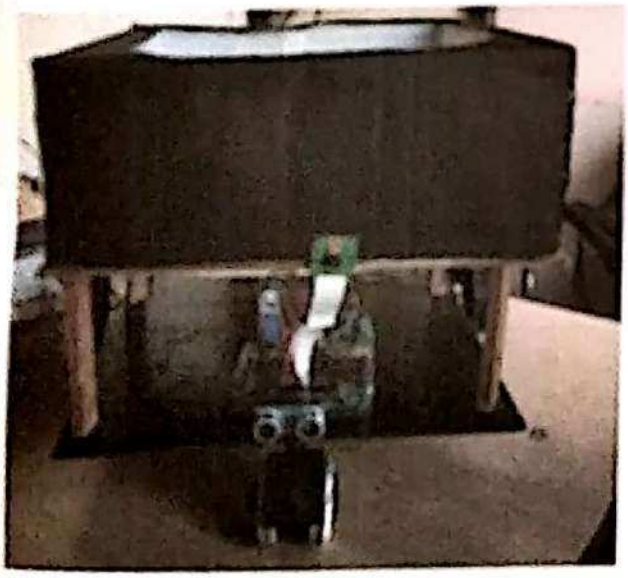


Fig 7: Physical implementation of the trolley

V. CONCLUSION

This paper is effectively experimented & implemented for the human following trolley, which captures the tag using pi-camera and follows the particular human. So this device is cost-effective, and it reduces human efforts. Also, this device is utilized for various places like malls, hospitals, railway platforms etc.

VI. FUTURE SCOPE

There are many interesting applications in the vast robotic world in different fields like military or medical. Wireless communication functionality can be added in the robot to make it more versatile and control from a large distance. This capability of the robot could be used for the military by mounting real-time video recorder. Also, we can interface GPS to that trolley to track its location.

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[4]. Akshay Chalke, Ashwini Bhor, Pradnya Bhoite, Uddhav Jadhav, Follower robotic cart using the ultrasonic sensor, Published in (IJESC), 2017

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Gr.No.	Roll no.	Student Name	Title of project	Guide name	Co-Guide
BE A1	44	Upase Sidharth Ravindra	Smart Induction cooktop (sponsored)	D A Kumbhar	H K Bhaldar
	43	Panpude Ajay Balak			
	40	Kandi Nikhil Mallikarjun			
BE A2	1	Anantpure Mokshada Ramling	Industrial Automation using IoT	J S Shinde	S A Inamdar
	10	Kambale Prajakta Narayan			
	13	Kore Bhagawati Prakash			
BE A3	25	Waghmare Varsha Ashok	QR code based ticketing system	D P Narsale	P M Jadhav
	26	Walujkar Shubhangi Sunil			
	17	Patil Komal Kamalakar			
BE A4	2	Atar Shahista Iqbal	voice controlled calculator	/S S Kadam	J S Hallur
	8	Jadhav Diksha Vitthal			
	5	Chavan Banubai Dattatray			
BE A5	4	Bhosale Swapnali Sudhakar	Navigation chair	M A Deshmukh	AK A Jadhav
	7	Ghongade Sneha Raja			
	20	Shinde Seema Sadashiv			
BE A6	11	Kamble Bhagwati Krushna	Heart Rate Monitoring System using Low cost optical sensor	/N P Kulkarni	N S Patil
	12	Khune Rupali Satish			
	29	Raut Priyanka Bhimrao			
	21	Shinde Sunita Prakash			
BE A7	3	Awatade Vaishnavi Vitthal	GPS traking of vehicle	M A Deshmukh	A S Singh
	6	Gaikwad Pratiksha Arun			
	9	Javanjal Gayatri Sanjay			
BE A8	28	Yelale Priti Sitaram	Wheel chair control using eye movement	A M Kasture	S J Machale
	16	Paparkar Sonali Pandurang			
	24	Waghmare Diksha			
BE A9	23	Waghamare Ashanta Laxman	Image to text and audio output for illiterate/blind people	Dr. Bahadure N B	M J Goskl
	15	Pangare Mohini Madhukar			
	19	Sawale Bhagyashri Chandrakant			
	22	Shinde Urmila Deepak			
BE A10	31	Bhosale Punam Shrirang	Automatic seed sowing robot	J S Hallur	M Biswas
	27	Yedave Vidya Dattatraya			
BE A11	33	More Mayuri Mahadeo	RF to DC converter	M S Mathpati	S S Kadam
	32	Shinde Shilpa Ravindra			
	35	Rangar Swagata Jaivant			
BE A12	36	Yelme Mitali Devidas	Virtual eye for blind	S A Inamdar	K V Gidde
	34	Biradar Abhishakta			
	30	Salunkhe Shital Dhanaji			
BE A13	39	Dingare Krishna	Virtual eye for blind	S A Inamdar	D D Pujari
	47	Raj shivaji Palase			
	48	Prakash Chittapure			
BE A14	18	Rajput Amruta Narayansing	Virtual eye for blind	Dr. M M Patil	P M Jadhav
	14	Masal Usha Arjun			
	38	Tate gita baliram			
BE A15	42	Jadhav Nilesh Dnyaneshwar	Virtual eye for blind	AK. A Jadhav	S R Patil
	51	Patil Gaurav Dnyandev			
	45	Adhatrav Madhav Prakash			
BE A16	41	Shaikh Navid Mahamad	Virtual eye for blind	J S Hallur	S J Machale
	49	Rajput Karansingh babusing			
	46	Rahul dattatray Pawar			
BE A17	50	Shahane Ajinkya Abhaykumar	RF and DC converter	Dr. A S Vibhute	H K Bhaldar

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BE B project list A.Y-2018-19

Gr.No.	Roll no.	Student Name	Title of Project	Guide	Co Guide
BE B01	19	Dhanwate Dipali Bandu	Fruit Gradation using Image Processing	Dr. A S Vibhute	Mrs J S Shinde
	32	Jadhav Rohini Ramchandra			
	45	Patil Nishigandha Amar			
	13	Bhosale Payal Dnyaneshwar			
BE B02	34	Joshi Sayali Nandkumar	Design & Development of E Trolley using Raspberry pi	Mr H K Bhaldar	Ms S R Patil
	21	Dixit Priyanka Sunil			
	47	Patki Vaishnavi Kiran			
BE B03	18	Deshpande Kranti Damaji	Plant Health Monitoring using DIP	Mr. V S Bhong	Mr.Ak A Jadhav
	22	Gadekar Sayali Sudhakar			
	43	Patil Gayatri Vishwasrao			
BE B04	15	Bubane Vaibhavi Kantilal	Design and implementation of a digital code lock demonstrator for	Ms A S Singh	Mr.Ak A Jadhav
	42	Pandhare Nilam Nagnath			
	46	Patil Pooja Sanjeetrao			
BE B05	20	Dhotre Priyanka Mahesh	IoT based multi room audio control with Raspberry pi	Mr.A A Jadhav	Ms M S Biswas
	49	Pawar Shubhangi Abasaheb			
	50	Potdar Aparna Virbhadra			
BE B06		Jamdade Kalpesh	Advance Attendance sytem for students using GSM & microcontrooler	Mr. J N Mohite	Mr J S Hallur
	6	Kundurkar Sandesh Dilip			
	10	Surwase Shyam Balaji			
BE B07	1	Adhvalkar Mayureshwar Hanmant	Predefinrd speed control of Brushless Dc motor	Mr J N Mohite	Mr. V S Bhong
	5	Kumthe Kutuboddin Husenbasha			
	9	Patil Mahesh Jivan			
	8	Naiknavare Tushar Ambadas			
BE B08	48	Pawar Archana Ajinath	Gesture recognition for deaf people	DrN B Bahadure	Ms S A Machale
	29	Kolekar Babita Bira			
	33	Jindam Sapana Hanamantu			
BE B09	41	Nakate Priyanka Ashok	Design of common element wideband MIMO antenna for WIFI LTE access point	Mr A A Jadhav	Mr M A Deshmukh
	23	Gaikwad Kartiki Prakash			
	25	Gend Gayatri Navnath			
	57	Thorat Kiran Vijaykumar			
BE B10	17	Deshmukh SnehalUttam	IoT based food spoilage moniting system	Mr D P Narsale	Ms. S S Kadam
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	27	Ghodake Kajal Namdeo			
	54	Swami Charushila			
BE B11	37	More Priyanka Arjun	IOT based Digital Notice Board	M S Mathpati	Ms S S Kadam
	14	Bhosale Snehal Deepak			
	35	Kokil Soniya Sanjay			
BE B12	24	Gaikwad Poonam Dadasaheb	A optimal power framework based on Wireless Sensor Network for forest fire detection	Mrs M M Pawar	Ms M J Goski
	11	AdlingepoonamHaridas			
	56	Sutar Nikita Navanath			
	54	Shingare Shubhangi Baliram			
BE B13	55	Suryavanshi Payal Sunil	Night vision security Robot with sound sensing using raspberry pi	Dr. M M Patil	Ms S R Patil
	38	Nagane Radhika Hanmant			
	51	Sawant Kajol Vitthal			
BE B14	28	Ghodake Supriya Satish	IoT based Heath monitoring of Solar panel using Raspberry Pi	Mr.Ak A Jadhav	Ms M S Biswas
	44	Patil Neha Manikrao			
	26	Ghadage Priyanka Yuvraj			
BE B15	39	Naiknaware Priyanka Navanath	Android app based vechile control	Mr M S Mathpati	Ms S S Kadam
	40	Naikwadi Heena Faruk			
	31	Ingale Sayali Sunil			
BE B16	4	Kamble Ananda Nagnath	Thumb Impression opertaed locking system for multiple user	Dr A S Vibhute	Mr J S Hallur
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	3	Kadam Shrikant Uttamrao			
	7	Khadbade Akash			
BE B17	36	Lokhande Trupti Pandurang	Microscopic image based plate count detection by uing image processing	Dr. Bahadure N B	Mr V S Bhong
	52	Salunke Punam Balasaheb			
	53	Shinde PrajaktaTanaji			
	58	Jayashri Chougale			

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Mini Project Record

A.Y.: 2018-19

TE A Div Project Groups A. Y. 2018-19
Status of TE ENTC Project Sem-I& II

Sr.No.	Project Group no.	Name of Student	Roll No.	Area of Interest	Name of Guide
1	TE A 01	Lokhande Dhanshree	22	Robotics, Image processing	Ms. G. G. Unhale
2		Tarange Reshma Sham	42		
3		Salunkhe Ashwini Kerappa	37		
4	TE A 02	Ghayal Manoj Baliram	56	Power Electronics	Mr. D. P. Narsale
5		Shriram Amgi Vitthal	64		
6		Kante Vijay Dhanappa	59		
7	TE A 03	Kalubarme Prashant D	57	Embedded Systems	Mr. M. A. Deshmukh
8		Misal Pandurang D	60		
9		Navadkar Ganesh M.	62		
10	TE A 04	Devakar Arti Chandrakant	9	Embedded Systems, Robotics	Mr. A. M. kasture
11		Ronge Swapnaja Yuvraj	36		
12		Tamboli Anisa Kadar	41		
13	TE A 05	Kaldhone Amruta Sanjay	16	Embedded Systems	Ms. M. S. Biswas
14		Waghmode Yamini Vilas	44		
15		Jagtap Aniketa Ashok	15		
16	TE A 06	Yadav Chhaya Appa	47	IoT, Embedded System	Mr. J S Hallur
17		Asabe Vaishnavi Tanaji	1		
18		Yadav Kajal Anil	48		
19	TE A 07	Koli Vrushali Rajendra	21	Embedded Systems, Robotics	Mrs. M. M. Pawar
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21		Jadhav Pranita Sunil	14		
22	TE A 08	Mujawar Simran	29		Ms. N. P. Kulkarni
23		Kamble Snehal Baskar	18		
24	TE A 09	Salpute Annasaheb Sahebrao	63	Embedded Systems	Mr. M. A. Deshmukh
25		More Sanket Hanumant	61		
26		Gaikwad Vishal Ashok	55		
27	TE A 10	Mohoikar Manasi Mahesh	27	Robotics	Ms. N. P. Kulkarni
28		More Tanuja Ashok	28		
29	TE A 11	Deshmukh Ashwini Madhukar	8	Embedded Systems	Mr.Akshay A Jadhav
30		Kharade Pragati Dinesh	19		
31		Vhanamane Sonali K	43		
32	TE A 12	Koli Sayali Shamrao	20	Robotics, Antenna	Dr. A. S. Vibhute
33		Mane Prachi Avadhut	24		
34		Chavan Sayali Dilip	6		
35	TE A 13	Manadkar Divaneshwari S	26	Image Processing, Li-Fi	Ms. A. S. Singh
36		Patil Sayali S	33		
37		Sangekar Pratiksha V	38		
38	TE A 14	Awad Asha Rajabhau	2	Robotics, IoT, Image processing	Mr. V. S. Bhong
39		Bagal Anuradha Handas	4		
40		Rokade Soniya Sanjay	35		
41	TE A 15	Katkar Puja A	50	Embedded Systems	Mr. Akshay A. Jadhav
42		Wavkule Pallavi	46		
43		Nagane Priyanka Vital	31		
44	TE A 16	Bansode Usha Sunil	5	Robotics, Image Processing	Mrs. M. M. Pawar
45		Dargude Pratiksha Nagnath	7		
46		Shingade Varsha Balvant	40		
47	TE A 17	Ghadage Pooja Anil	11	Raspberry Pi, Embedded Systems	Ms. G. G. Unhale
48		Baad Pooja Arjun	3		
49		Parbat Supriya Savaji	32		
50	TE A 18	Wakade Prajakta Kashinath	45		Ms. S. S. Kadam
51		Yelmar Sucheta	49		
52		Pathak Prajakta P	51		
53	TE A 19	Danure Sidharam G.	54	Communication, Power Electronics	Ms. N. P. Kulkarni
54		Bhuse Ajinkya Chandrakant	52		
55		Kambale Mahesh Bibhishan	58		
56	TE A 20	Hake Prerana Prakash	12	Robotics, Embedded Systems	Mr. D. P. Narsale
57		Kamble Reshma Hanumant	17		
58		Dubal Samiksha Narasaheb	10		
59		Patil Sonali Satish	34		
60	TE A 21	Upase Sangmesh	66	Embedded Systems	Mr. J. N. Mothite
61		Patil Mukul	67		
62		Taware Dadasaheb	68		

TE Project Coordinator

HOD

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Status of TE ENTC Project Sem-I& II

Sr.No.	Project Group no.	Name of Student	Roll No.	Area of Interest	Guide Name	Title
1	TEB 01	Kalkar Anjali	23	Embedded Systems, IoT	Mr. H. K. Bhaldar	Electroonic Alarm system using Microcontroller
2		More Kirti	31			
3		Yalsange Angali	49			
4	TEB 02	Chavare Shubhangi S.	9	Embedded Systems	Mr.Akshay A Jadhav	Voice based Notice board using Andriod
5		Kolpyoti Naganath	28			
6		Vakase Jyoti Dattatrava	42			
7	TEB 03	Samita Mykal	32	VLSI, Image Processing	Dr. A. S. Vibhute	Automatic Lighting System using Microcontroller
8		Potdar Gunjan	38			
9		Safqe Varsha	39			
10	TEB 04	Baba Bhagyashri Shivshankar	2	Power Electronics	Mr. D. A. Kumbhar	A Smart Street light controller
11		Navalai Seema Laxman	33			
12		Patil Dhanshree	35			
13	TEB 05	Jagtap Janhavi	18	Agriculture automation, Embedded Systems	Mr.A.M.kasture	PWM based DC motor speed control using Microcontroller
14		Kamble Anandi	21			
15		Mahadik Kajal	29			
16	TEB 06	Hindule Madhavi	46	Embedded Systems	Mr. S.P. Swami	Automatic Billing Cart
17		Pawar Trupti	48			
18		Bhosale Ruchita	7			
19	TEB 07	Sawant Mayuri	47	Power Electronics	Mr. A. M. kasture	Smart Helmet Coal Miners Safley
20		Ghadke Pooja Ganpati	14			
21		Survase Tejaswini Vishnu	41			
22	TEB 08	Kakade Pooja	19	Agriculture automation	Ms.N.S.Patil	
23		Kharkal Vrushali Ramchandra	26			
24	TEB 09	Wagh Kanchan	44	Power Electronics, Image processing	Mrs. J. S. Shinde	Coridoor Light controller using Microcontroller
25		Yadav Anuja Devaneshwar	45			
26		Bagal Mohini	3			
27	TEB 10	Maske Yogita Suresh	30	Agriculture automation	Mr.V.S.Bhong	Temperature Sensing Using PIC Microcontroller
28		Shahane Manasi	40			
29		Bangi Alfiya	4			
30	TEB 11	Gumaste Ketaki Sunil	16	Robotics, Embedded Systems	Ms. N. P. Kulkarni	Automatic Staircase lightning system
31		Gajakosh Monika H	12			
32		Patil Nishigandha	36			
33	TEB 12	Bhosale Aishwarya	5	Power Electronics, Robotics	Ms. D. D. Pujari	Smoke detector using microcontroller
34		Asbe Pratima	1			
35		Navgire Pragati	34			
36	TEB 13	Tathedeshmukh Krishna	62	Embedded System, Robotics	Mr. J. N. Mohite	Microcontrol Based Water Management for Irregation
37		Sonavane Sharad	61			
38		Hindule Ravikant	52			
39	TEB 14	Sonar Abhishek	60	Robotics, Communication	Mr. M. S. Mathpati	Wire Harness Tester
40		Sarvad Tanjim	58			
41		Ranaware Rohit	57			
42	TEB 15	Dhotre Rohini S.	11	Agriculture automation	MS.L. A.Palange	Ultrasonic Distance Meter using 8051
43		Mane Anjali S.	24			
44	TEB 16	Vyavahare sachin	63	Robotics, Agriculture Automation	Mr. J. N. Mohite	Automatic Railway Gate Control using 89C51
45		Molak Omkar	64			
46	TEB 17	Khilari Nilambika	27	Embedded Systems, Agriculture	Mr. D. A. Kumbhar	Garbage Level Monitoring system using Microcontroller
47		Bhosle Kavita	6			
48		Jadhav Mayuri	17			
49	TEB 18	Patil Ponum	37	Agriculture automation, Power Electronics	Mr.J.S.Hallur	Rain Alarm using Microcontroller
50		Gore Janabai	15			
51		Karande Jayashri Dattatraya	22			
52	TEB 19	Devkate Pooja Sham	10	Embedded Systems , Agriculture	Mr. S.P. Swami	LPG Gas Doctor ?Using 8051
53		Vansale Rutuja	43			
54	TEB 20	Mane Harshdip	53	Embedded Systems, Image processing	Mr.Akshay A Jadhav	Propeller Clock using Microcontroller
55		Gaondavale Sanjay	50			
56		Gurav Umesh	51			
57	TEB 21	Naiknavre Rajkumar	55		Ms. L. A. Palange	Function Gencrator using 8051

TE Project Coordinator

HOD

SVERI's COLLEGE OF ENGINEERING, PANDHARPUR.

Certificate

This is to certify that the Seminar report entitled

"E-VOTING SYSTEM USING MOBILE SMS"

Is submitted by

Sr.No	Roll No	Name of the Student
1	02	AshaRajabhauAwad
2	04	AnuradhaHaridasBagal
3	35	Soniya Sanjay Rokade

(Project Group No : TE.A15)

For partial fulfilment of TE in Electronics and Telecommunication as per requirement of Solapur University, Solapur for the academic year 2018-2019.

(Prof.V.S.Bhong)
GUIDE

H.O.D.

(Prof.Dr. B. P.Ronge)
PRINCIPAL

(Prof.)

EXTERNAL EXAMINAR

Date: 21/4/2019

Place: Pandharpur

SVERI's COLLEGE OF ENGINEERING, PANDHARPUR

Certificate

This is to certify that the Seminar report entitled

"PASSWORD BASED DOOR LOCK SYSTEM USING MICROCONTROLLER"

is submitted by

Sr.No	Roll No	Name Of The Student
1.	40	Ms. Varsha Balwant Shingade
2.	07	Ms.Pratiksha Nagnath Dargude
3.	05	Ms. Usha Sunil Bansode

(Project Group No. : TE-A 16)

For partial fulfilment of TE in Electronics and Telecommunication as per requirement of

Punyashlok Ahilyadevi Holkar

Solapur University, Solapur for the academic year 2018-19.

(Mrs. M.M.Pawar)
GUIDE

H.O.D.

B. Ronge
(Prof.Dr.B. P.Ronge)
PRINCIPAL

(Prof.

EXTERNAL EXAMINAR

Date: 2/4/19

Place: SVERI, pandharpur.

SVERI

COLLEGE OF ENGINEERING PANDHARPUR

CERTIFICATE

This is to certify that the Project report entitled

"Alcohol Detector Using Microcontroller"

is submitted by

Mr. Upase Sangmesh Vikas

Mr. Patil Mukul Madhusudan

Mr. Taware Dadasaheb Balasaheb

For partial fulfillment for the award of the Engineering in E&TC engineering as per the curriculum laid by Punyashlok Ahilyadevi Holkar Solapur University, during the academic year 2018-2019.

(Mr.J.N.Mohite)	(Prof.Dr.A.S. Vibhute)	(Prof.Dr.B.P.Ronge)
GUIDE	**H.O.D.**	**PRINCIPAL**

EXAMINER

Date: / /2019

SVERI's COLLEGE OF ENGINEERING, PANDHARPUR

Certificate

This is to certify that the Project report entitled

"REMOTE CONTROLLED HOME AUTOMATION USING MICROCONTROLLER"

is submitted by

Sr.No	Roll No	Name Of The Student
1.	37	Ms. Ashwini Kerappa Salunkhe
2.	22	Ms. Dhanshree Dhanaji Lokhande
3.	42	Ms. Reshma Sham Tarange

(Project Group No. : TE-A01)

For partial fulfilment of TE in Electronics and Telecommunication as per requirement of

Punyashlok Ahilyadevi Holkar

Solapur University, Solapur for the academic year 2018-19.

(Ms. G.G. Unhale)
GUIDE

H.O.D.

(Prof.Dr.B. P.Ronge)
PRINCIPAL

(Prof.)

EXTERNAL EXAMINAR

Date: 24/4/2019

Place: Pandharpur.

SVERI's COLLEGE OF ENGINEERING, PANDHARPUR

Certificate

This is to certify that the Seminar report entitled

"PROGRAMMING SWITCH CONTROL FOR INDUSTRIAL AUTOMATION"

Submitted by

Sr.No	Roll No	Name Of The Student
1	A26	Ms. Dnyaneshwari S. Maradkar.
2	A33	Ms. Sayali S. Patil.
3	A38	Ms. Pratiksha V. Sanjekar.

(Project Group No. : TE-A13)

For partial fulfilment of TE in Electronics and Telecommunication as per requirement of

Punyashlok Ahilyadevi Holkar

Solapur University, Solapur for the academic year 2018-19.

B. Ronge

Singh.

(Ms. A.S.Singh)
GUIDE

H.O.D.

(Prof.Dr.B. P.Ronge)
PRINCIPAL

(Prof.)

EXTERNAL EXAMINAR

Date: 24-4-19

Place: Pandharpur

SVERI

COLLEGE OF ENGINEERING PANDHARPUR

CERTIFICATE

This is to certify that the Project report entitled

"Smart Helmet Using Microcontroller"

is submitted by

Mr. Kalubarme Prashant Dattatray

Mr.Misal Pandurang Dhondiram

Mr. Navadkar Ganesh Machindra

For partial fulfillment for the award of the Engineering in E&TC engineering as per the curriculum laid by Punyashlok Ahilyadevi Holkar Solapur University , during the academic year 2018-2019.

(Mr.M.A.Deshmukh)	(Prof.Dr.A.S. Vibhute)	(Prof.Dr.B.P.Ronge)
GUIDE	**H.O.D.**	**PRINCIPAL**

EXAMINER

Date: / /2019

SVERI

SVERI's COLLEGE OF ENGINEERING, PANDHARPUR.

Certificate

This is to certify that, Miss. Anjali Pandurang Katkar,Miss. Kirti Ashok More, Miss.Anjali MahadevYelasange. of class TE-B(E&TC) has successfully completed his project on topic "Electronic Alarm System Using Microcontroller" A partial fulfilment of degree In Electronics and Telecommunication engineering as described by solapur University during the academic year 2018-2019.

PROJECT GUIDE

Prof .H.K.Bhaldar

B. Ronge

HOD

PRINCIPAL

Prof .Dr. A. S. Vibhute

Prof. Dr. B. P. Ronge

EXTERNAL EXAMINER

Date: 24/04/19

Place: Pandharpur

SVERI

SVERI's COLLEGE OFENGINEERING, PANDHARPUR.

Certificate

This is to certify that the Seminar report entitled

"Automatic Staircase Lighting System"

is submitted by

S.R.No	Roll No	Name Of The Student
1.	16	Miss. Ketaki Sunil Gumaste
2.	12	Miss. Monika HarishchandraGajakosh
3.	36	Miss. Nishigandha Santosh Patil

(Project Group No. : TE-B11)

For partial fulfilment of TE in Electronics and Telecommunication as per requirement of Solapur University, Solapur for the academic year 2018-2019.

(Ms.N.P.Kulkarni) **GUIDE**

H.O.D.

B. Ronge

(Prof.Dr. B. P.Ronge) **PRINCIPAL**

Date: 24/04/2019

Place Pandharpur

EXTERNAL EXAMINAR

SVERI's COLLEGE OFENGINEERING, PANDHARPUR.

Certificate

This is to certify that the Seminar report entitled

"Smart Helmet ForCoal Miners Safety"

is submitted by

Sr.No	Roll No	Name Of The Student
1	14	poojaganpatighodke
2	41	tejaswini Vishnu survase
3	47	mayuri balkrishnasawant

(Project Group No. : TE-B)

For partial fulfillment of TE in Electronics and Telecommunication as per requirement of Solapur University, Solapur for the academic year 2018-2019.

(Prof.A.M.Kasture)	(Prof.Dr.A.S. Vibhute)	(Prof.Dr. B. P.Ronge)
GUIDE	**H.O.D.**	**PRINCIPAL**

(Prof.)

EXTERNAL EXAMINAR

Date: 24/4/19

Place: pandharpur

SVERI

SVERI's COLLEGE OFENGINEERING, PANDHARPUR.

Certificate

This is to certify that the Seminar report entitled

"Voice Based Notice Board using Android"

is submitted by

S.R.No	Roll No	Name Of The Student
1.	09	Chavare Shubhangi S.
2.	28	Koli Jyoti Naganath
3	42	Vakase Jyoti Dattatray

(Project Group No. : TE-B)

For partial fulfilment of TE in Electronics and Telecommunication as per requirement of Solapur University, Solapur for the academic year 2018-2019.

B. Ronge

(Prof.A.A.Jadhav) **GUIDE**

(Prof.Dr.A. S. Vibhute) **H.O.D.**

(Prof.Dr. B. P.Ronge) **PRINCIPAL**

External Examiner

Date: 24/4/2019

Place Pandharpur

Certificate

This is to certify that the Seminar report entitled

"Voice Based Notice Board using 8051"

is submitted by

Sr.No	Roll No	Name of the Student
1	14	Jadhav Pranita Sunil
2	21	Koli Vrushali Ranjendra
3	39	Shinde Priyanka Subhash

(Project Group No. : TE-A)
For partial fulfilment of TE in Electronics and Telecommunication as per requirement of Solapur University, Solapur for the academic year 2018-2019.

(Mrs.M.M.Pawar) (Prof.Dr.A. S. Vibhute) (Prof.Dr. B. P.Ronge)
GUIDE **H.O.D.** **PRINCIPAL**

(Prof.)

EXTERNAL EXAMINAR

Date: 24/4/19

Place: Pandharpur

PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR

SVERI's COLLEGE OFENGINEERING, PANDHARPUR.

Certificate

This is to certify that the Seminar report entitled

"Biometric Pulse Counter using 8051"

is submitted by

Sr.No.	Roll No	Name Of The Student
1	19	KakadePoojaVikas
2	26	KhankalVrushaliRamchandra

(Project Group No. : TEB-08)

For partial fulfilment of TE in Electronics and Telecommunication as per requirement of Solapur University, Solapur for the academic year 2018-2019.

(Ms.NehaPatil)	(Prof.Dr.A. S. Vibhute)	(Prof.Dr. B. P.Ronge)
GUIDE	**H.O.D.**	**PRINCIPAL**

(Prof.)

EXTERNAL EXAMINAR

Date: _____

Place:

SVERI

SVERI's COLLEGE OF ENGINEERING, PANDHARPUR.

Certificate

This is to certify that the Seminar report entitled

"Rain Alarm using Microcontroller"

is submitted by

Ms. PunamLaxmanPatil

Ms.JanabaiBalasaheb Gore

Ms.JayshriDttarayKarande

For partial fulfillment of TE in Electronics and Telecommunication as per requirement of Solapur University, Solapur for the academic year 2018-2019.

(Prof. Mr.J.S. Hallur)	(Prof. Vibhute Sir)	(Dr. Prof. Ronge Sir)
GUIDE	**H.O.D.**	**PRINCIPAL**

EXTERNAL EXAMINAR

Date: 24-4-19

Place Pandharpur

SVERI

COLLEGE OF ENGINEERING (POLYTECHNIC)

PANDHARPUR

CERTIFICATE

This is to certify that the Project report entitled

"PWM Based DC Motor Speed Control using Microcontroller 8051"

is submitted by

Ms. Janhavi Nagnath Jagtap.
Ms. Anandi Ramhari Kamble.
Ms. Kajal Hanumant Mahadik.

For partial fulfillment for the award of the Engineering in E&TC engineering as per the curriculum laid by Punyashlok Ahilyadevi HolkarSolapur University , during the academic year 2018-2019.

Mr.A.M.Kasture
(GUIDE)

(H.O.D.)

Dr.B.P.Ronge
(PRINCIPAL)

EXAMINER

Date:24/ 4 /2019

SVERI

COLLEGE OF ENGINEERING

PANDHARPUR

CERTIFICATE

This is to certify that the Project report entitled

"Propreller Clock using 89c51 Microcontroller"

is submitted by

Mr. Gurav Umesh Bateshwar

Mr.Harshadip Shailesh Mane

Mr. Sanjay Rajaram Gondawale

For partial fulfillment for the award of the Engineering in E&TC engineering as per the curriculum laid by Punyashlok Ahilyadevi Holkar University Solapur, during the academic year 2018-2019.

Mr. A.A.Jadhav.
(GUIDE)

Dr. A.S.Vibhute.
(H.O.D.)

Dr. B.P.Ronge
(PRINCIPAL)

EXAMINER

Date 24/04/2019

SVERI

COLLEGE OF ENGINEERING (ENGINNERING)

PANDHARPUR

CERTIFICATE

This is to certify that the Project report entitled

"Garbage Monitoring System Using AT89c51 Microcontroller"

is submitted by

Miss.Kavita Ganpat Bhosale

Miss.Nilambika Rudrappa Khilari

Miss.Mayuri Tippanna Jadhav

For partial fulfillment for the award of the Engineering in E&TC engineering as per the curriculum laid by PunyashlokAhilyadev HolkarSolapur University, during the academic year 2018-2019.

B. Ronge

(Mr.D.A. Khumbhar)	(Dr.A.S. Vibhute)	(Dr. B. P.Ronge)
GUIDE	**H.O.D.**	**PRINCIPAL**

EXAMINER

Date: / /2019

Academic Year: 2018-19

SVERI's COLLEGE OF ENGINEERING, PANDHARPUR

Certificate

This is to certify that the Seminar report entitled

"Automatic Billing Cart"

is submitted by

Sr.No	Roll No	Name Of The Student
1	46	Madhavi S. Hindule
2	48	Trupti M. Pawar
3	07	Ruchita V. Bhosale

(Project Group No. : TE-B0)

For partial fulfilment of TE in Electronics and Telecommunication as per requirement of Solapur University, Solapur for the academic year 2018-2019.

(Mr.S.P.Swami) (Prof.Dr.A. S. Vibhute) (Prof.Dr.B. P.Ronge)

GUIDE **H.O.D.** **PRINCIPAL**

(Prof.)

EXTERNAL EXAMINER

Date: 24-04-2019

Place: Pandharpur

SVERI

COLLEGE OF ENGINEERING (POLYTECHNIC)

PANDHARPUR

CERTIFICATE

This is to certify that the Project report entitled

"Function generator using Microcontroller"

Report on submitted by

Mr. Rajkumar Chokha Naiknavare

For partial fulfillment for the award of the Engineering in E&TC engineering as per the curriculum laid by Solapur University, during the academic year 2018-2019.

(Ms.L.A.Palange)	(Prof.Dr.A.S. Vibhute)	(Prof.Dr.B.P.Ronge)
GUIDE	**H.O.D.**	**PRINCIPAL**

EXAMINER

Date 24/4/2019

Shri Vithal Education & Research Institute's
COLLEGE OF ENGINEERING, PANDHARPUR
P.B.No 54, Gopalpur - Ranjani Road, Gopalpur, Pandharpur - 413304, District. Solapur (Maharashtra)
Tel.: (02186) 216063, 9503103757, Toll Free No.: 1800-3000-4131 e-mail.: coe@sveri.ac.in
Website.: www.sveri.ac.in (Approved by A.I.C.T.E., New Delhi and Affiliated to Solapur University, Solapur)
NBA Accredited all eligible UG Programmes, NAAC Accreditated Institute,ISO 9001:2015 Certified Institute.
Accredited by The Institution of Engineers (India), Kolkata and TCS, Pune.

Ref.:- Date:-

1.3.3 Number of the student studied course on experimental learning through Project Work / Internship

Programme Name: Civil Engineering Programme Code: 1-1408968331			
Year of offering: 2018-19			
Sr. No.	**Name of the Course that include experiential learning through project work/field work/internship**	**Course code**	**Number of the student studied course on experiential learning through project work/field work/internship**
1.	Engineering Geology	CV216	69
2.	Environmental Engineering-I	CV313	71
3.	Water Resources Engineering-II	CV314	
4.	Environmental Engineering-II	CV323	
5.	Mini Project in SM-III/GE-II/EE-II/EMII using Application Software	CV328	
6.	Assessment of field training report	CV329	
7.	Project Work		75
8.	Water Resources Engineering-II		
9.	Assessment of Report on Field Training-II		
10.	Project Work		

PRINCIPAL,
College of Engineering
PANDHARPUR

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SVERI's
College of Engineering, Pandharpur

Department of Civil Engineering

Field Training Record

A.Y.: 2018-19

SHRI VITHAL EDUCATION & RETEARCH INSTITUTE'S

COLLEGE OF ENGINEERING, PANDHARPUR.

Department of Civil Engineering

TE(Civil) students Internship details **Academic Year: 2018-19**

Sl. No.	Name of the student	Name of the company where internship done	Duration
1	PUJARI PRAKASH RAJKUMAR	Sadguru Construction, Pandharpur	17/12/2018 to 31/12/2018
2	THENGAL ABHIJIT DATTATRAYA	Sohel Construction, Madha	17/12/2018 to 31/12/2018
3	/KUMBHAR ANJALI GANPAT	Shree Venkatesh Enterprises, Pandharpur	17/12/2018 to 31/12/2018
4	/DONGARE SHUBHANGI KANHOBARAO	Sharda Construction and Corporation Pvt. Ltd., Nanded	17/12/2018 to 31/12/2018
5	/VIBHUTE JYOTI ASHOK	N. B. Kolekar, Contractor, Pandharpur	17/12/2018 to 31/12/2018
6	BHARTI SHRINIVAS VISHNU	Credible Developers, Maharashtra	17/12/2018 to 31/12/2018
7	SHINDE GANESH MADAN	NP Constructions, Pandharpur	17/12/2018 to 31/12/2018
8	/SARVAGOD PRACHI JITENDRA	Shree Venkatesh Enterprises, Pandharpur	17/12/2018 to 31/12/2018
9	/KAMBLE ASHWINI ARVIND	Shree Venkatesh Enterprises, Pandharpur	17/12/2018 to 31/12/2018
10	/PATIL RUTUJA NAGESH	SN Konapure Contractor, Mangalvedha	17/12/2018 to 31/12/2018
11	/DHUMAL HARSHADA PANDURANG	SN Konapure Contractor, Mangalvedha	17/12/2018 to 31/12/2018
12	/CHIKMANE ANKITA ANIL	SN Konapure Contractor, Mangalvedha	17/12/2018 to 31/12/2018
13	MALI PRATHAMESH KRISHANA	S.M. Autade Pvt. Ltd, Mangalwedha	17/12/2018 to 31/12/2018
14	/SHIKHARE SADHANA NAGNATH	Sarthak Construction, Pandharpur	17/12/2018 to 31/12/2018
15	HONMANE SAGAR SIDDHESHWAR	A.G. Shevale, Pandharpur	17/12/2018 to 31/12/2018
16	/PAREKAR MRUNALI BIRUDEV	Synergy Project Consultant Pvt. Ltd., Pandharpur	17/12/2018 to 31/12/2018
17	/MASAL AISHWARYA NILKHANT	Kokan Builders and Contractors, Ratnagiri	17/12/2018 to 31/12/2018
18	PUJARI HANAMANT SHRISHAIL	Gurukrupa Builders, Karamala	17/12/2018 to 31/12/2018
19	/DESHMUKH SNEHA SHIVAJIRAO	Kantilal Dubal Contractor, Pandharpur	17/12/2018 to 31/12/2018
20	ATKALE AKASH SHASHIKANT	A.G. Shevale, Pandharpur	17/12/2018 to 31/12/2018
21	SAWANT SHAILESH SHASHIKANT	Credible Developers, Maharashtra	17/12/2018 to 31/12/2018
22	/DESHMUKH SUSHAMA MAHADEV	Kantilal Dubal Contractor, Pandharpur	17/12/2018 to 31/12/2018
23	/TEKE MADHURI KISHOR	Kantilal Dubal Contractor, Pandharpur	17/12/2018 to 31/12/2018
24	BABAR GANESH SHANKAR	Gurukrupa Builders, Karamala	17/12/2018 to 31/12/2018
25	/WAGHMODE PRAJAKTA SOPAN	Synergy Project Consultant Pvt. Ltd., Pandharpur	17/12/2018 to 31/12/2018
26	PAWAR SAURABH BABAN	A.G. Shevale, Pandharpur	17/12/2018 to 31/12/2018
27	/PUJARI PRIYANKA TUKARAM	Kantilal Dubal Contractor, Pandharpur	17/12/2018 to 31/12/2018
28	KALE VAIBHAV VASANT	R. D.. Kolekar, Contractor, Pandharpur	17/12/2018 to 31/12/2018
29	/ZENDE PRIYA BRAMHADEO	Synergy Project Consultant Pvt. Ltd., Pandharpur	17/12/2018 to 31/12/2018
30	/POLAS POOJA PRUSHOTTAM	Kanishka Infrastructure, Solapur	17/12/2018 to 31/12/2018

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Dept. of Civil. Engg.
C.O.E. Pandharpur

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31	SHAIKH SHOAIB SALIM	Sonai Infra Pvt. Ltd., Sangli	17/12/2018 to 31/12/2018
32	PAWAR SWAPNIL JITENDRA	Sadguru Construction, Pandharpur	17/12/2018 to 31/12/2018
33	GAIKWAD KAPIL VIJAY	S.M. Autade Pvt. Ltd, Mangalwedha	17/12/2018 to 31/12/2018
34	SOUDAGAR PRASAD SHIVAJI	Sonai Infra Pvt. Ltd., Sangli	17/12/2018 to 31/12/2018
35	Gore Krishna Devidas	Dive, Govt. Contractor, Kurduwadi	17/12/2018 to 31/12/2018
36	GAIKWAD PRASHANT MANIK	Bhosale and Sangaokar Associates, Kolhapur	17/12/2018 to 31/12/2018
37	KANGUDE YOGESH BALKRISHNA	Gurukrupa Builders, Karamala	17/12/2018 to 31/12/2018
38	SAWANT GAURAV VITTHAL	Gurukrupa Builders, Karamala	17/12/2018 to 31/12/2018
39	KADAM VIRAJ MARUTI	Gurukrupa Builders, Karamala	17/12/2018 to 31/12/2018
40	/BHOSALE KAJAL BHARAT	Synergy Project Consultant Pvt. Ltd., Pandharpur	17/12/2018 to 31/12/2018
41	GAWADE AJAY SANTOSH	S.M. Autade Pvt. Ltd, Mangalwedha	17/12/2018 to 31/12/2018
42	/THORAT AISHWARYA A.	Sadguru Construction, Pandharpur	17/12/2018 to 31/12/2018
43	/SHINDE PRIYADARSHANI RAVINDR/	G.D. Sadigale Contractor, Pandharpur	17/12/2018 to 31/12/2018
44	Sarvade Akash Pandurang	Sadguru Construction, Pandharpur	17/12/2018 to 31/12/2018
45	BANDGAR SHUBHAM SHIVAJI	Sadguru Construction, Pandharpur	17/12/2018 to 31/12/2018
46	KADAM SAGAR	Gurukrupa Builders, Karamala	17/12/2018 to 31/12/2018
47	GURAV SANKET SHRIRANG	Patwardhan Consultants Pvt. Ltd., Pune	17/12/2018 to 31/12/2018
48	/KATE PRANITA ANAND	Ashok S. Bannenavar, Archietect and Engineer, Jath	17/12/2018 to 31/12/2018
49	NARSALE SUHAS JAYHIND	Unique Builders, Malshiras	17/12/2018 to 31/12/2018
50	MULE AVINASH SITARAM	S.M. Autade Pvt. Ltd, Mangalwedha	17/12/2018 to 31/12/2018
51	/JAGTAP PRAGATI MITU	Chavan V. N. Engineer, Osmanabad	17/12/2018 to 31/12/2018
52	/PAWALE SHRADDHA RAJENDRA	Shree Venkatesh Enterprises, Pandharpur	17/12/2018 to 31/12/2018
53	LONDHE AVINASH RAJENDRA	Patwardhan Consultants Pvt. Ltd., Pune	17/12/2018 to 31/12/2018
54	MULANI MOIN LATIF	Sohel Construction, Madha	17/12/2018 to 31/12/2018

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Dept. of Civil. Engg.
C.O.E. Pandharpur

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SADGURU CONSTRUCTION

Deals in Plan, Estimate, Interior Designers

4643/1 old karad road,Manisha Nagar,Guru Nanak Bhavan, Pandharpur.

Contact: 9975427622,9028710290 Email Id: jitu.batra8@gmail.com

This is certified that **Mr. Prakash Rajkumar Pujari** has completed **ONE MONTH** training in our **Swarup constructions & Developers pvt.Ltd.** on site **construction of residential building at Pandharpur.** In year of 2018-2019.

TRAINING WORK :- Detailed construction about residential building.
He has good nature and so co-opertive honourable too. He has supportive nature in his work and helpful also.

SADGURU CONSTRUCTION
LIC No.- CBSPM/R/APL/00057
ER. J. L. BATRA
Mob. No.- 9975427622

Project Manager

Prop. Yasin Abdul Sohel Shaikh

Reg. No. 164104 900

SOHEL CONSTRUCTION

GOVERNMENT REGISTER CONTRACTOR

Abdul Kadar Manjil Patel Chowk, BDO Office Near, A/p. Kurduwadi, Tq. Madha, Dist. Solapur - 413208
E-mail : Sohelcons2246@gmail.com, Yasinshaikh90@gmail.com | Cell : 9604107800, 9403291786

Ref. No.

Date : / /201

FIELD TRAINING CERTIFICATE

This is certify that **Mr.Abhijit Dattatray Thengal** student of **B.E.Civil** (Third Year) of Sveris college of Engineering Pandharpur attended the field training from **17.12.2018** to **31.12.2018** in **Sohel Construction Government Register Contractor** during training period his work conduct was very good.

For Sohel Construction



|| SHREE ||

Shree Vyenkatesh Enterprises

Prop. : Eknath J. Nanaware

Shop - Gat No. 85/B, Shivpriya Residency, Gala No. 3, Wangikar Nagar, Pandhaprur.
Resi. - 28/42, 'Nirmal', Balaji Hos. Soc. Balajinagar, B/H Pole Factory, Pandharpur 413304.
Email - shreevenkatesh@yahoo.co.in, eknath6019@gmail.com

Ref. No. :

Date :

CERTIFICATE

This Is To Certify That Miss. **Anjali Ganpat Kumbhar** Is Studing In Third Year Of Civil Engineering From SVERI College Of Engineering, Gopalpur .

She Has Successfully Completed Her Field Training Work At Our Ongoing Construction Sites In Pandharpur From 16/12/2018 To 30/12/2018.

She Is Sincere, Hardworking And Bears Good Moral Character During Training Period.

We Wish Her Bright Future.
This Certificate Has Been Issued On Her Request.

Engineer
Lakhan Kshirsagar

SHARDA
Construction &
Corporation Pvt. Ltd.

Corporate Office :-
Plot No. 72, Sharda Tower
Ashok Nagar, NANDED-5
(02462) 264810, 265202, 262660
Fax (02462-262691
Email : sharda_pune@yahoo.co.in
sharda2005@gmail.com

Branch Office :-
Sharda Bhuvan, Ausa Road,
near PWD Rest House, LATUR
(02382) 700400, Fax (02382-226800
Email : sha.daocpl@gmail.com
CIN : U45200MH2009PTC206811

SCCPL/Field Training/18-19/54

CERTIFICATE

This is to certify that, **Ms. Shubhangi Kanhobarao Dongare**, studying in B.E. (3rd year Civil), for the year 2018-19, in **Shri Vithal Education & Research Institute's Pandharupur** has successfully completed the Field Training for the period of 16/12/2018 to 30/12/2018.

In our scheme **Nanded-Kinwat-Mahur-Arni Road Section from Bhokar to Sarsam Budruk (Design Km. 0+00 to Km 33+00) to two lanes with paved shoulder section of NH-548C on EPC Mode Ms. Shubhangi Kanhobarao Dongare** has undergone field training in various disciplines on of going construction project.

During Training period she has Good Conduct & Moral Character.

Date :- 30/12/2018

Place :- Nanded

For Sharda Constructio
Corp. Pvt. Ltd. Nan

N. B. KOLEKAR

Civil Engg. & Regd. Govt. Contractor

A. P. Gursale, Tal. Pandharpur Dist. Solapur Mobile - 9923664500

Ref. No. :- Date :-

CERTIFICATE

This is certify that miss vibhute jyoti ashok is studying in third year of civil engineering from sveri's coe gopalpur.

she has successfully completed her field tranning work at our ongoing construction sites in pandharpur from 16/12/2018 to 30/12/2018

she is sincere hardworking and bears good moral character during training period.

we wish her bright future.
this certificate has been issued on her request.

N. B. KOLEKAR
Gov. Reg. Contractor
Gursale, Tal. Pandharpur

Scanned copy of Field Training Certificate:

BLOOM COMPANIES, LLC, USA
Infrastructure Innovation & Ingenuity

In Association with

CREDIBLE
Management & Consultants Pvt. Ltd.

Ref. No: Bloom CMC/Chiplun/Pac. II/2018 /295 **Date-28-12-2018**

Subject: Independent Engineer Services for rehabilitation and up-gradation of NH-66 (Old NH 17) from Km 205/400 to 241/300 (Parshuram Ghat - Arawali Section) to four lanes in the State of Maharashtra under NHDP-IV on Hybrid Annuity Mode (Package-II)-Experience Certificate. -Reg.

Ref. – Collage Letter No-COEPR/Training/2018-19/TE-35.

TO WHOM SO EVER IT MAY CONCERN

This is to certify that Mr. Shrinivas Bharti S/o Sh. Vishnu Bharti from Collage of Engineering, Gopalpur, Pandharpur completed his Vocational Training on project site from 17th Dec 2018 to 30th Dec 2018.

During his training in BLOOM COMPANIES LLC, USA IN ASSOCIATION WITH CREDIBLE MANEGMENT & CONSULTANT Pvt. Ltd. Mr. Shrinivas Bharti has got an experience on various aspects of Highway Engineering in Lab Division at site for the project of (Parshuram Ghat - Arawali Section) to four lanes in the State of Maharashtra under NHDP-IV on Hybrid Annuity Mode (Package-II).

He had undergone the aforesaid training with all sincerity, discipline and dedication.

We wish him the very best in all in his future Endeavour.

Sudhir M. Thellur
Team Leader

For, Bloom Companies, LLC

Corporate Office : 1105 B&C Welldone Tech Park Sector-48, Sohna Road Gurgeon Haryana-122018 Phone : 0124-4292105
Project Office : House No. 14/6, " Shanti Narayan " At Post 7(4), Kherd, Tal – Chiplun, Dist – Ratnagiri, Maharashtra-415605
E-mail : info@bloom-india.com, chiplunoffice@bloom-india.com Web : www.bloomcos.com

NP CONSTRUCTIONS

MR. PRITAM R. THORAT
(Civil Engineer & Contractor)
Email- thoratpritam.r@gmail.com
Mob. 9766323402

A/P- Pandharpur, Tal- Pandharpur, Dist-Solapur.

Date : 02-01-2019

TRAINING CERTIFICATE

This is certify that Mr. Ganesh Madan Shinde, student of SVERIES COEP studing BE Civil-3rd year has attended the training from 17-12-2018 to 01-01-2019.

During his training period his work & conduct he was very good and punctual.

Thorat

Mr.Pritam R.Thorat
(Civil Engineer)
NP Constructions
Pandharpur



|| SHREE ||

Shree Vyenkatesh Enterprises

Prop. : Eknath J. Nanaware

Shop - Gat No. 85/B, Shivpriya Residency, Gala No. 3, Wangikar Nagar, Pandhaprur.
Resi. - 28/42, 'Nirmal', Balaji Hos. Soc. Balajinagar, B/H Pole Factory, Pandharpur 413304.
Email - shreevenkatesh@yahoo.co.in, eknath6019@gmail.com

Ref. No. :

Date :

CERTIFICATE

This Is To Certify That Miss. **Prachi Jitendra Sarvagod** Is Studing In Third Year Of Civil Engineering From SVERI College Of Engineering, Gopalpur .

She Has Successfully Completed Her Field Training Work At Our Ongoing Construction Sites In Pandharpur From 16/12/2018 To 30/12/2018.

She Is Sincere, Hardworking And Bears Good Moral Character During Training Period.

We Wish Her Bright Future.
This Certificate Has Been Issued On Her Request.

Engineer.
Lalchan Kshirsagar

Shri Vyankatesh Enterprises
28/42, 'Nirmal' Balaji Hsg. Soc.
Balajinagar, Behind Pole Factory,
Pandharpur, Dist. Solapur Pin-413304
Prop. E. J. Nanavare. Mob. 8275720944



|| SHREE ||

Shree Vyenkatesh Enterprises

Prop. : Eknath J. Nanaware

Shop - Gat No. 88/B, Shivpriya Residency, Gala No. 3, Wangikar Nagar, Pandharpur.
Resi. - 28/42, 'Nirmal', Balaji Hos. Soc. Balajinagar, B/H Pole Factory, Pandharpur 413304.
Email - shreevenkatesh@yahoo.co.in, eknath6019@gmail.com

Ref. No. :

Date :

CERTIFICATE

This Is To Certify That Miss. **Ashwini Arvind Kamble** Is Studing In Third Year Of Civil Engineering From SVERI College Of Engineering, Gopalpur .

She Has Successfully Completed Her Field Training Work At Our Ongoing Construction Sites In Pandharpur From 16/12/2018 To 30/12/2018.

She Is Sincere, Hardworking And Bears Good Moral Character During Training Period.

We Wish Her Bright Future.
This Certificate Has Been Issued On Her Request.

Engineer
Lakhan Kshirsagar.

Shri Vyenkatesh Enterprises
Prop E.J.Nanaware. Mob. 8275720944

S.N. KONAPURE
(B.E.Civil)
Govt. Regd. Contractor
At. Po. Tal. Mangalwedha
Dist. Solapur Cell : 9422648392

Ref. No.

Date : 1 /1 /2019

FIELD TRAINING CERTIFICATE

This is certify that, rutuja nagesh patil student of be (civil third year) of sveris college of engineering pandharpur attended the field training from 17/12/2018 to 31/12/2018 in s.n.konapure during training period his work conduct was very good

S N. Konapure
B E. (Civil)
Govt. Regd. Contractor
Mangalwedha

S.N. KONAPURE

(B.E.Civil)

Govt. Regd. Contractor
At. Po. Tal.Mangalwedha
Dist. Solapur Cell : 9422648392

Ref. No.

Date : 1 / 1 /2019

FIELD TRAINING CERTIFICATE

This is certify that, Harshda Pandurang Dhumal student of be (civil third year) of sveris college of engineering pandharpur attended the field training from 17/12/2018 to 31/12/2018 in s.n.konapure during training period his work conduct was very good

S. N. Konapure
B.E. (Civil)
Govt. Regd. Contractor
Mangalwedha

S.N. KONAPURE
(B.E.Civil)
Govt. Regd. Contractor
At. Po. Tal.Mangalwedha
Dist. Solapur Cell : 9422648392

Ref. No.

Date : 1 / 1 /2019

FIELD TRAINING CERTIFICATE

This is certify that, Ankita Anil Chikamane student of be (civil third year) of sveris college of engineering pandharpur attended the field training from 17/12/2018 to 31/12/2018 in s.n.konapure during training period his work conduct was very good

S. N. Konapure
B.E. (Civil)
Govt. Regd. Contractor
Mangalwedha

Autade Group
ISO 9001:-2008(QMS)

SHRI S. M. AUTADE PVT. LTD.
HEAD OFFICE:
17, "AKANKSHA" Bung cw. Giriraj Society, Baner Road,
Near Saka Nagar, Pune-07. Tel. No. 020-25640391
E mail- pune@autadegroup.com Website: autadegroup.com
CIN No. U45200PN2014PTC151170

Ref.

Date : 03-1-2019

TO WHOM IT MAY CONCERN

This is Certify that, **Mr. PRATHAMESH KRISHANA MAIL,** a Student of SVERI College of Engineering Pandharpur, Solapur University Solapur.

Has Completed the 15 days Field Traning of **(Rehabilitation and Upgradation to two lanes with paved shoulder from NH-561 A Pandharpur Mangalwedha Marwade Umadi from ch. 40/800 to ch.95/136 (Package no .II Length 54.336) in the state of Maharashtra on EPC Mode, Project)** form 17/12/2018 to 31/12/2018 **Mr. PRATHAMESH KRISHANA MAIL** remained involved in his work with determination and sincerity. We found her and competent in executing assigned tasks. During the mentioned period he was found punctual, Hard Working.

We wish him for Success in life.

Thanking you,

Yours faithfully.

SHRI S. M. AUTADE PVT. LTD.
KHANDOBA LANE,
MANGALWEDHA.

BRANCH OFFICE:
KHANDOBA LANE, MANGALWEDHA, DIST. SOLAPUR-413305. Tel. No. (02188) 221650 Fax No. (02188) 221700
8/2, MURARJI PETH, BHAGWAT UMA MANDIR BLDG., SOLAPUR 413003. Ph.No (0217) 2728485
M. A. PATIL NIWAS, NEAR JAIL, DARGAH ROAD, BEHIND SHREYA HOSPITAL, BIJAPUR-586101. Ph. No. (08352)272958

Reg No. CAT-03/2013/Case No. 102/Bldg-3

SARTHAK CONSTRUCTION

Sajjanrao S. More
(Govt. Contractor)
B.E.Civil
Cell : 9921338004, 8793904004

Ref.No.: 05/2019 Date: 05/01/2019

Training Completion Certificate

This is to certify that **Miss. Sadhana Nagnath Skikhare** is working with our organization as Trainee civil Engineer from 16th Dec 2018 to 31st Dec 2018 during this period we found **Miss. Sadhana Nagnath Skikhare** attitude towards assigned work is positive and she has organization expectation

We wish her Best of Luck for future.

For Sarthak Constuction

Sarthak Construction
Regd. Govt. Contractor
A/P. Mundhewadi
Tal. Pandharpur Dist. Solapur.

A.G. SHEVALE
Civil Engg. & Regd. Govt. Contractor
A/p. Palashi, Tal. Pandharpur, Dist. Solapur. 413 310

Mobile : 7776800070
7744040070
E-mail : amolshevale1@gmail.com
GST No.27GVGPS7064R1ZD

Ref. No.

Date :

Certificate

This is to certify that **Mr.Sagar Siddheshwar Honmane** is studying in Third Year Of Civil Engineering from Sveri's College of Engineering, Pandharpur.

He has successfully completed his field Training work at our on going construction sites in Pandharpur from 15/12/2018 to 30/12/2018

He is sincere , hardworking and bears good moral character during training period.

We wish him bright future.

This certificate has been issued on his request.

Amol G. Shevale
B.E. (Civil)
Engineers & Govt. Reg Contractor
A/p. Palashi, Tal. Pandharpur

SYNERGY

Valuers & Project Consultants Pvt. Ltd.

CERTIFICATE

This is to certify that Mr. / Miss. MRUNALI BIRUDEO PAREKAR has successfully completed the workshop in Valuation for from 16/12/2018 to 31/12/2018 on organized at Synergy Valuers & Project Consultants PVT.LTD. His/ Her performance has been satisfactory during whole field training.

Alok Zanwar
General Manager

Flat No.502, Fifth Floor, Atharva Classic, CTS No. 179/5, Near Dashbhuja Ganpati Temple, Karve Road
Erandwane, Pune- 411004, (o) 25469816, 25468030, 9665818000
Email : synergycl@gmail.com, info@synergyvaluers.com

KOKAN BUILDER'S & CONTRACTOR'S

C/o. TAJ MUJAWAR, H. No. 139, At. Po. Sataval, Tal. Lanja, Dist. Ratnagiri

Date :-

Training Certificate

This is Certify that **Miss. Aishwarya Nilkanth Masal** student of B.E.(Civil - 3rd Year) of **Shri Vithal Education & Research Institute's College of Engineering Pandharpur** Attended the field training from 16-12-2018 To 30-12-2018 in **Konkan Builder's & Contractor's** Construction of 3 floor shopping centre's. During Training Period her work & conduct was very Sincere & Good.

Authorized Representative,

For Konkan Builder's & Contractor's

KOKAN BUILDERS & CONTRACTORS

PARTNER



This is to certify that **Mr. Hanumant Shrishail Pujari** is studying in Third Year Of civil Engineering from Sveri College of Engineering Gopalpur.

He has Successfully completed his field Training work at our on going construction sites in Karmala from 15/12/2018 To 30/12/2018.

He is sincere, hardworking and bears good moral character during Training period.

We wish him bright future.

This Certificate has been issued on his request.





Kantilal R. Dubal

(B.E.Civil)

Engineers & Govt. Contractors

Mob.No. 9960544045

Email Id. [redacted]

At.Post. Ajansond Tal. Pandharpur Dist. Solapur-413304.

Ref. No.

Date : 31/12/2018

This certificate is to certify that

Miss.Sneha Shivajirao Deshmukh student of B.E(Civil 3rd year)of **Shri Vithal Education & Research Institute's College Of Engineering Pandharpur** attended the field training from **16-12-2018 to 30-12-2018** in Dubal Constructions Limited Pandharpur (Construction of shopping center) during Training Period her work & conduct was very good & sincere.

Dubal K. R.

A.G. SHEVALE

Civil Engg. & Regd. Govt. Contractor
A/p. Palashi, Tal. Pandharpur, Dist. Solapur. 413 310

Mobile : 7776800070
7744040070
E-mail : amolshevale1@gmail.com
GST No.27GVGPS7084R1ZD

Ref. No.

Date :

Certificate

This is to certify that **Mr.Akash Shashikant Atkale** is studying in Third Year Of Civil Engineering from Sveri's College of Engineering, Pandharpur.

He has successfully completed his field Training work at our on going construction sites in Pandharpur from 15/12/2018 to 30/12/2018

He is sincere , hardworking and bears good moral character during training period.

We wish him bright future.

This certificate has been issued on his request.

Amol G. Shevale
B.E. (Civil)
Engineers & Govt. Reg Contractor
A/p. Palashi, Tal. Pandharpur

BLOOM
COMPANIES, LLC, USA
Infrastructure Innovation & Ingenuity

In Association with

CREDIBLE
Management & Consultants Pvt. Ltd.

Ref. No: Bloom CMC/Chiplun/Pac. II/2018 /294 **Date-28-12-2018**

Subject: Independent Engineer Services for rehabilitation and up-gradation of NH-66 (Old NH 17) from Km 205/400 to 241/300 (Parshuram Ghat - Arawali Section) to four lanes in the State of Maharashtra under NHDP-IV on Hybrid Annuity Mode (Package-II)-Experience Certificate. -Reg.

Ref. – Collage Letter No-COEPR/Training/2018-19/TE-59.

TO WHOM SO EVER IT MAY CONCERN

This is to certify that Mr. Shailesh Sawant S/o Sh. Shashikant Sawant from Shri Vital Eduction and Research Institute College of Engineering, Gopalpur, Pandharpur. Completed his Vocational Training on project site from 17th Dec 2018 to 30th Dec 2018.

During his training in BLOOM COMPANIES LLC, USA IN ASSOCIATION WITH CREDIBLE MANEGMENT & CONSULTANT Pvt. Ltd. Mr. Shailesh Sawant has got an experience on various aspects of Highway Engineering in Lab Division at site for the project of (Parshuram Ghat - Arawali Section) to four lanes in the State of Maharashtra under NHDP-IV on Hybrid Annuity Mode (Package-II).

He had undergone the aforesaid training with all sincerity, discipline and dedication.

We wish him the very best in all in his future Endeavour.

Sudhir M. Thelkar,
Team Leader

For Bloom Companies, LLC

Corporate Office : 1105 B&C Welldone Tech Park Sector-48, Sohna Road Gurgaon Haryana-122018 Phone : 0124-4292105
Project Office : House No. 14/6, " Shanti Narayan " At Post 7(4), Khend, Tal – Chiplun, Dist – Ratnagiri, Maharashtra-415605
E-mail: info@bloom-india.com, chiplunoffice@bloom-india.com Web : www.bloomcos.com

Kantilal R. Dubal
(B.E.Civil)
Engineers & Govt. Contractors
Mob.No. 9960544045
Email.Id. dkantilal@rediffmail.com
At.Post. Ajansond Tal. Pandharpur Dist. Solapur-413304.

Ref. No.

Date : 31/12/2018

This certificate is to certify that

Miss.Sushama Mahadev Deshmukh student of B.E(Civil 3rd year)of **Shri Vithal Education & Research Institute's College Of Engineering Pandharpur** attended the field training from **16-12-2018** to **30-12-2018** in **Dubal Constructions Limited Pandharpur** (Construction of shopping center) during Training Period her work & conduct was very good & sincere.

Dubal K. R.
(B.E. Civil)
Engineers & Contractors

Kantilal R. Dubal
(B.E.Civil)
Engineers & Govt. Contractors
Mob.No. 9960544045
Email.Id. dkantilal999@gmail.com
At.Post. Ajanmood Tal. Pandharpur Dist. Solapur-413304.

Date : 31-12-2018

Ref. No.

This certificate is to certify that

Miss.Madhuri Kishor Teke student of B.E(Civil 3rd year)of **Shr Vithal Education & Research Institute's College Of Engineering Pandharpur** attended the field training from **16-12-2018 to 30-12-2018** in Dubal Constructions Limited Pandharpur (Construction of shopping center) during Training Period her work & conduct was very good & sincere.

Dubal K. R.
B.E.(Civil)
Engineers & Contractors



गुरूकृपा बिल्डर्स ॲण्ड डेव्हलपर्स

करमाळा ता.करमाळा जि.सोलापूर

प्रो.प्रा.भारत बाळनाथ जाधव मो.८६९८१६३३६८

Certificate

This is to certify that **Mr. Ganesh Shankar Babar** is studying in Third Year Of civil Engineering from Sveri College of Engineering Gopalpur.

He has Successfully completed his field Training work at our on going construction sites in Karmala from 15/12/2018 To 30/12/2018.

He is sincere, hardworking and bears good moral character during Training period.

We wish him bright future.

This Certificate has been issued on his request.

मे. गुरूकृपा बिल्डर्स ॲंड डेव्हलपर्स

B. B. J.

भागीदार

Valuers & Project Consultants
Pvt. Ltd.

CERTIFICATE

This is to certify that Mr. / Miss. PRAJAKTA SOPAN WAGHMODE has successfully completed the field training in Valuation for from 16/12/2018 to 31/12/2018 on organized at Synergy Valuers & Project Consultants PVT.LTD. His/ Her performance has been satisfactory during whole field training.

Alok Zanwar
General Manager

SYNERGY VALUERS & PROJECT CONSULTANTS PVT. LTD. 25-022273 PUNE

Flat No.502, Fifth Floor, Atharva Classic, CTS No. 179/5, Near Dashbhuja Ganpati Temple, Karve Road
Erandwane, Pune- 411004, (o) 25469816, 25468030, 9665819000
Email : synergyc@gmail.com, info@synergyvaluers.com

A.G. SHEVALE
Civil Engg. & Regd. Govt. Contractor
A/p. Palashi, Tal. Pandharpur. Dist. Solapur. 413 310
Mobile : 7776800070
7744040070
E-mail : amolshevale1@gmail.com
GST No.27GVGPS7064R1ZD

Ref. No. Date :

Certificate

This is to certify that Mr. Saurabh Baban Pawar is studying in Third Year Of Civil Engineering from Sveri's College of Engineering, Pandharpur.

He has successfully completed his field Training work at our on going construction sites in Pandharpur from 15/12/2018 to 30/12/2018

He is sincere , hardworking and bears good moral character during training period.

We wish him bright future.

This certificate has been issued on his request.

Amol G. Shevale
B.E. (Civil)
Engineers & Govt. Reg. Contractor
A/p. Palash, Tal. Pan...

Kantilal R. Dubal
(B.E. Civil)
Engineers & Govt. Contractors
Mob. No. 9960546045
Email ID: dkantilal@rediffmail.com
Office: Shivaji Chowk, Pandharpur Dist. Solapur 413304

Ref. No.

Date : 31/12/2018

This certificate is to certify that

Miss.Priyanka Tukaram Pujari student of B.E(Civil 3rd. year)of Shri Vithal Education & Research Institute's College Of Engineering Pandharpur attended the field training from 16-12-2018 to 30-12-2018 in Dubal Constructions Limited Pandharpur (Construction of shopping center) during Training Period her work & conduct was very good & sincere.

Dubal K. R.
(B.E. Civil)
Engineers & Contractors

॥ SANT BALUMAMA ॥

R.D. KOLEKAR

Regd. Govt. Contractor
(B.E. Civil)

Regd. No.
Kolekar Vasti, A/p-Gursale,
Tal. Pandharpur, Dist. Solapur
Pin - 413 304.
Cell : 9158258382 / 9067369797 / 9067709797

Ref. No.

Date :

This is certified that **Mr.VAIBHAV VASANT KALE** has completed fifteen days Traning in our **R.D.Kolekar Regd.Gov.Contractor** on site **construction on residential building at pandharpur.** In year of 2018-2019.

Training work :- Detailed construction about residential building.He has good nature and so co-oprative honourable too.He has supportive nature in his work and helpful also.

Project Manager

R.D. KOLEKAR
REGD. GOVT. CONTRACTOR

SYNERGY

Valuers & Project Consultants
Pvt. Ltd.

CERTIFICATE

This is to certify that Mr. / Miss. PRIYA BRAMHADEO ZENDE has successfully completed the field training in Valuation for from 16/12/2018 to 31/12/2018 on organized at Synergy Valuers & Project Consultants PVT.LTD. His/ Her performance has been satisfactory during whole field training.

Alok Zanwar
General Manager

Flat No.502, Fifth Floor, Atharva Classic, CTS No. 179/5, Near Dashbhuja Ganpati Temple, Karve Erandwane, Pune- 411004, (o) 25469816, 25468030, 9665818000
Email : synergycl@gmail.com, info@synergyvaluers.com

Lic.No.549

Kanishka Infrastructure

504/1, Salgarvasti, Solapur – 413001
Email- kanishkainfra.88@gmail.com
Office No – 8668843689

Date : 2 / 1 /2019

Experience certificate

To,

This is to Certify that Mr./Mrs. Pooja . P. Telas has been working in our firm during 12/12/2018 to 2 / 1 / 2019 his /her performance was good & satisfactory.

We wish him. Good luck for his/her future assignments.

signature

Akshay A. Wakse
B.E. Civil
Lic. No. 549
504/1, Salgarwasti, Dattapeth P.
Solapur Mob. No. 7620[illegible]

Making together
SONAI

Date :- 30/12/2018

Training Certificate

This is Certify that Mr. Shoaib Salim Shaikh Student of B.E [Civil -3rd Year] of Shri Vithal Education & Research Institute's College of Engineering Pandharpur Attended the field training from 16-12-2018 To 30-12-2018 In Sonai Infrastructure Pvt. Ltd. Sangli (Earthwork In Embankment & Cutting Incld. Extension of Minor Bridges & RUB' in connection with Pune –Miraj Doubling Project from KM.216.00(Shendi) to Km. 280.00(Miraj) during Training Period his work & Conduct was very sincere and good

30-12-18

Authorized Representative,

For Sonai Infra. Pvt. Ltd. Sangli.

SONAI INFRASTRUCTURE PVT. LTD. TAKARI

Sonai Infrastructure Private Limited
[illegible] Floor, Shriram Plaza, Ram Mandir Corner, Sangli 416 416, Maharashtra (India)
Telephone: (0233) 2323897, e-mail: [illegible]@sonaiinfra.com

SADGURU CONSTRUCTION

Deals in Plan, Estimate, Interior Designers
4643/1 old karadroad,ManishaNagar,Guru Nanak Bhavan, Pandharpur.
Contact: 9975427622,9028710290 Email Id: jitu.batra9@gmail.com

Training Certificate

This is certified that **Mr. Swapnil Jitendra Pawar** student of TE(Civil) of **SVERI's Collage Of Engineering, Pandharpur** has completed **15 Day's** training from 15/12/2018 to 30/12/2018 in our **Sadguru constructions & Developers pvt.Ltd.** on site **construction of residential building at Pandharpur.** In year of 2018-2019.

TRAINING WORK :-Detailed construction about residential building.
He has good nature and so co-opertivehonourable too. He has supportive nature in his work and helpful also.

SADGURU CONSTRUCTION
LIC No.- CBSPM/R/APL/00057
ER. J. L. BATRA
Mob. No.- 9975427622
Project Manager

Autade Group
ISO 9001-2008(QMS)

SHRI S. M. AUTADE PVT. LTD.
HEAD OFFICE:
17, "AKANKSHA" Bunglow, Gitraj Society, Baner Road,
Near Sakal Nagar, Pune-07. Tel. No. 020-25640391
E mail- pune@autadegroup.com Website: autadegroup.com
CIN No. U45200PN2014PTC151170

Ref.,

Date : ०३-०१-२०१९

TO WHOM IT MAY CONCERN

This is Certify that, **Mr. KAPIL VIJAY GAIKWAD** a Student of SVERI College of Engineering Pandharpur, Solapur University Solapur.

Has Completed the 15 days Field Traning of (**Rehabilitation and Upgradation to two lanes with paved shoulder from NH-561 A Pandharpur Mangalwedha Marwade Umadi from ch. 40/800 to ch.95/136 (Package no .II Length 54.336) in the state of Maharashtra on EPC Mode, Project**) form 17/12/2018 to 31/12/2018 **Mr. KAPIL VIJAY GAIKWAD** remained involved in his work with determination and sincerity. We found her and competent in executing assigned tasks. During the mentioned period he was found punctual, Hard Working.

We wish him for Success in life.

Thanking you,

Yours faithfully.

SHRI S. M. AUTADE PVT. LTD.
KHANDOBA LANE,
MANGALWEDHA.

BRANCH OFFICE:
- KHANDOBA LANE, MANGALWEDHA, DIST. SOLAPUR-413305. Tel. No. (02188) 221650 Fax No. (02486) 221700
- 8/2, MURARJI PETH, BHAGWAT UMA MANDIR BLDG., SOLAPUR 413003. Ph.No.(0217) 2723485
- M. A. PATIL NIWAS, NEAR JAIL, DARGAH ROAD, BEHIND SHREYA HOSPITAL, BIJAPUR-586101. Ph. No. (08352) 272958

rising together
SONAI

Date :- 30/12/2018

Training Certificate

This is Certify that **Mr. Prasad Shivaji Soudagar** Student of B.E (Civil - 3rd Year) of **Shri Vithal Education & Research Institute's College of Engineering Pandharpur** Attended the field training from **16-12-2018** To **30-12-2018 in Sonai Infrastructure Pvt Ltd. Sangli** (Earthwork in Embankment & Cutting incld. Extension of Minor Bridges & RUB' in connection with Pune –Miraj Doubling Project from Km.216.00(Shendi) to Km. 280.00(Miraj)) during Training Period his work & Conduct was very sincere and good

Authorized Representative.

For Sonai Infra. Pvt. Ltd. Sangli.

SONAI INFRASTRUCTURE PVT. LTD. TALEGAON

Sonai Infrastructure Private Limited
[illegible] Sangli [illegible]
Telefax [illegible], e-mail : [illegible]

Ref. No.

Date : / /201

FIELD TRAINING CERTIFICATE

This is the Certify that **Mr. Gore Krishna Devidas** student of T.E. Civil III Year of **SVERIS College of Engineering Pandharpur** Attended the Field Training from **17-12-2018 to 31-12-2018** in **Dattatrya Kondiba Dive, Government Contractor, Kurduwadi** during training period his work conduct was very good.

For Dattatrya Kondiba Dive

BHOSALE & SANGAOKAR ASSOCIATES

ENGINEERS & CONTRACTORS

Plot no.28 , Chavrekar Vasahat , Radhanagari Road , Kolhapur

Date : 02.01.2019

To,
Dr.P.M.Pawar
Head of Civil Engineering,
Shri Vithal Education & Research Institute's
COLLEGE OF ENGINEERING , PANDHARPUR
Ranjani Road Gopalpur , Tal-Pandharpur , Dist-Solapur

Sub : Vocational field training
of your student at our site

sir,

In regards to the above reference and subject, following student have successfully completed vocational field training during 15.12.2018 to 01.01.2019 at our site proposed Residence for Shri Prakash Yashwant Mali , at Uchgaon located at Kolhapur to Mudshingi road ,S.No.269/2 , B1, Plot no.20 , Dist. Kolhapur

Gaikwad Prashant Manik 7028635996

we wish him every success in life

A.D.Bhosale
partner

BHOSALE & SANGAOKAR ASSOCIATES
ENGINEERS & CONTRACTORS
Plot no.28 , Chavrekar Vasahat
Radhanagari Road , Kolhapur
Cell 9422514179



गुरूकृपा बिल्डर्स अॅण्ड डेव्हलपर्स

करमाळा ता.करमाळा जि.सोलापूर

प्रो.प्रा.भारत बाळनाथ जाधव मो.८६९८९६३६६८

Certificate

This is to certify that **Mr. Yogesh Balkrushna Kangude** is studying in Third Year Of civil Engineering from Sveri College of Engineering Gopalpur.

He has Successfully completed his field Training work at our on going construction sites in Karmala from 15/12/2018 To 30/12/2018.

He is sincere, hardworking and bears good moral character during Training period.

We wish him bright future.

This Certificate has been issued on his request.



मे. गुरूकृपा बिल्डर्स अँड डेव्हलपर्स

13.12.18.

भागीदार



गुरूकृपा बिल्डर्स अॅण्ड डेव्हलपर्स

करमाळा ता.करमाळा जि.सोलापूर

प्रो.प्रा.भारत बाळनाथ जाधव मो.८६९८१६३३६८

Certificate

This is to certify that **Mr. Gaurav Vitthalravo Sawant** is studying in Third Year Of civil Engineering from Sveri College of Engineering Gopalpur.

He has Successfully completed his field Training work at our on going construction sites in Karmala from 15/12/2018 To 30/12/2018.

He is sincere, hardworking and bears good moral character during Training period.

We wish him bright future.

This Certificate has been issued on his request.



मे. गुरुकृपा बिल्डर्स अँड डेव्हलपर्स

B. B. J.

भागीदार



गुरूकृपा बिल्डर्स अॅण्ड डेव्हलपर्स

करमाळा ता.करमाळा जि.सोलापूर

प्रो.प्रा.भारत बाळनाथ जाधव मो.८६९८२६३३६८

Certificate

This is to certify that **Mr. Viraj maruti Kadam** is studying in Third Year Of civil Engineering from Sveri College of Engineering Gopalpur.

He has Successfully completed his field Training work at our on going construction sites in Karmala from 15/12/2018 To 30/12/2018.

He is sincere, hardworking and bears good moral character during Training period.

We wish him bright future.

This Certificate has been issued on his request.



मे. गुरुकृपा बिल्डर्स अॅण्ड डेव्हलपर्स

B.B.J.

भागीदार

SYNERGY

Valuers & Project Consultants
Pvt. Ltd.

CERTIFICATE

This is to certify that Mr. / Miss. KAJAL BHARAT BHOSALE has successfully completed the field training in Valuation for from 16/12/2018 to 31/12/2018 on organized at Synergy Valuers & Project Consultants PVT.LTD. His/ Her performance has been satisfactory during whole field training.

Alok Zanwar
General Manager

SYNERGY VALUERS & PROJECT CONSULTANTS PVT. LTD. 26-022279 PUNE

Flat No.502, Fifth Floor, Atharva Classic, CTS No. 179/5, Near Dashbhuja Ganpati Temple, Karve Road
Erandwane, Pune- 411004, (o) 25469816, 25468030, 9665818000
Email : synergyvl@gmail.com, info@synergyvaluers.com

Autade Group
ISO 9001:2008(QMS)

SHRI S. M. AUTADE PVT. LTD.
HEAD OFFICE:
17, "AKANKSHA" Bunglow, Giriraj Society, Baner Road,
Near Sakal Nagar, Pune-07. Tel. No. 020-23640391
E mail- pune@autadegroup.com Website: autadegroup.com
CIN No. U45200PN2014PTC151170

Ref.,

Date : 06.01.2019

TO WHOM IT MAY CONCERN

This is Certify that, **Mr.AJAY SANTOSH GAWADE** a Student of SVERI College of Engineering Pandharpur, Solapur University Solapur.

Has Completed the 15 days Field Traning of **(Rehabilitation and Upgradation to two lanes with paved shoulder from NH-561 A PandharpurMangalwedhaMarwadeUmadi from ch. 40/800 to ch.95/136 (Package no .II Length 54.336) in the state of Maharashtra on EPC Mode, Project)** form 17/12/2018 to 31/12/2018 **Mr.AJAY SANTOSH GAWADE** remained involved in his work with determination and sincerity. We found her and competent in executing assigned tasks. During the mentioned period he was found punctual, Hard Working.

We wish him for Success in life.

Thanking you,

Yours faithfully.

SHRI S M AUTADE PVT. LTD.
KHANDOBA LANE,
MANGALWEDHA.

BRANCH OFFICE:
• KHANDOBA LANE, MANGALWEDHA, DIST. SOLAPUR 413305 Tel. No. (02469) 221630 Fax No. (02469) 221700
• 8/2, MURARJI PETH, BHAGWAT UMA MANDIR BLDG. SOLAPUR 413003. Ph. No. (0217) 2725485
• M. A. PATIL NIWAS, NEAR JAIL, CARGAH ROAD, BEHIND SHREYA HOSPITAL, BIJAPUR-586101 Ph. No. (08352)272658

SADGURU CONSTRUCTION

Deals in Plan, Estimate, Interior Designers
4643/1 old karad road,Manisha Nagar,Guru Nanak Bhavan, Pandharpur.
Contact: 9975427622,9028710290 Email Id: jitu.batra9@gmail.com

This is certified that **M/s. Thorat Aishwarya Anand** has completed **fifteen days** training in our **Sadguru constructions & Developers pvt.Ltd.** on site **construction of residential building at Pandharpur.** In year of 2018-19.

TRAINING WORK: - Detailed construction about residential building.
She has good nature and so co-operative honorable too. She has supportive nature in his work and helpful also.

Sadguru Construction, Pandharpur
Prop. Jitu Laxman Batra
Lic.No LA / 00037
Mob No 9975427622 / 9028710290

Project Manager



G.D.Sadigale

Govt.Contractor
Pandharpur
9422463314, 9028592324

TRAINING COMPLETION CERTIFICATE

This is to certify that **Miss Priyadarshani Ravindra Shinde** is working with our organization as Trainee civil engineer from 15 Dec 2018 to 30 Dec 2018 during this period we found her attitude towards work is positive
We wish best of luck for her future

G. D. Sadigale
(Partner)
Govt. Contractor
373,Navi Peth,Pandharpur

G. D . Sadigale

SADGURU CONSTRUCTION

Deals in Plan, Estimate, Interior Designers
4343/1 old karad road,Mansha Nagar,Guru Nanak Bhavan, Pandharpur.
Contact: 9975427622,9028710200 Email Id: jitu.batra9@gmail.com

This is certified that **Mr. SARAWADE AKASH PANDURANG** has completed **ONE MONTH** training in our **Swarup constructions & Developers pvt.Ltd.** on site **construction of residential building at Pandharpur.** In year of 2018-2019.

TRAINING WORK :- Detailed construction about residential building.
He has good nature and so co-opertive honourable too. He has supportive nature in his work and helpful also.

SADGURU CONSTRUCTION
LIC No.- CBSPM/R/APL/00057
ER. J. L. BATRA
Mob.No.- 9975427622
Project Manager

SADGURU CONSTRUCTION

Deals in Plan, Estimate, Interior Designers
4643/1 old karadroad,MarishaNagar,Guru Nanak Bhavan, Pandharpur.
Contact: 9975427622,9028710290 Email Id: jitu.batra9@gmail.com

Training Certificate

This is certified that **Mr. Shubham Shivagi Bandgar** student of TE(Civil) of **SVERI's Collage Of Engineering, Pandharpur** . has completed **15 Day's** training from 15/12/2018 to 30/12/2018 in our **Sadguru constructions & Developers pvt.Ltd.** on site **construction of residential building at Pandharpur.** In year of 2018-2019.

TRAINING WORK :-Detailed construction about residential building.
He has good nature and so co-opertivehonourable too. He has supportive nature in his work and helpful also.

SADGURU CONSTRUCTION
LIC No.- CBSPM/R/APL/00057
ER. J. L. BATRA
Mob.No.- 9975427622
Project Manager



प्रो.प्र.भारत आबासाहेब आवत मो.८६९८९६६६६८

Certificate

This is to certify that **Mr. Sagar Tatyasaheb Kadam** is studying in Third Year Of civil Engineering from Sveri College of Engineering Gopalpur.

He has Successfully completed his field Training work at our on going construction sites in Karmala from 15/12/2018 To 30/12/2018.

He is sincere, hardworking and bears good moral character during Training period.

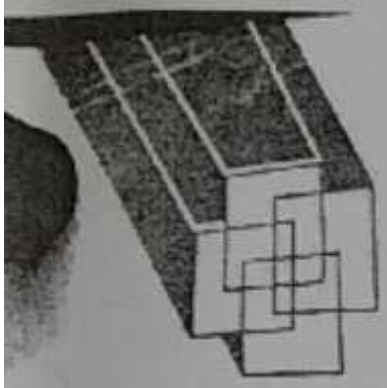
We wish him bright future.

This Certificate has been issued on his request.



श्री. गुरुकृपा बिल्डर्स अँड डेव्हलपर्स

B. B. J.
आबासाहेब



PATWARDHAN CONSULTANTS PVT. LTD.

ISO 9001: 2015

ARCHITECTS, ENGINEERS, GOVT. REGD. VALUERS,
PROJECT MANAGEMENT CONSULTANTS

Pune : Sharvil Kunj 3rd Floor, 946, Shukrawar Peth,Shivaji Road, Vanraj Chowk, Pune - 411 002.
Office No. : (+ 91- 020) 65005731 / 24473274 / 7620305731
E-mail : patwardhanassocpune@yahoo.com / www.pcpl.biz

FIELD TRAINING CERTIFICATE

This is certify that **Mr. Sanket shrirang gurav** *student of BE (CIVIL THIRD YEAR)*

Of **Sveris college of engineering pandharpur** *attended the field*

Training from **17-12-2018** *to* **31-12-2018** *in* **PATWARDHAN CONSULTATS PVT. LTD**

during training period his work conduct was very good

11/1/19

For Patwardhan Consultant Pvt. Ltd.

For Patwardhan Consultant Pvt. Ltd.

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CERTIFICATE

This is to cirtify that ;

Pranita Anand Kate get training during the period from 16.12.2018 to 31.12.2018 under my supervision.

She visited the sites and tried to understand the civil works which are under progress and daily submitted the reports to my office.

She have good knowledge about field work and good moral character.

AB ARCHITECTS & ENGINEERS
ASHOK S. BANNENAVAR

Er. Ashok S. Bannenavar
B.E. Civil
Architetects & Engineers
Jath

M/s. UNIQUE BUILDERS

Civil Engineer & Contractor

Date :

This is Certify that the **Mr. Suhas Jayhind Narsale.** student of BE(Civil Engg 3rd Year of Shree Vitthal Education and Research Institutes College of Engg. Pandharpur. Attended The Field Training From 16/12/2018 to 30/12/2018 in **M/s Unique Builders Malewadi (Akluj)** (Bridge Work) Name of work :- **Construction of Major Bridge Across Bhima River Near Village Umbare on Velapur Neware Umbare Karkamb Road MDR92 at Km.24.00 Taluka Pandharpur. Dist Solapur** During training period his wor & Conduct was very Sincere and Good.

M/s. Unique Builders Malewadi, Akluj

M/s. UNIQUE BUILDERS

PARTNERS

A/p. Opp. S.M.P. College Malewadi- Akluj 413101 Tal. Malshiras, Dist. Solapur Fax : (02185) 225805 Ph.(02185) 223805
Mob. 9922437333 / 9922438333 Email : uniqbuild@yahoo.com

Autade Group
ISO 9001:2008(QMS)

SHRI S. M. AUTADE PVT. LTD.
HEAD OFFICE:
17, "AKANKSHA" Bunglow, Giriraj Society, Baner Road,
Near Sakal Nagar, Pune-07. Tel. No. 020-25640351
E mail- pune@autadegroup.com Website: autadegroup.com
CIN No. U45200PN2014PTC151170

Ref.:

Date: 06-01-2019

TO WHOM IT MAY CONCERN

This is Certify that, **Mr. AVINASH SITARAM MULE** a Student of SVERI College of Engineering Pandharpur, Solapur University Solapur.

Has Completed the 15 days Field Traning of **(Rehabilitation and Upgradation to two lanes with paved shoulder from NH-561 A PandharpurMangalwedhaMarwadeUmadi from ch. 40/800 to ch.95/136 (Package no .II Length 54.336) in the state of Maharashtra on EPC Mode, Project)** form 17/12/2018 to 31/12/2018 **Mr. AVINASH SITARAM MULE** remained involved in his work with determination and sincerity. We found her and competent in executing assigned tasks. During the mentioned period he was found punctual, Hard Working.

We wish him for Success in life.

Thanking you,

Yours faithfully.

SHRI S M AUTADE PVT. LTD.
KHANDOBA LANE,
MANGALWEDHA.

BRANCH OFFICE:
KHANDOBA LANE, MANGALWEDHA, DIST. SOLAPUR-413305. Tel. No. (02186) 221650 Fax No. (02488) 221700
5/2, MURARJI PETH, BHAGWAT UMA MANDIR BLDG., SOLAPUR 413003. Ph.No.(0217) 2728485
M. A. PATIL NIWAS, NEAR JAIL, DARGAH ROAD, BEHIND SHREYA HOSPITAL, BIJAPUR-586101. Ph. No. (08352)272968

CHAVAN V.N.
ENGINEERING SERVISES,
OPP. P.W.D. OFFICE,
SAMTA COLONY, OSMANABAD.
: 7038664678.

Er. VISHNU N. CHAVAN

- ARCHITECTS
- ENGINEERS.
- ESTIMATORS.
- SURVEYORS.
- DESIGNERS.

Ref. No.: 048 / DEC 2018.

Date: 30/12/18.

प्रमाणपत्र

प्रमाणित करण्यात येते की, **कुमारी प्रगती मिटू जगताप** हीने दिनांक **16/10/2018** ते दिनांक **30/12/2018** या कालावधीत **फील्ड** ट्रेनिंग काम यशस्वीरित्या पूर्ण केले आहे.

सदर प्रमाणपत्र देण्यात येते.



|| SHREE ||

Shree Vyenkatesh Enterprises

Prop. : Eknath J. Nanaware

Shop - Gat No. 85/3, Shreepriya Residency, Gala No. 3, Wargikar Nagar, Pandharpur.
Resi. - 28/42, Nirmal, Balaji Hos. Soc. Balajinagar, B/H Polo Factory, Pandharpur 413304.
Email - shreevenkatesh@yahoo.co.in, eknathbl19@gmail.com

Ref. No. :

Date

CERTIFICATE

This Is To Certify That Miss. **Shradha Rajendra Pawale** Is Studing In Third Year Of Civil Engineering From SVERI College Of Engineering, Gopalpur .

She Has Successfully Completed Her Field Training Work At Our Ongoing Construction Sites In Pandharpur From 16/12/2018 To 30/12/2018.

She Is Sincere, Hardworking And Bears Good Moral Character During Training Period.

We Wish Her Bright Future.
This Certificate Has Been Issued On Her Request.

Engineer
Lakhan Khirsagar

PATWARDHAN CONSULTANTS PVT. LTD.

ISO 9001:2015

ARCHITECTS, ENGINEERS, GOVT. REGD. VALUERS,

PROJECT MANAGEMENT CONSULTANTS

Pune : Shanti Kunj 3rd Floor, 946, Shukrawar Peth, Shivaji Road, Vanraj Chowk, Pune - 411 002.

Office No. : (+ 91- 020) 65005731 / 24473274 / 7620335731

E-mail : patwardhanassocpune@yahoo.com / www.pcpl.biz

FIELD TRAINING CERTIFICATE

This is certify that **Mr. AVINASH RAJENDRA LONDHE** *student of BE* **(CIVIL THIRD YEAR)**

Of **Sveris college of engineering pandharpur** *attended the field*

Training from **17-12-2018** *to* **31-12-2018** *in* **PATWARDHAN CONSULTATS PVT. LTD**

during training period his work conduct was very good .

11/1/19

For Patwardhan Consultant Pvt. Ltd.

For Patwardhan Consultants Pvt. Ltd

SOHEL CONSTRUCTION

GOVERNMENT REGISTER CONTRACTOR

Abdul Kadar Manjil, Patel Chowk, BDO Office Near, A/p. Kurduwadi, Tq. Madha, Dist. Solapur - 413208

E-mail : Soholcons2269@gmail.com, Yasinshaikh9049@gmail.com | Cell : 9604107860, 9403291766

Ref. No.

Date : / /201

FIELD TRAINING CERTIFICATE

This is certify that **Mr.Moin Latif Mulani** student of **B.E.Civil** (Third Year) of Sveris college of Engineering Pandharpur attended the field training from **17.12.2018** to **31.12.2018** in **Sohel Construction Government Register Contractor** during training period his work conduct was very good.

For Sohel Construction

A

FIELD TRAINING REPORT

ON

RAILWAY DOUBLING PROJECT

SVERI

COLLEGE OF ENGINEERING, PANDHARPUR.

DEPARTMENT OF CIVIL ENGINEERING

Academic Year: 2018-2019

Submitted By :- Mr . Shoaib Salim Shaikh

(T.E Civil Roll no:57)

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rising together...
SONAI

Date :- 30/12/2018

Training Certificate

This is Certify that **Mr. Shoaib Salim Shaikh** Student of B.E (Civil -3rd Year) of **Shri Vithal Education & Research Institute's College of Engineering Pandharpur** Attended the field training from **16-12-2018** To **30-12-2018 in Sonal Infrastructure Pvt. Ltd. Sangli** (Earthwork in Embankment & Cutting incld. Extension of Minor Bridges & RUB' in connection with Pune –Miraj Doubling Project from KM.216.00(Shenoli) to Km. 280.00(Miraj)) during Training Period his work & Conduct was very sincere and good

30-12-18
Authorized Representative,

For Sonai Infra. Pvt. Ltd. Sangli.

SONAI INFRASTRUCTURE PVT. LTD. TAKARI

Sonal Infrastructure Private Limited
1st Floor, Shriram Plaza, Ram Mandir Corner, Sangli 416 416, Maharashtra (India)
Telefax: (0233) 2323897, e-mail : admin@sonalinfra.com
www.sonalinfra.com

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2	Site Information	7
3	Project Information	8
4	General Information	9
5	Precautions against Accidents	20
6	Conclusion	21

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INTRODUCTION

The purpose of this training is to enrich the students with updated field knowledge. This helps in understanding various field activities, construction techniques, materials and equipment's, Management Techniques ,etc.

Objectives of field Training:

- To apply theoretical knowledge on field
- To understand practical approach on field
- To understand actual processes on site
- To understand procedure
- To get site work experience
- To aware of problems on site

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SITE INFORMATION

Project Name : Railway Doubling Project

Type of Structure : Infrastructure

Location :Pune-Miraj Road,Takari,(Sangli)

Project Engineer: Mr. Yuvraj Salunkhe

Site Supervisor: Mr. Mubin Shaikh

A project by : Sonai Infrastructure Pvt.Ltd.

1st Floor,shriram plaza,ram mandir corner,Sangli

Site Location: @Takari

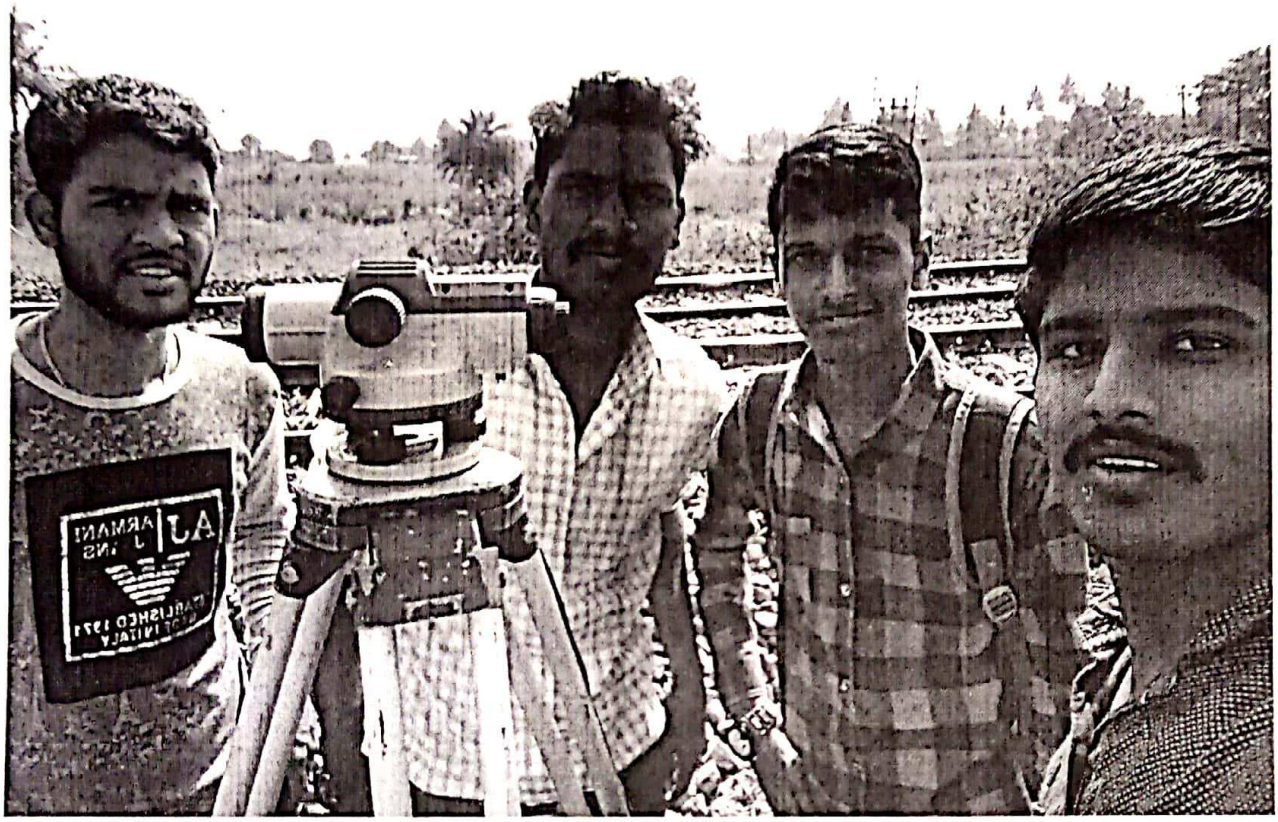
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PROJECT INFORMATION

Project Name :	Earthwork in embankment and cutting include extension of minor bridges and RUB's in connection with Pune –Miraj doubling project
Type of Structure :	Railway Doubling Project
Project Cost :	370 crore
Working Area :	Km.216.00(Shenoli) to Km.280.00(Miraj)

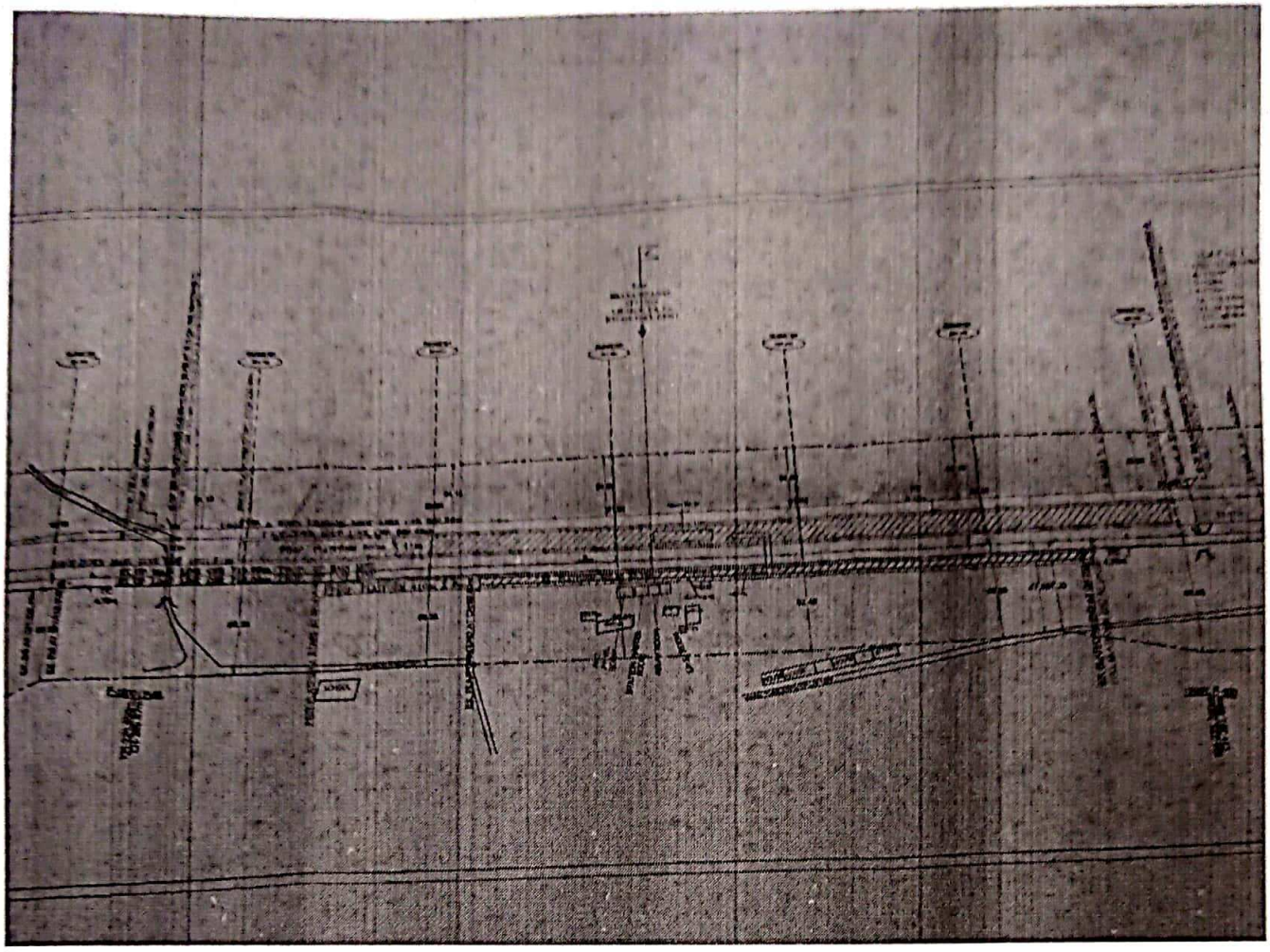
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GENERAL INFORMATION



The project is all about constructing the second railway line(i.e doubling of railway line) with respect to existing railway line.The project working area is from miraj(Km.216) to pune(Km.280) for about 64kms.In which we studied at Takari and Bhavani Nagar for about 15 days.This project is divided into several parts such as Earthwork(excavation, cutting and filling in embankment),extension of minor bridges, RMC plant, WMM plant etc.

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The project initiates with survey of the yard area at 25m chainage with respect to existing railway line by offset survey. The maximum width of yard is 32m and minimum width is 28m.The railway line are of two types main line and loop line. The loop line is only for stopping of rail at station and main line is for running of railway which has more slipper density as compare to loop line.

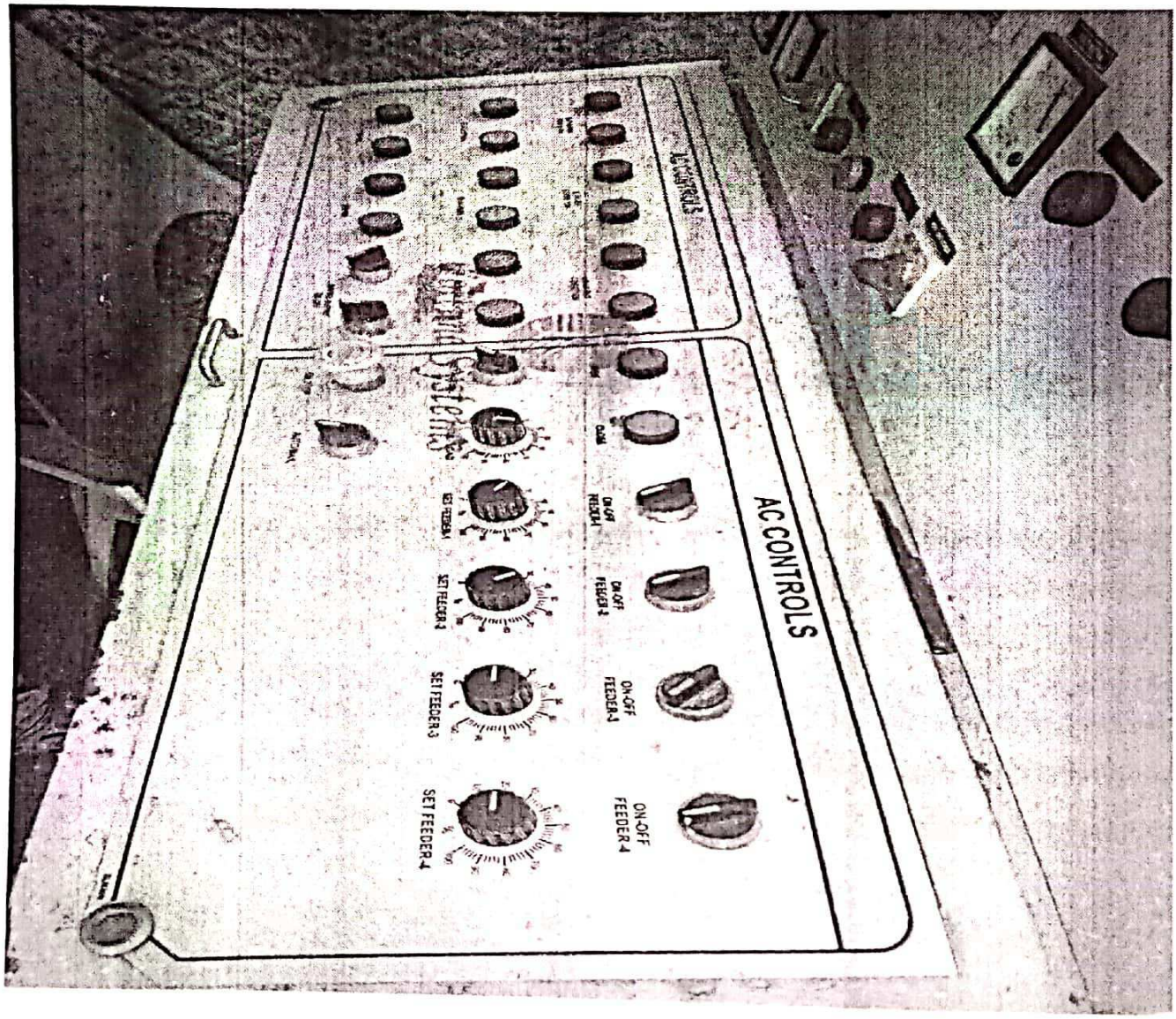
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After completion of survey we studied the plan of Bhavani Nagar station for carrying lineout on the field. After that we made markings on the field by using white powder. Here after the next step is the Blanketing of ground with respect to existing fixed RL's for levelling of ground.

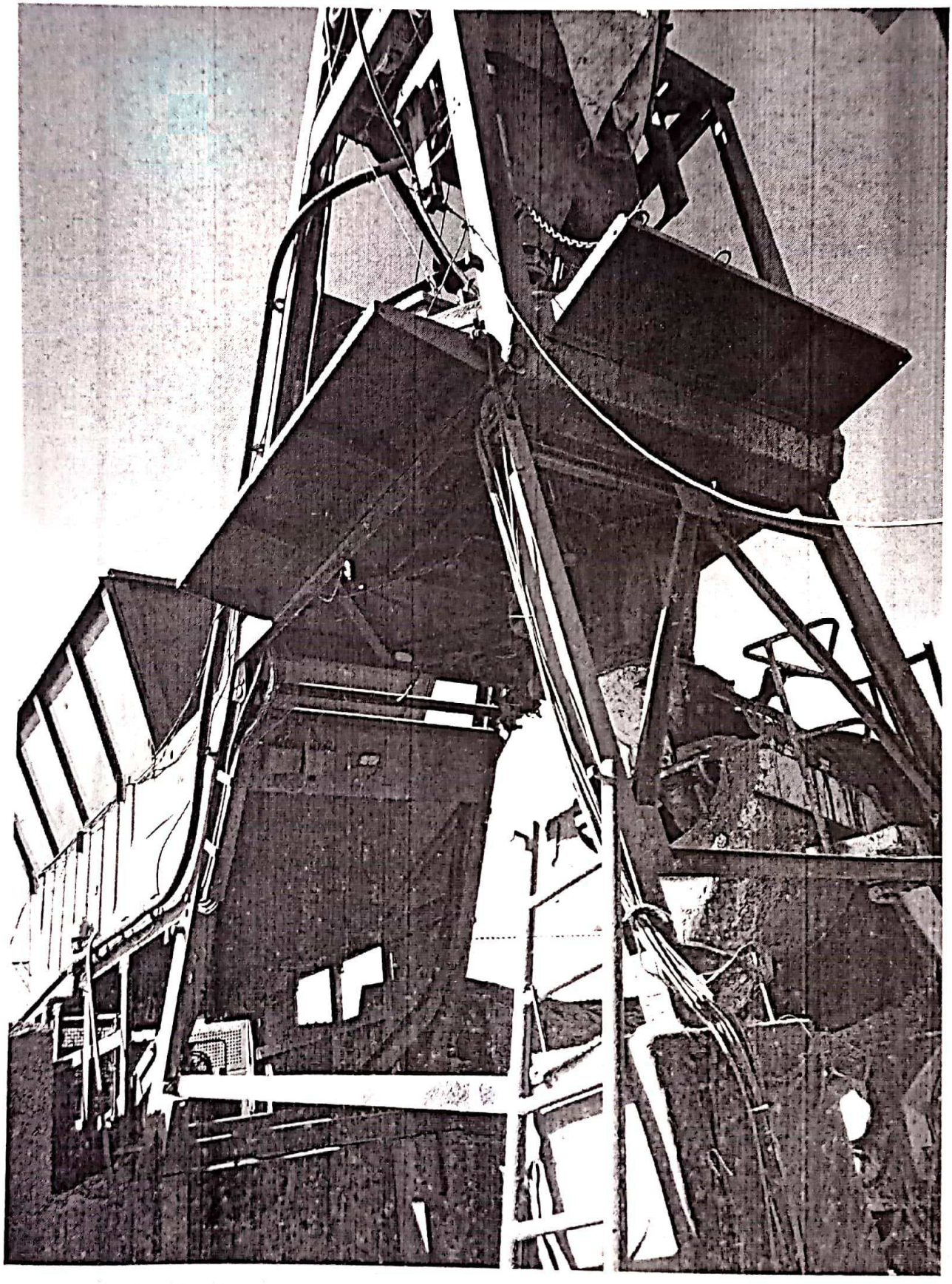
Scanned with CamScanner

To know the Blanketing in brief we visited the WMM (Wet Mix Macadum) plant and guided under the supervision of Hitesh Payghan sir. WMM is mixture of 60% murum and 40% fine aggregate and water control as per design requirement. These WMM plant consist of following parts Gathering Conveyor, Slinger Conveyor, load out conveyor, GOB hopper, VIB screen, MONO block, PUG mill, BIN-VIB.



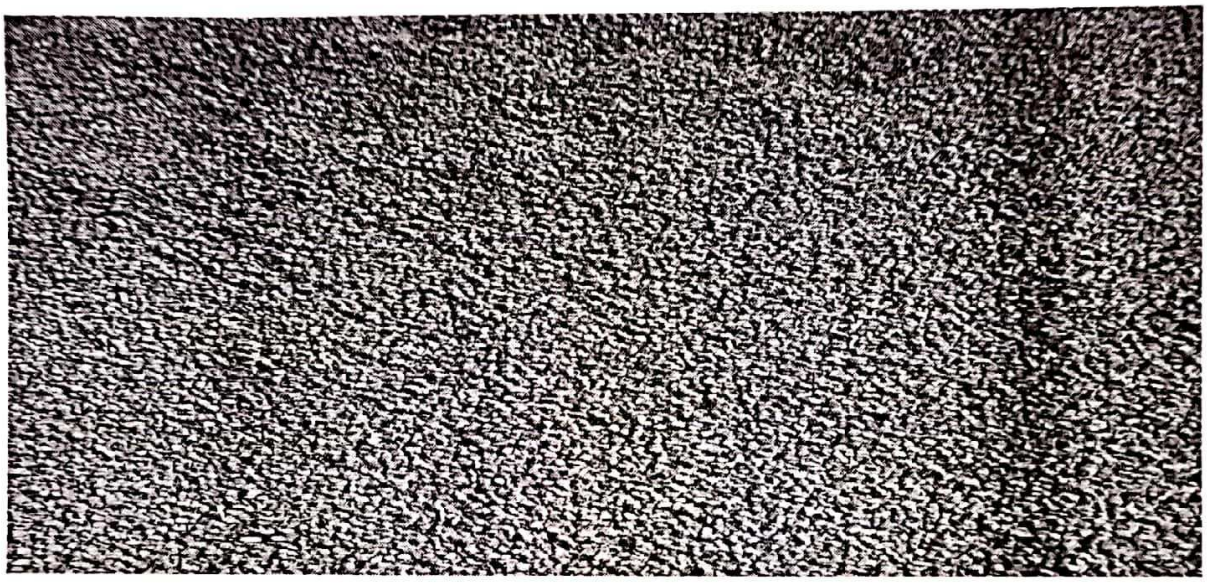
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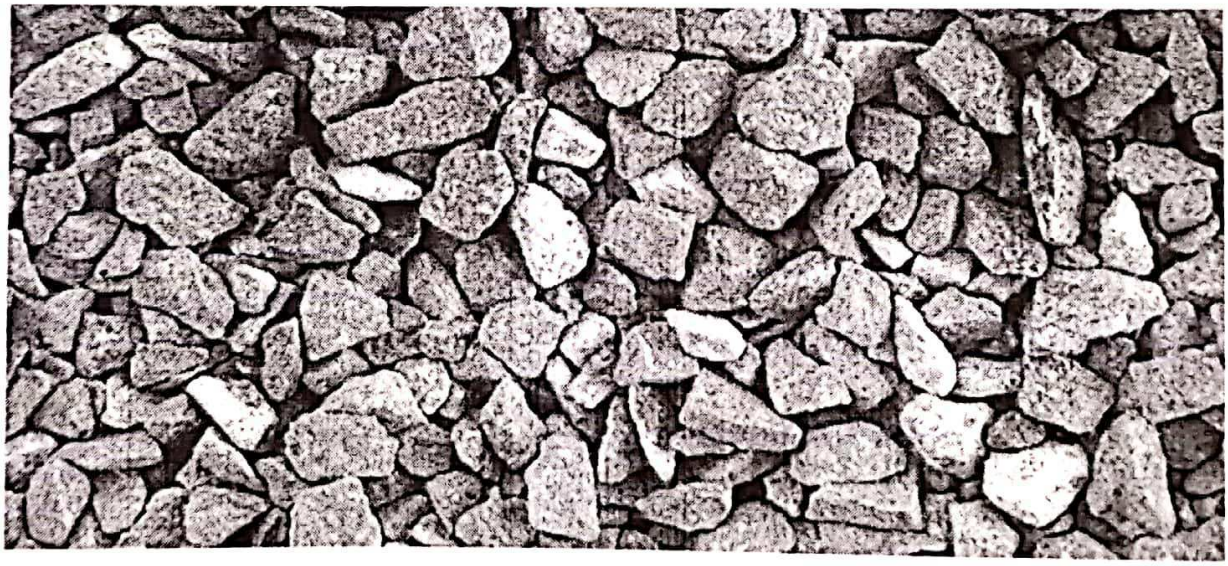
On next day we had visited RMC plant which is used for proportional mixing of concrete as per the design for Minor bridges. In RMC we are using cement sand aggregates water and some other chemicals if required for getting required strength in proper proportions.



Scanned with CamScanner

Aggrigates used are of two types sharp edged aggrigates and VSI aggrigates (are in rounded shape) for two sizes 10 and 20mm.we are using VSI aggrigates for RMC plant for getting more strength. Now a days ,crushed sand is used instead of sand due to its scarcity. Crushed sand have black colour having VSI type gives more strength as it has more holding capacity together to all materials.





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Precast concrete are the prestressed concretes to give the negative tensile strength to it, so that when compressive load will act on it. It will becomes negative or max to max zero to neutralize compressive load. Here we are using sleeper cells in railways in prestressed form to neutralize compressive load coming from rail. Sleeper cells are trapezoidal in shape. Sleepers provided for one rail length is known as sleeper density. Sleeper density for unit rail is given by,

Slipper density = N + X, (X- > 3 to 6)

Where, N = length of one rail = 12.8m

X = depends on type of gauge

Total number of sleepers required for 1Km length= (18/12.8)*1000

=1406 Sleepers



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To prevent the embankment from falling down while travelling of rail over the bridges, pile foundations are provided. Pile is inserted into the ground till hard strata is not reached. If hard strata is not get upto necessary depth then we have to use Friction pile foundation. In friction pile foundation we keep half of length above the ground with respect to a length which is below the ground.



Scanned with CamScanner

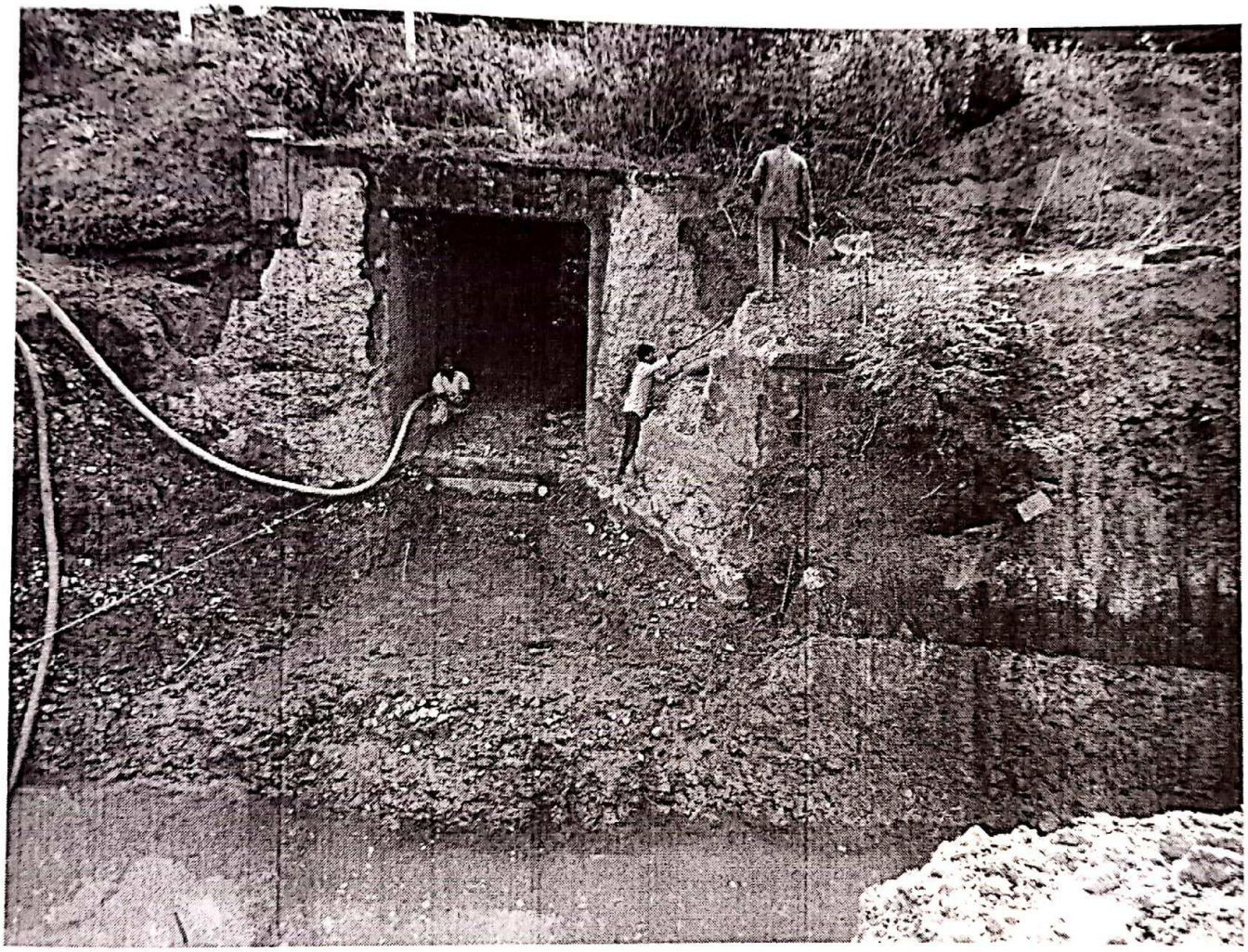
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PRECAUTIONS AGAINST ACCIDENTS:

Security of Labour s and engineer working on site is necessary in construction phase.so to prevent accidents on site the measures taken are as follow:

- Provide safety training
- hold safety meetings
- use protective equipments
- maintain the tools and equipments
- prevent falls
- keep the workplace clean
- Chemical splash googles
- Protective gloves

Guide line from contractor

1. Make list of various useful IS codes
2. Update softwere knowledge
3. Field knowledge
4. Application of theory part on field
5. Make theory part very clear

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❖ *CONCLUSION:-*

Field training is very good opportunity for trainee engineers. From training they get practical knowledge about the field, field problems, and remedial measures for such problems. For me this was very learning section in which I got knowledge about construction of elevated service reservoir. I have also learned management of resources.

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SVERI's
College of Engineering, Pandharpur

Department of Civil Engineering

Sponsored Project Record

A.Y.: 2018-19

SHRI VITHAL EDUCATION & RESEARCH INSTITUBE'S

COLLEGE OF ENGINEERING, PANDHARPUR.

Department of Civil Engineering

Acad. Year-2018-19 **Class-BE**

Sr. No.	Name of Student	Name of Guide	Sponsoring Company	Title of Project
1	HIPPARKAR HARIDAS RAMCHANDRA	Prof. S.J. Mohite	Sadguru Construction, Pandharpur	Replacement of cement by silica sand.
2	JAGTAP SURAJ KAKASAHEB			
3	MHETRE SHIVAJI SHASHIKANT			
4	NAVAGIRE OMKAR PRAKASH			
5	KAKADE VISHAWAJEET VIKAS	Prof. R S Sathe	Grampanchayat Gardi, Tal: Pandharpur	Partial replacement cement of plasting in Bituminash pavement.
6	JAGTAP SURAJ SANTOSH			
7	TONDASE MILIND VISHNU			
8	GURAV SHYAM SUBHASH			

(S.A. GOSAVI)
Project Co-ordinator

(Dr. P.M. Pawar)
HEAD, Civil Dept.

Dept. of Civil. Engg.
C.O.E. Pandharpur

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SADGURU CONSTRUCTION

Deals in Plan, Estimate, Interior Designers
4643/1 old karad road,Manisha Nagar,Guru Nanak Bhavan, Pandharpur
Contact: 9975427522,8999257747 Email Id: jitu.batra3@gmail.com

Date :- 21/3/2019

To,
HOD,
Civil Engineering Department.
College of Engineering,
Pandharpur.

Subject: -Letter of Appreciation for your final students.

Dear Sir,
We are happy to inform you that your following students have interacted our team and visited our sites at **Residential Banglow at Ambe**, Tal. Pandahrpur Dist. Solapur for doing their final year project titled **"Replacement of cement by silica sand"** during academic year 2018-19. The notable points of the projects are

1. Compressive strength increases with replacement level up to 12%.
2. Maximum Compressive strength is obtained 6% replacement level.
3. Increasing silica sand percentage decreasing the strength.

Name of students:

1. Mr. Shivaji Shashikant Mhetre
2. Mr. Haridas R. Hipparkar
3. Mr. Suraj Kakasaheb Jagtap

Sadguru Construction, Pandharpur
Prop. Jitu Laxman Batra
Lic.No LA/00037
Mob No 9975427522 / 9028710290

स्वच्छतेकडून समृध्दीकडे... स्थापना : ३/११/१९५१

ग्रामपंचायत, गार्डी

ता. पंढरपूर जि. सोलापूर



श्री. आर.एस.शिंगाडे
ग्रामसेवक

श्री.विजय जयवंत फाटे
उपसरपंच

सौ. पद्मिनी संभाजी कांबळे
सरपंच



दिनांक : 28 / 03 /2019

To,
The Head,
Engineering Department.
College of Engineering,
Pandharpur.

Subject: -Letter of Appreciation for your final students.

Dear Sir,

We are happy to inform you that your following students have interacted our team and visited our sites at **Construction of BT Road, at Grampanchayat Gardi**, Tal. Pandharpur, Dist.Solapur for doing their final year project titled **"An Experimental Investigation on The partial Replacement of Plastic in Bitumen for Flexible Pavement"** during academic year 2018-19. The notable points of the projects are,

1. The use of bitumen with addition of processed waste plastic of about 5 % by weight of bitumen.
2. Using the wet process with varying percentage of 7.5, 10, 12.5 and 15 of aggregate can be replaced by e-waste.
3. Process is environment friendly.

Name of students:

1. Mr. Milind V. Tondase
2. Mr. Vishwajit V. Kakade
3. Mr. Sham S. Gurav
4. Mr. Suraj S. Jagtap

ग्रामसेवक,
ग्रामपंचायत गार्डी
ता. पंढरपूर, जि. सोलापूर.

SVERI's
College of Engineering, Pandharpur

Department of Civil Engineering

B.E. Project Record

A.Y.: 2018-19

SHRI VITHAL EDUCATION & RESEARCH INSTITUTE'S

COLLEGE OF ENGINEERING, PANDHARPUR.

Department of Civil Engineering

Students List for Project work-I, Assessment of report on field training-II, Project work-II

Class: BE (Civil) **Academic Year 2018-19**

Sr. No.	Name of Student	Roll No.	Group No.	Project Title	Project Guide
1	/WAGHMODE TEJASVI DHONDIBA	14	BE-1	Prediction of Basin yeild using ANN Tool.	Prof. S.D. Jagdale
2	/THITE TRUPTI SOMNATH	13			
3	/THITE ANKITA ARJUN	12			
4	/KORAKE SWAPNALI KAILAS	6			
5	/KATKAR NAMRATA RAMKRISHNA	5			
6	/ITKAPALLE POOJA RAMESH	15			
7	/BARBOLE SAPANA RAMDAS	1	BE-2	Exp. Study of replacement of cement by Baggasse ash & steel fibre.	Prof. S.A. Gosavi
8	/BHOSALE MONIKA MADHUKAR	2			
9	/JADHAVAR NIKITA RAMESH	3			
10	/NAIKNAWARE DIPALI BHARAT	18			
11	/MOHITE ARTI AUDUMBAR	7			
12	MANGIRE ADESH SUNIL	37	BE-3	Best Input variable combination for the reservour capacity analisis	Prof. S.D. Jagdale
13	PURI ANIL ARJUN	43			
14	GADE DIPAK SHIVAJI	30			
15	AJURE SHUBHAM DILIP	27			
16	PAWAR BALU SIDRAM	41			
17	/JADHAV SARITA NARAYAN	21	BE-4	Exp. Study of replacement of cement by plastic waste.	Prof. S.A. Gosavi
18	/SARATAPE RUNALI GAJANAN	24			
19	/CHANDANSHIVE KOMAL SHAHAJI	25			
20	/HENDRE GEETA MAHADEV	26			
21	/WAGHAMARE RANI TRIMUKH	20			
22	/NAIKWADI ASHWINI BALIRAM	8	BE-5	Experimental study for compressive strength of ordinary concrete using destructive & non distructive testing.	Prof. A.B. Kokare
23	/PADAVALE PRIYANKA VITTHAL	9			
24	/PATIL SWATI DATTATRAY	10			
25	/SURYAWANSHI SMITA RAMDAS	11			
26	/JAWANJAL YADNYASENI JAYANT	4			
27	KADAM YOGESHWAR PRABHAKAR	33	BE-6	Study of perriount concrete pavement.	Prof. V.S. Kshirsagar
28	GAVHANE AKSHAY BALKRUSHNA	49			
29	HONMUTE KUNDAN GANPAT	32			
30	KASHID SAMADHAN HARISHCHANDRA	34			
31	BANGOSAVI VINAL RAJENDRA	28			
32	NIRMAL SANDIP BHAUSAHEB	40			
33	/SAPKAL ANJALI DATTATRAY	19	BE-7	Development of smart traffic system for pandharpur city by using ITS system.	Prof. C.R. Limkar
34	/LENGARE AMRUTA LAXMAN	16			
35	/GODASE YASHASHRI SADHAU	17			
36	/KAMBLE AKSHADA AVINASH	22			
37	/MADAKE BHAKTI SAMBHAJI	23			
38	HIPPARKAR HARIDAS RAMCHANDRA	56	BE-8	Replacement of cement by lilica sand.	Prof. S.J. Mohite
39	JAGTAP SURAJ KAKASAHEB	58			
40	MHETRE SHIVAJI SHASHIKANT	38			
41	NAVAGIRE OMKAR PRAKASH	50			
42	PAWAR SURAJ RAJENDRA	42	BE-9	Experimental behaviour of Neutralized red mud by replacing cement percentage.	Prof. M.S. Survase
43	GHADAGE GANESH SAHEBRAO	47			
44	RAUT DHANAJI ANKUSH	48			
45	CHAVAN ABHIJEET SHANKAR	54			
46	KUMBHAR VISHWANATH MAHADEV	35			

HEAD,
Dept. of Civil. Engg.
C.O.E. Pandharpur

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Sr. No.	Name of Student	Roll No.	Group No.	Project Title	Prject Guide
47	SAKHARE ABHISHEK UTTAM	44	BE-10	Improving water disribution tech in rural area. (Ankoli)	Prof. V.S. Kshirsagar
48	JADHAV RAVIKIRAN PANDURANG	57			
49	SALGUDE PRATIK NANDKUMAR	65			
50	KANADE RUTWIK AMAR	59			
51	KHUNE VAIBHAV BALASAHEB	60	BE-11	Eco-low flushing toilet.	Prof. C.R. Limkar
52	GAIKWAD DATTATRAYA MARUTI	31			
53	YEDAGE DINESH MADHUKAR	69			
54	CHOUDHARI SHUBHAM BHAGWAT	29			
55	CHAURE KHELA RAJENDRA	53			
56	MULGIR VIKAS PANDITRAO	63			
57	PAKHARE VINOD NANDKUMAR	64	BE-12	Interpretation of shear strength of fibre rinforced pond ash.	Prof. M.G. Deshmukh
58	SHINDE RUSHIKESH MAHENDRA	45			
59	SARGAR SURAJ HANUMANT	66			
60	UMBARE ABHAY UMAKANT	67			
61	WARAGADE SWAPNIL DATTATRAY	68	BE-13	Introduction to sisalfiber as a alternative material to plywood.	Prof. S.J. Mohite
62	KUMBHAR KRISHNA DINKAR	61			
63	BONDAR SUSHANT MADHUKAR	52			
64	EKATPURE PANKAJ ANIL	55			
65	MANE VIKAS POPAT	62			
66	KAKADE VISHAWAJEET VIKAS	73	BE-14	Partial replacement cement of plasting in Bituminash pavement .	Prof. R S Sathe
67	JAGTAP SURAJ SANTOSH	74			
68	TONDASE MILIND VISHNU	71			
69	GURAV SHYAM SUBHASH	75			
70	LOKHANDE ANIL LAXMAN	36	BE-15	Optimization technique for contilever beam.	Prof. S.A. Gosavi
71	PORE NILESH RAGHUNATH	51			
72	MORE KIRAN NANA	39			
73	VELAPURKAR PRAVIN SHYAM	70			
74	SHINDE NITIN BHARAT	72			
75	SHINDE DEVIDAS TANAJI	46			

(S.A. GOSAVI)
Project Co-ordinator

(Dr. P.M. Pawar)
H.O.D. Civil Dept.

HEAD,
Dept. of Civil. Engg.
C.O.E. Pandharpur

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SVERI's
College of Engineering, Pandharpur

Department of Civil Engineering

Mini-Project Record

A.Y.: 2018-19

SVERI's College of Engineering, Pandharpur

Civil Engineering Department

Mini Project

Class: TE-(Civil) A.Y.: 2018-2019

Shri Vithal Education & Research Institute's
COLLEGE OF ENGINEERING, PANDHARPUR
P.B.No.54, Gopalpur - Ranjani Road, Gopalpur, Pandharpur - 413304, **District**: Solapur (Maharashtra)
Tel.: (02186) 216063, 9503103757, **Toll Free No.**: 1800-3000-4131 **e-mail.**: coe@sveri.ac.in
Website.: www.sveri.ac.in (Approved by A.I.C.T.E., New Delhi and Affiliated to Solapur University, Solapur)
NBA Accredited all eligible UG Programmes, **NAAC** Accreditated Institute, ISO 9001:2015 Certified Institute.
Accredited by The Institution of Engineers (India), Kolkata and TCS, Pune.

Ref.:- COEPR/civil/2018-19/1826 Date:- 18/03/2019

प्रति,
मा. सरपंच साहेब,
ग्रामपंचायत, अनवली
ता. पंढरपूर जि. सोलापूर.

विषय:- भूमिगत गटार डीजाईन व पाणी पुरवठा योजनेचे डीजाईन या शालेय प्रकल्पाकरीता सर्वेक्षण करणे बाबत.

महोदय,

उपरोक्त विषयांकित संदर्भास अनुसरुन आपणास कळविण्यास आनंद होतो की, आमच्या महाविद्यालयातील स्थापत्य अभियांत्रिकी विभागातील विध्यार्थी त्यांच्या अभ्यासक्रमाचा भाग म्हणून आपल्या गावासाठी भूमिगत गटार डीजाईन व पाणी पुरवठा योजनेचे डीजाईन करू इच्छित आहेत. त्याकरिता आपल्या गावाचे सर्वेक्षण करण्यासाठी दिनांक १९ मार्च २०१९ रोजी येत आहेत तरी आपण त्या साठी परवानगी देवून सहकार्य करावे ही विनंती.

ग्रामपंचायत अनवली ता. पंढरपूर

कळावे,

आपला विश्वासु,

HEAD
Dept. of Civil. Engg
C.O.E. Pandharpur

(डॉ.पी.एम.पवार)
स्थापत्य विभाग प्रमुख

Shri Vithal Education & Research Institute's
COLLEGE OF ENGINEERING, PANDHARPUR
P.B.No.54, Gopalpur - Ranjani Road, Gopalpur, Pandharpur - 413304, **District**: Solapur (Maharashtra)
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Accredited by The Institution of Engineers (India), Kolkata and TCS, Pune.

Ref.:- COEPR/Civil/2018-19/1825 Date:- 18/03/2019

प्रति,
मा. सरपंच साहेब,
ग्रामपंचायत, आंबे
ता. पंढरपूर जि. सोलापूर.

विषय:- भूमिगत गटार डीजाईन व पाणी पुरवठा योजनेचे डीजाईन या शालेय प्रकल्पाकरीता सर्वेक्षण करणे बाबत.

महोदय,

उपरोक्त विषयांकित संदर्भास अनुसरुन आपणास कळविण्यास आनंद होतो की, आमच्या महाविद्यालयातील स्थापत्य अभियांत्रिकी विभागातील विध्यार्थी त्यांच्या अभ्यासक्रमाचा भाग म्हणून आपल्या गावासाठी भूमिगत गटार डीजाईन व पाणी पुरवठा योजनेचे डीजाईन करू इच्छित आहेत. त्याकरिता आपल्या गावाचे सर्वेक्षण करण्यासाठी दिनांक १९ मार्च २०१९ रोजी येत आहेत तरी आपण त्या साठी परवानगी देवून सहकार्य करावे ही विनंती.

कळावे,

आपला विश्वासु,

(डॉ.पी.एम.पवार)
स्थापत्य विभाग प्रमुख

HEAD,
Dept. of Civil. Engg
C.O.E. Pandharpur

सरपंच,
ग्रामपंचायत आंबे, ता. पंढरपूर.

Shri Vithal Education & Research Institute's
COLLEGE OF ENGINEERING, PANDHARPUR
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Accredited by The Institution of Engineers (India), Kolkata and TCS, Pune.

Ref.:- COEPR/civil/2018-19/1824 Date:- 18/03/2019

प्रति,
मा. सरपंच साहेब,
ग्रामपंचायत, मुंढेवाडी
ता. पंढरपूर जि. सोलापूर.

विषय:- भूमिगत गटार डीजाईन व पाणी पुरवठा योजनेचे डीजाईन या शालेय प्रकल्पाकरीता सर्वेक्षण करणे बाबत.

महोदय,

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कळावे,

आपला विश्वासु,

(डॉ.पी.एम.पवार)
स्थापत्य विभाग प्रमुख

HEAD,
Dept. of Civil. Engg.
C.O.E. Pandharpur

3,31 ६ ६११ ५७१
सरपंच,
ग्रामपंचायत मुंढेवाडी
ता. पंढरपूर, जि. सोलापूर

Shri Vithal Education & Research Institute's
COLLEGE OF ENGINEERING, PANDHARPUR
P.B.No.54, Gopalpur - Ranjani Road, Gopalpur, Pandharpur - 413304, District: Solapur (Maharashtra)
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(Approved by A.I.C.T.E., New Delhi and Affiliated to Solapur University, Solapur)
Accreditated by The Indian Institution of Engineers (India), Kolkata and TCS, Pune.
NAAC Accreditated Institute, NBA Accredited All UG Programmes,
ISO 9001:2008 Certified Institute.

Department of Civil Engineering

Date: 18/03/2019

Notice

As per Punyashlok Ahilyadevi Holkar Solapur University's curriculum of TE (Civil), a Mini Project task is assigned to all the TE (Civil) students. In the view of this engg surveys are to be conducted on 19/03/2019. The details of the tasks are as follow:

Sr. No.	Name of Village	Title of Mini Project	Batch No.	Name of Guides and Coordinator
1	Anawali	Survey for Design of Water supply and Sewerage system for Anawali Village	T1	Prof. Taralgatti P D, Prof. Patil S P Prof. Limkar C R
2	Ambe	Survey for Design of Water supply and Sewerage system for Ambe Village	T2	Prof. Kokare A B, Prof. Sathe R S, Prof. Bhaganagare P B
3	Mundhewadi	Survey for Design Water supply and Sewerage system for Mundhewadi Village	T3	Prof. Surwase M S, Prof. Jagdale S D Prof. Sule R H

All the concerned students and faculty members are hereby informed to take the note of the same and act accordingly.

Dr. P M Pawar
HOD

UNDERTAKING

Department of Civil Engineering

T.E.Civil

Academic Year-2018-2019

We the students of T.E. Civil going for site survey visit for sewerage system and water distribution system design, on 19/03/2019, we hereby are undertaking that, During this whole survey to and from journey, we commit that we all will follow the rules which are expected to be followed by student. Also, we will definitely follow and obey the instructions given by each teacher who are accompanying with us during whole journey. If any discrepancy or any odd event will be happened from our side then we are ready to accept the any type of punishment given by any teacher.

Roll No.	NAME OF STUDENT	Sign	Roll No.	NAME OF STUDENT	Sign
1	/BHISE KIRAN KISAN	K.K. Bhise	36	GAIKWAD PRASHANT MANIK	
2	/BHOSALE KAJAL BHARAT	Bhosale	37	GAWADE AJAY SANTOSH	
3	/CHIKMANE ANKITA ANIL		38	Gore Krishna Devidas	
4	/DAHIHANDE JYOTI GAURISHANKAR		39	GORE SUDHIR PARMESHWAR	
5	/DESHMUKH SNEHA SHIVAJIRAO		40	GURAV SANKET SHRIRANG	
6	/DESHMUKH SUSHAMA MAHADEV		41	HONMANE SAGAR SUDHESHWAR	
7	/DHUMAL HARSHADA PANDURANG	H.P.Dhumal	42	JADHAV VAIBHAV DEVIDAS	
8	/KAMBLE ASHWINI ARVIND		43	KADAM SHUBHAM SUNIL	
9	/KATE PRANITA ANAND		44	KADAM VIRAJ MARUTI	
10	/KUMBHAR ANJALI GANPAT		45	KALE VAIBHAV VASANT	
11	/MASAL AISHWARYA NILKHANT		46	KANGUDE YOGESH BALKRISHNA	
12	/PAREKAR MRUNALI BIRUDEV		47	LONDHE AVINASH RAJENDRA	
	/PATIL RUTUJA NAGESH		48	MALI PRATHAMESH KRISHANA	
14	/PAWALE SHRADDHA RAJENDRA		49	MULANI MOIN LATIF	
15	/PAWAR MRUNAL MADHUKAR		50	MULE AVINASH SITARAM	
16	/POLAS POOJA PRUSHOTTAM		51	NARSALE SUHAS JAYHIND	
17	/PUJARI PRIYANKA TUKARAM		52	PAWAR SAURABH BABAN	
18	/RONGE POOJA BABRUVAHAN		53	PAWAR SWAPNIL JITENDRA	
19	/SARVAGOD PRACHI JITENDRA		54	PUJARI HANAMANT SHRISHAIL	
20	/SHIKHARE SADHANA NAGNATH		55	SAWANT GAURAV VITTHAL	
21	/SHINDE PRIYADARSHANI RAVINDRA		56	SAWANT SHAILESH SHASHIKANT	
22	/TEKE MADHURI KISHOR		57	SHAIKH SHOAIB SALIM	
23	/WAGHMODE PRAJAKTA SOPAN		58	SHINDE GANESH MADAN	
24	/ZENDE PRIYA BRAMHADEO		59	SOUDAGAR PRASAD SHIVAJI	
25	/JAGTAP PRAGATI MITU		60	THENGAL ABHIJIT DATTATRAYA	
26	/DONGARE SHUBHANGI KANHOBARAO		61	WAGHAMODE ANANDA BALASAHEB	
27	/ THORAT AISHWARYA A.		62	Sarvade Akash Pandurang	

28	/SARTAPE PRANALI RAJENDRA		63	PUJARI PRAKASH RAJKUMAR	
29	/VIBHUTE JYOTI ASHOK		64	GADADE ABASAHEB DADASO	
30	ATKALE AKASH SHASHIKANT		65	GODASE SANDIP SUKHADEO	
31	BABAR GANESH SHANKAR		66	GUNDRE RAMDAS SANJIV	
32	BANDGAR SHUBHAM SHIVAJI		67	KULKARNI SHUBHAM RAJENDRA	
33	BHARTI SHRINIVAS VISHNU		68	PATIL PRASAD MANIKRAO	
34	Gadase Akash Sureshrao		69	KADAM SAGAR	
35	GAIKWAD KAPIL VIJAY		70	GAIKWAD PAWAN ANAND	
			71	Bhalekar Sagar	
	T1- 1 to 29			T2 - 30 to 50 T3- 50 to 71	

(Prof.C R Limkar)
Class Coordinator

(Dr. P. M. Pawar)
HOD Civil Engg

SHRI VITHAL EDUCATION & RESEARCH INSTITUTE'S

COLLEGE OF ENGINEERING, PANDHARPUR.

Department of Civil Engineering

Academic Year 2018-19 TE-II

Date:- 19-3-2019

Attendance for Site visit of survey to design sewerage system and water distribution system at Ambe.

Roll No.	NAME OF STUDENT	Sign
1	/BHISE KIRAN KISAN	
2	/BHOSALE KAJAL BHARAT	
3	/CHIKMANE ANKITA ANIL	
4	/DAHIHANDE JYOTI GAURISHANKAR	
5	/DESHMUKH SNEHA SHIVAJIRAO	
6	/DESHMUKH SUSHAMA MAHADEV	
7	/DHUMAL HARSHADA PANDURANG	
8	/KAMBLE ASHWINI ARVIND	
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10	/KUMBHAR ANJALI GANPAT	
11	/MASAL AISHWARYA NILKHANT	
12	/PAREKAR MRUNALI BIRUDEV	
13	/PATIL RUTUJA NAGESH	
14	/PAWALE SHRADDHA RAJENDRA	
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18	/RONGE POOJA BABRUVAHAN	
19	/SARVAGOD PRACHI JITENDRA	
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56	SAWANT SHAILESH SHASHIKANT	
57	SHAIKH SHOAIB SALIM	
58	SHINDE GANESH MADAN	
59	SOUDAGAR PRASAD SHIVAJI	
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65	GODASE SANDIP SUKHADEO	
66	GUNDRE RAMDAS SANJIV	
67	KULKARNI SHUBHAM RAJENDRA	
68	PATIL PRASAD MANIKRAO	
69	KADAM SAGAR	
70	GAIKWAD PAWAN ANAND	
71	Bhalekar Sagar	



संत गाडगेबाबा

॥ सत्यमेव जयते ॥ ॥ स्वच्छतेतून समृद्धी ॥

ग्रामपंचायत अनवली

ता. पंढरपूर जि. सोलापूर



संत तुकडोजी महाराज

सौ. सुनिता महादेव सुर्यवंशी

उपसरपंच, मोबा. ९९२१६३६४८१

जा.क.ग्रा.पं. अनवली

दि. १७/ ३ /२०१९

ग्रामपंचायत अनवली ता. पंढरपूर

प्रति,

मा. प्राचार्य,

अभियांत्रिकी महाविद्यालय,

मु. पो. गोपाळपुर ता. पंढरपूर

जि. सोलापूर – ४१३३०४

महोदय,

आपल्या महाविद्यालयातील स्थापत्य अभियांत्रिकी विभागातील विद्यार्थी व शिक्षकांनी आमच्या गावातील लोकांना भेटून खालील विषयावर समाज प्रबोधन व जन जागृती कार्यक्रम केला.

१)स्वच्छतेचे महत्व

२)पिण्याच्या शुद्ध पाण्याचे महत्व

३)सांडपाण्याचे सुनियोजन

४)भाभा अनुसंधान केंद्र मुबाई, येथील विविध शेती उपयोगी उपकरणांची माहिती.

५)मुलींच्या शिक्षणाचे महत्व

त्याबद्दल आम्ही आमच्या गावा तर्फे आपले मनपूर्वक आभार मानतो. आपले असेच सहकार्य भविष्यात मिळावे हि विनंती.

कळावे.

आपला विश्वासू

स्वच्छतेकडून समृद्धीकडे... स्थापना - १९५८

ग्रामपंचायत, आंबे
ता. पंढरपूर जि. सोलापूर

दिनांक १९/०३/२०१९
जा.क्र. २०१९/०३१६६

प्रति,
मा. प्राचार्य,
अभियांत्रिकी महाविद्यालय,
मु. पो. गोपाळपूर ता. पंढरपूर
जि. सोलापूर - ४१३३०४.

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4. भाभा अनुसंधान केंद मुंबई, येथील विविध शेती उपयोगी उपकरणांची माहिती.
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त्याबद्दल आम्ही आमच्या गावातर्फे आपले मनपूर्वक आभार मानतो. आपले असेच सहकार्य भविष्यात मिळावे ही विनंती.

कळावे,

आपला विश्वासु,

सरपंच,
ग्रामपंचायत आंबे, ता. पंढरपूर.

स्थापना : १९६६ " तंटा मुक्त गांव " " निर्मल ग्राम "

ग्रामपंचायत मुंढेवाडी

ता. पंढरपूर, जि. सोलापूर

आर. जे. सय्यद
ग्रामसेवक

धोंडीराम श्रीमंत मोरे
उपसरपंच

सौ. उज्वला अशोक घाडगे
सरपंच

जावक क्र. :-

दिनांक :- १९/०३/२०१९

प्रति,
मा. प्राचार्य,
अभियांत्रिकी महाविद्यालय,
मु. पो. गोपाळपूर ता. पंढरपूर
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कळावे,

आपला विश्वासु,

उज्वला घाडगे

सरपंच,
ग्रामपंचायत मुंढेवाडी
ता. पंढरपूर, जि. सोलापूर.

SVERI's
College of Engineering, Pandharpur

Department of Civil Engineering

Sample Project Report

A.Y.: 2018-19

A

PROJECT REPORT

ON

"OPTIMIZATION TECHNIQUES FOR CANTILEVER BEAM"

Submitted in partial fulfilment of the requirement

For the award of the degree of

Bachelor of Engineering

In

Civil Engineering

from

Punyashlok Ahilyadevi Holkar Solapur University,Solapur

By

Pravin Shyam Velapurkar	Roll No 70
Nilesh Raghunath Pore	Roll No 51
Nitin Bharat Shinde	Roll No 72
Anil Laxman Lokhande	Roll No 36
Devidas Tanaji Shinde	Roll No 46
Kiran Nana More	Roll No 39

Under the Guidance of

Prof. Gosavi S.A.

SVERI

DEPARTMENT OF CIVIL ENGINEERING

SVERI's COLLEGE OF ENGINEERINGPANDHARPUR

2018-19

A

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DEPARTMENT OF CIVIL ENGINEERING

SVERI's COLLEGE OF ENGINEERINGPANDHARPUR

2018-19

SVERI

SVERI's COLLEGE OF ENGINEERING, PANDHARPUR.

CERTIFICATE

This is to certify that the project entitled

"OPTIMIZATION TECHNIQUES FOR CANTILEVER BEAM "

Has been submitted by...

Pravin Shyam Velapurkar	**Roll No 70**
Nilesh Raghunath Pore	**Roll No 51**
Nitin Bharat Shinde	**Roll No 72**
Anil Laxman Lokhande	**Roll No 36**
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For partial fulfillment of Bachelor Degree in Civil Engineering as per curriculum laid by the Punyashlok Ahilyadevi Holkar Solapur University, Solapur

during the academic year 2018-2019

(Prof. Gosavi S.A.)	**(DR. P. M. Pawar)**	**(DR. B. P. RONGE)**
(GUIDE)	**(H.O.D)**	**(PRINCIPAL)**

EXTERNAL EXAMINER

DECLARATION

We the undersigned have submitted the report for the proposed work entitled **"OPTIMIZATION TECHNIQUES FOR CANTILEVER BEAM"** and declare that we have submitted the report after thorough study and is not copied from some source.

Pravin Shyam Velapurkar (70)

Nilesh Raghunath Pore(51)

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Kiran Nana More(39)

AKNOWLEDGEMENT

This work is just not an individual contribution till its completion. We take this opportunity to thank all for bringing it close to the conclusion.

First of all, we thank **DR. P. M. PAWAR, Head, CIVIL Engineering Department**, for accepting our studentship, continuously assessing our work and providing great guidance by timely suggestions and discussions at every stage of this work.

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We sincerely thank to **Dr. B. P. Ronge, Principal, SVERI's COE, Pandharpur** for the encouragement given by him.

Last but not least we are thankful to my all student friends and all those who directly or indirectly encouraged us throughout this project work.

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Nitin Bharat Shinde(72)

Anil Laxman Lokhande(36)

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Kiran Nana More(39)

Abstract

Optimization is the process of selecting the best possible results among many possible results under given circumstances. The governing idea is to reduce the mass of the beam for a given strength. The cross section under consideration is a rectangular one. This involves creation of the geometry through a parametric study of all design variables. For this purpose, the optimization of the cantilever beam was elaborated in order to find the optimum geometry which minimizes its volume eventually for minimum weight. So for optimum safe design, besides minimum volume it should have minimum vibration as well.

This paper demonstrates an application of the genetic algorithms to the design of reinforced concrete cantilever beam. Cost optimization of reinforced concrete cantilever beam is carried out to get the most economical concrete section and the reinforcements at user specified intervals. Genetic algorithm is used to find out the depth, the number and diameter of bars and the diameter and spacing of stirrups. A program is created based on genetic algorithm to carry out the design. The loading conditions considered are uniformly distributed load in the full span of the beam. Design constraints for the optimization are considered according to the Indian Standard specifications. The program requires the user to input design parameters like the grade of concrete and steel, the design live loads, both uniformly distributed load, the cover required and the number of sections at which the beam has to be analyzed. The width of the beam also need to be given as input to the program.

This thesis aims to contribute to the reduction of the significant gap between the stateof-the-art of structural design optimization in research and its practical application in the building industry. The research has focused on structural topology optimization, investigating three distinct methods through the common example of bracing design for lateral stability of steel building frameworks. The research objective has been aided by collaboration with structural designers at Arup. It is shown how Evolutionary Structural Optimization can be adapted to improve applicability to practical bracing design problems by considering symmetry constraints, rules for element removal and addition, as well as the definition of element groups to enable inclusion of aesthetic requirements. Size optimization is added in the optimization method to improve global optimality of solutions.

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1. INTRODUCTION

The objective of shape optimization is to find the shape which is optimal in the sense that of the it minimizes a certain cost functional while satisfying given constraints. Analytical methods for solving shape optimization problems have been used for a long time. The first known attempt at developing a mathematical formulation for shape optimization dates back to Galileo in 1638, who found that minimum weight cantilever is a parabolic beam. Use of numerical methods for shape optimization became main interest of scientists in this field after the invention of computers, In last 40 years a lot of progresses have been made in this field .In the previous chapters, we discussed how to model uncertainty by probability theory. We also introduced commonly used uncertainty analysis techniques for quantifying the impact of the uncertainty of model input on the model output (performance). Our ultimate goal is to use the knowledge we have gained from uncertainty analysis to manage and mitigate the effects of uncertainty at the design level.

Therefore, we can ensure that a design be robust and safe against various uncertainties. The commonly used probabilistic design methodologies include reliability-based design, robust design, and Design for Six Sigma. Since all of these methods need to use optimization during the design process, a brief introduction to optimization design will be given in this chapter. We will then discuss reliability-based design and robust design in Chapters and respectively. Instead of providing a comprehensive presentation of optimization design techniques, this chapter is intended to present introductory materials about optimization design. It willensure a reader acquire basic working knowledge that is necessary for optimization modeling, the use of optimization software, and the analysis of optimization results. To help one easily understand the optimization techniques, a graphical means is employed in some cases instead of providing mathematical details. After finishing this chapter and associated homework, one is expected to be able to formulate an engineering optimization problem and solve it with optimization software.

1.1 HISTORY OF OPTIMIZATION TECHIQUE

Optimization is a design tool that assists designers automatically to identify the optimal design from a number of possible options, or even from an infinite set of options. Optimization design is increasingly applied in industry since it provides engineers a cheap and flexible means to identify optimal designs before physical deployment. Optimization capabilities have also been increasingly integrated with CAD/CAM/CAE software such as Adams, Nastran, and Opti Struct. Even in our daily life, we are constantly optimizing our goals (objectives) within the limit of our resources. For example, we may minimize our expenditure or maximize our saving while maintaining a certain living level. When shopping for a car, we may try to meet our preference (performance of the car, safety, fuel economy, etc.) maximally on the condition that the price does not exceed what we can afford. It is the same case in engineering design where we optimize performances of the product while meet all the design requirements. Great strides have been made during the past decade in computer-aided design (CAD) and computer aided engineering

(CAE) tools for mechanical system development. Discipline-oriented simulation capabilities in structures, mechanical system dynamics, aerodynamics, control systems, and numerous related fields are now being used to support a broad range of mechanical system design applications. Integration of these tools to create a robust simulation-based design capability, however, remains a challenge. Based on their extensive survey of the automotive industry in the mid-1980s, Clark and Fujimoto2 concluded that simulation tools in support of vehicle development were on the horizon but not yet ready for pervasive application. The explosion in computer, software, and modeling and simulation technology that has occurred since the mid-1980s suggests that high-fidelity tools for simulation-based design are now at hand.

2.CONCEPT OF OPTIMIZATION TECHNIQUES

2.1 DEFINITION

Optimization is a design tool that assists to identify the optimal design. Choosing the best element from some set of alternatives available. It is a processing of making optimum design. It provides engineers a cheap and flexible means to identify optimal designs before physical deployment.

2.2DESCRIPTION

The objective of shape optimization is to find the shape which is optimal in the sense that it minimizes a certain cost functional while satisfying given constraints. Analytical methods for solving shape optimization problems have been used for a long time. The first known attempt at developing a mathematical formulation for shape optimization dates back to Galileo in 1638, who found that minimum weight cantilever is a parabolic beam. Use of numerical methods for shape optimization became main interest of scientists in this field after the invention of computers, In last 40 years a lot of progresses accurate structural and design sensitivity analysis, and an efficient mathematical programming algorithm.

A design engineer simplifies the physical engineering problem into a mathematical model that canre present the physical problem up to the desired level of accuracy. A mathematical model has parameters that are related to the system parameters of the physical problem. A design engineer identifies those design variables to be used during the design process. *Design parameterization*, which allows the design engineer to define the geometric properties for each design component of the structural system being designed, is one of the most important steps in the structural design process. The principal role of design parameterization is to define the geometric parameters that characterize the structural model and to collect a subset of the geometric parameters as design variables. Design parameterization forces engineering eams in design, analysis, and manufacturing to interact at an early design stage, and support sa unified design variable set to be used as the common ground to carry out all analysis, design, and manufacturing processes. Only proper design parameterization will yield a good optimum

design, since the optimization algorithm will search within a design space that is defined for the design problem.

The design space is defined by the type, number, and range of design variables. Depending on whether it is a concept or detailed design, selected design variables could be non-CAD based parameters. An example of such a design variable is a tire's stiffness characteristic in vehicle dynamics during an early vehicle design stage.

2.3OPTIMIZATIN SYSTEM

Optimization is a process of selecting the best possible results among many possible results under given circumstances. Mathematically it is finding the global maxima or minima of a function. Structural Optimization is applying optimization to conventional design process to get best possible value for design variables based on certain criteria. In the simplest case it is the process of selection of materials and geometry which satisfy specified and implied functional requirements while remaining within the confines of inherently unavoidable limitations.

In this time of advancement and development, everything comes at a cost. Today, all organizations look at reducing liabilities and improving their profit margin. The concept of 'A penny saved is a penny earned' is the guideline that serves validly today. Time is also weighed in gold today. Thereby it requires a miser's attitude to achieve results by keeping a tab on both of the above parameters which remain vital pillars

behind any engineering work. Hence arrives the need for optimization. This paper explores various tools used for optimization. All methods are carried out on a cantilever beam of rectangular cross-section.

many traditional optimization algorithms have been widely used in model parameter identification. These methods usually have their own limitations such as local convergence, inefficiency and easy to get into the local best. So, more attention should be taken to modern optimization methods for better solving capability. In the simulation section of this paper, an optimization algorithm with better convergence and global optimization functionality, which is named Modified Genetic Algorithm (MGA), is proposed by using self-adaptive strategy.

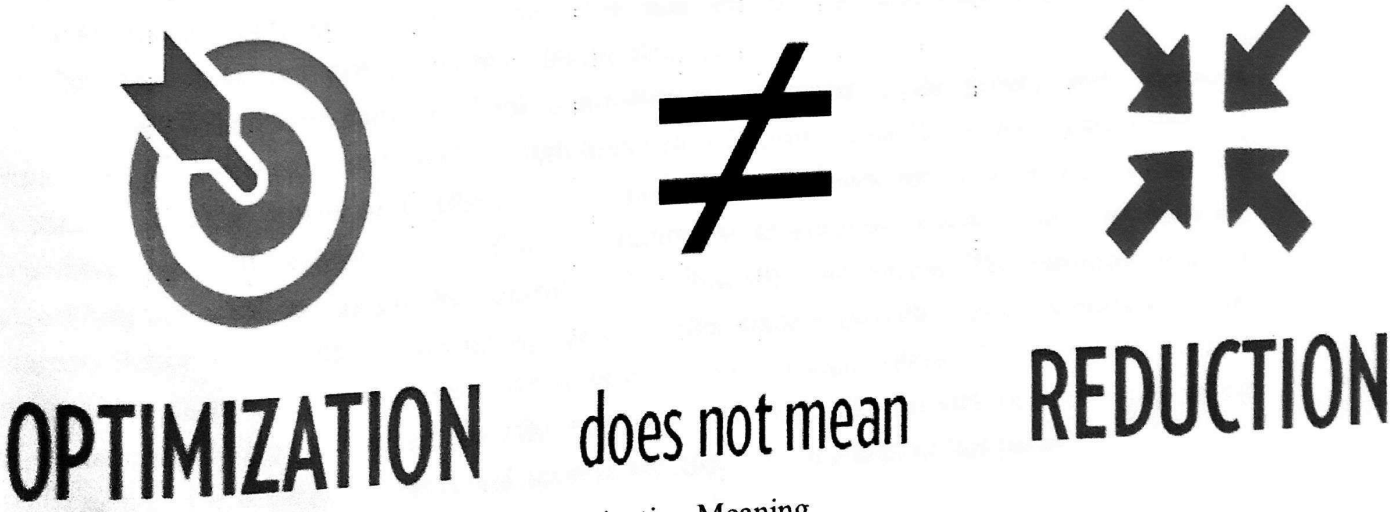


Fig. Optimization Meaning

2.4 FEATURES

Engineering structures/plants with flexible parts are usually associated with inherent vibration properties. The nature and extent of this vibration depend on the type of the structure and its mountings. These vibration problems become more prominent when the structure is placed on a relatively flexible base or then there is a considerable amount of movement within the plant. Vibration control of these engineering structures is essential for their proper operation and long life cycle. A considerable amount of research work has been done in this area This paper presents an investigation into simulation and vibration control of a cantilever beam system; and it presents an effective vibration cancellation of the structure using single or multiple control actuators and observation sensors. A cantilever beam system is considered because it is used in a number of flexible structures such as aircraft wings and space structures. Due to the distributed nature of the governing equation describing structural dynamics, control of flexible structures involves a very complex process. It is important initially to recognize the flexible nature of the beam, construct a mathematical model for the system and account for interactions with disturbances. The commonly used method, for numerically solving the systems governing equation, is based on finite elements (FE) and finite difference (FD). The computational complexity and consequent software coding is a major disadvantage of this technique, especially in real time system applications As FD method is generally found to be more appropriate, it is used in this paper. A reduced order model with the first few dominant modes is developed to implement the modal controller. For the implementation of the modal controller, a Kalman-Bucy filter state observer is used to estimate the state vector, which is not measured through, Several interesting control application areas, which adopt PSO algorithm, have recently been proposed by researchers in automatic generation control tunin, design of controllers,adaptive inverse control predictive control, , PI and PID controllers and ultrasonic motor control.

In this paper, PSO is adopted for the vibration cancellation problem because of its proved simplicity and performance in different applications. Neither expensive computations nor specialized methods are needed. However, this research paper found that PSO outperforms random search throughout and at the end of the search process as it shows a better convergence behavior and over-fitting avoidance. This result indicates that PSO can work as any-time method for the vibration suppression problem of flexile structures.

In addition, PSO based-state feedback controller, as compared to the general state feedback controller, performs extremely well in high dimensional optimization problems. Consequently, it is used to find the proper and effective state feedback parameters and remove the tedious and repetitive trial and error process of using traditional techniques. Evolutionary optimization algorithms are used to design the controller for vibration cancellation. The proposed method operates better in the aspect of designing the controller since it provides ample opportunities for designers to choose the most appropriate point based upon design criteria. The simulation results of the beam system behavior and the effectiveness of the controller on vibration reduction using single or multiple control actuators and sensors are important features of this paper.

2.5 DESIGN AND INSTALLATION CONSIDERATION

Design sensitivity analysis is used to compute the sensitivity of performance measures with respect to design variables. This is one of the most expensive and complicated procedures in the structural optimization process. Structural design sensitivity analysis is concerned with the relationship between design variables available to the engineer and the structural response determined by the laws of mechanics. Design sensitivity information provides a quantitative estimate of desirable design change, even if a systematic design optimization method is not used. Based on the design sensitivity results, a design engineer can decide on the direction and amount of design change needed to improve the performance.
measures. In addition, design sensitivity information can provide answers to "what if" questions by predicting performance measure perturbations when the perturbations of design variables are provided. Substantial literature has emerged in the field of structural design sensitivity analysis.4 Design sensitivity analysis of structural systems and machine components has emerged as a much-needed design tool, not only because of its role in optimization algorithms but also because design sensitivity information can be used in a computer-aided engineering environment for early product trade-off in a concurrent design For the purposes of design optimization, a mathematical programming technique is often used to find an optimum design that can best improve the cost function within a feasible region. Mathematical programming generates a set of design variables that require performance values from structural analysis and sensitivity information from design sensitivity analysis to find an optimum design. Thus, the structural model has to be updated for a different set of design variables supplied by mathematical programming. If the cost function reaches a minimum with all constraint requirements satisfied, then an optimum design is obtained.

2.6 TECHNICAL DESIGN

In case of cantilever beam for optimal design we consider, one ratio called as "Aspect Ratio". For calculating this aspect ratio required width and depth of respective beam section. For decide area of cantilever beam section and aspect ratio relation , following table must be consider.

TABLE ON DESIGN VARIABLES

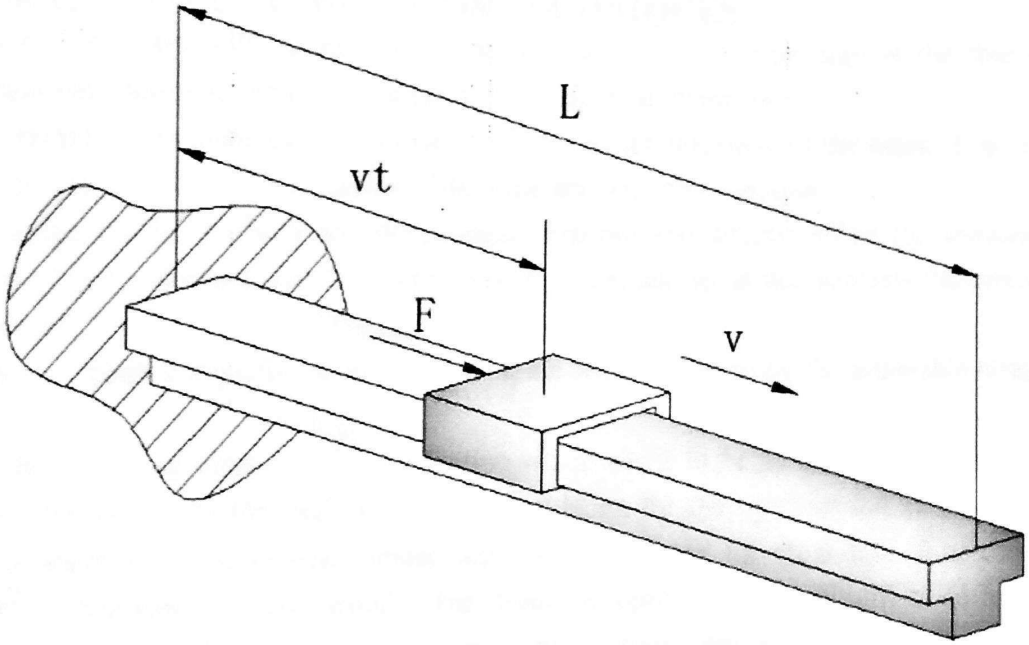
SR. NO	DESIGN VARIABLES	ASPECT RATIO
1.	B=0.23,d=0.57	0.40
2.	B=0.23,d=0.46	0.50
3.	B=0.23,d=0.38	0.60
4.	B=0.23,d=0.33	0.70

2.7 PROBLEM CONSIDERATION

It is obvious that a smaller deflection is obtained by a larger amount of material. Hence, due to the importance of the weight of the structural material from an economical point of view, it would be more advantageous if one defines an optimization problem which aims minimizing the weight of the structure simultaneously with minimizing the deflection. This will obviously be a multi-objective optimization problem, where the deflection and weight are kind of conflicting global functions. Amongst the several optimization methods there are a few which are more suitable for solving a multi-objective optimization problem with a large number of design variables and a relatively few number of constraints, which is the case in the structural topology optimization problem. Walker and Kumar have tackled complex multi-objective optimization problems by scalar sing the multiple objective functions into a single objective using a weight vector. A disadvantage of this approach is that the resulting optimal lamination scheme depends on the chosen weight vector. In general, a multi-objective optimization algorithm yields a set of optimal solutions, instead of a single optimal solution.

The reason for the optimality of many solutions is that no one solution can be considered better than any other with respect to the objective functions. These optimal solutions are known as Pareto-optimal solutions. Deb [has tried to solve the multi-objective optimization problems by using a fast and elitist multi-objective genetic algorithm (NSGA-II). The primary goals of a multi-criteria optimization algorithm are to guide the search towards the global Pareto-optimal front and to maintain population diversity in the Pareto-optimal solutions. In the present paper,

an improved methodology for the multi-objective optimization of cantilever beam structure. A modified form of multi-objective genetic algorithm, based on the elitist non-dominated sorting genetic algorithm (NSGA-II), is implemented to obtain Pareto-optimal designs for the chosen conflicting objectives. It explores the optimal design of a cantilever beam for minimization of weight and deflection, with the constraint that the developed maximum stress
random search throughout and at the end of the search process as it shows a better convergence behavior and over-fitting avoidance. This result indicates that PSO can work as any-time method for the vibration suppression problem of flexile structures. In addition, PSO based-state feedback controller, as compared to the general state feedback controller, performs extremely well in high dimensional optimization problems. Consequently, it is used to find the proper and effective state feedback parameters and remove the tedious and repetitive trial and error process of using traditional techniques. Evolutionary optimization algorithms are used to design the controller for vibration cancellation. The proposed method operates better in the aspect of designing the controller since it provides ample opportunities for designers to choose the most appropriate point based upon design criteria. The simulation results of the beam system behavior and the effectiveness of the controller on vibration reduction using single or multiple control actuators and sensors are important features of this paper.



3. MATERIALS

The objective of this paper is to obtain an optimal cross section parameters of a cantilever I beam subjected to static load considering weight minimization. Finite element method in conjunction with optimization algorithm is used to analyses the effect cross sectional geometrical parameters such as (top and bottom flange width, height of the beam) and state variables such as (total equivalent stress) on the beam weight. Commercial finite element software (ANSYS) is used to simulate the cantilever I beam subjected to a static load at its end, then perform a series of optimization iteration in order to obtain the optimal design parameters for a selected objective function (beam mass). In this study, the objective function is the minimum beam weight. The

beam is made of A36 steel. The goal of the simulation and optimization process is to optimize the cross section parameters to withstand the exerted load yet with minimum material keeping the total equivalent stress just below the maximum yield stress. The optimal geometrical parameters of the cross sectional I beam made of A36 steel are obtained after several optimization iterations. The approach used in this study could be extended to optimize more complicated geometry and material.

3.1 CONCRETE MATERIALS

1. Cement=300kg/cu. m
2. Water content=140 lit/cu. m.
3. Water cement ratio=0.45
4. Fine aggregate=927kg/cu. m.
5. Coarse aggregate=1134kg/cu. m.(10mm&20mmsize)

4.WORKING OF OPTIMIZATION TECHNIQUES

1.A cantilever beam with uniform cross section subjected to point load at the free end has maximum and minimum bending stresses at fixed and free respectively.

2. The weight of the beam can be reduced by tailoring the thickness of the beam. It is necessary to find the cross-sectional dimensions of the state and objective variables.

3. To design variables which are independent variables and directly affect the solution of the problem. State variable is the first dependent variable, and so in this analysis maximum stress was defined.

4. Since the primary objective is to reduce volume without exceeding the allowable stress in the beam.

5. This is the one variable in the optimization which needs to be minimized , beam in order to minimize the weight.In the multi-objective formulation for the optimization of beam problem, Let us consider a cantilever bean whose one end is fixed and the cross-section of the beam is circular of diameter „d" and length. The beam is optimized for minimum deflection and minimum weight under constraints on maximum stress and maximum deflection Figure schematic diagram of cantilever beam.

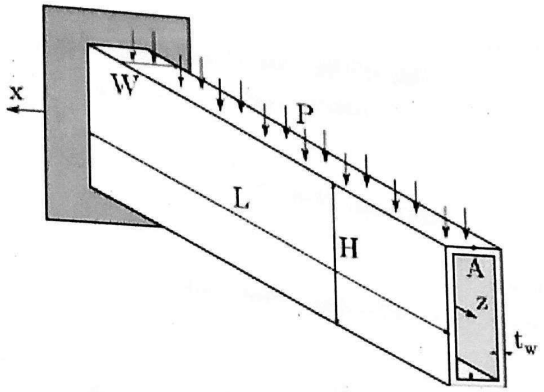


Fig. Conventional types of cantilever beam

4.1 COMPARISION BETWEEN CONVENTIONAL AND OPTIMIZED BEAM

The results of this standard engineering multi-objective optimization problem were compared with those obtained by the proposed algorithm. Fig. The cost optimization of the beam with respect to its length and width using differential algorithm was carried out in STADD Pro software. The results are found out and are tabulated in the table and further represented in the graph. The optimized value is modelled and simulated on ANSYS tool. This simulation is represented by a graph where beam optimization is done. Optimized value for SF &BM is arrived in between aspect ratio of 0.5-0.6 .because; the less variation in this both respective values is observed during the analysis.

Table No 1

A.R.	BM	SF
0.3	106.696	43.25
0.4	101.12	40.445
0.5	93.66	37.844
0.6	88.242	35.296
0.7	84.854	33.942

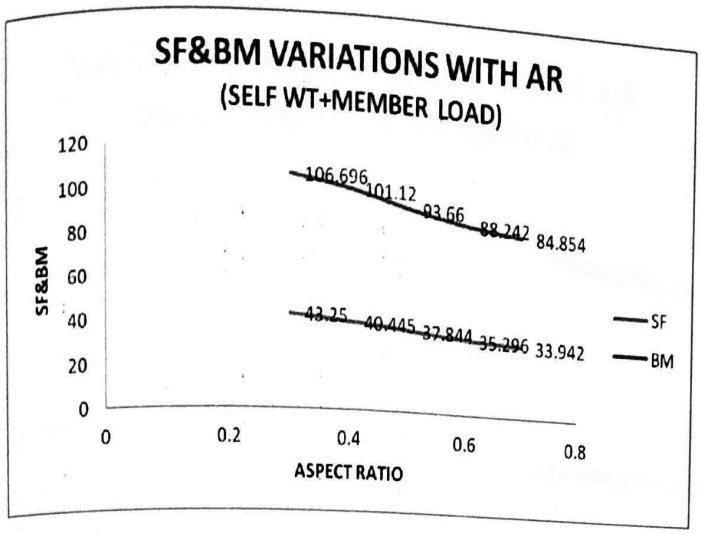


Fig.1

Observation

- In above graph , relation in between shear force and bending moment with aspect ratio is observed.
- Maximum bending moment and maximum shear force is 43.25KN.m &106.96KN respectively.
- Relation in obtained in shear force and bending moment is ,Shear force =bending moments*2.5

To find out optimum shear force and bending moments , following Fig. 1.1 should be consider,

Table 1.1

AR	SF	BM
0.6	88.241	35.296
0.55	90.94	36.47
0.5	93.66	37.844

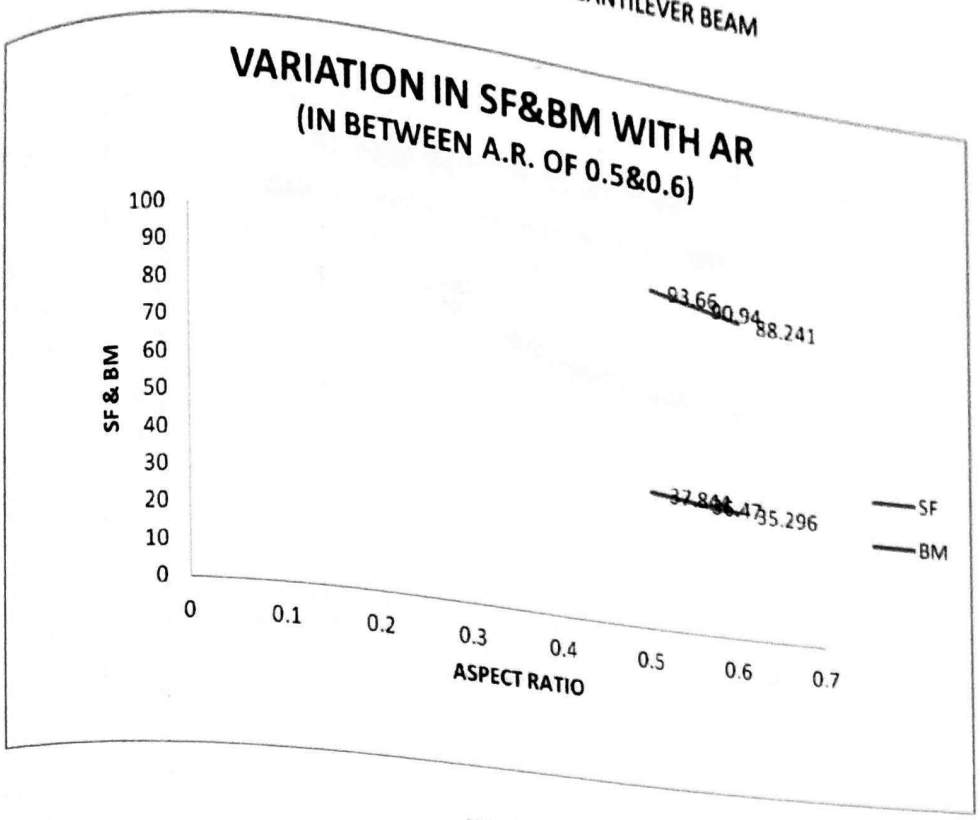


Fig.1.1

Observation

- In above graph , relation in between shear force and bending moment with aspect ratio In between 0.5&0.6 is observed.
- Optimum bending moment and maximum shear force is 36.47KN.m & 90.94 KN respectively.

Table 2

A.R.	SF	BM
0.3	18.369	18.396
0.4	16.178	16.178
0.5	14.986	14.986
0.6	14.119	14.119
0.7	13.577	13.577

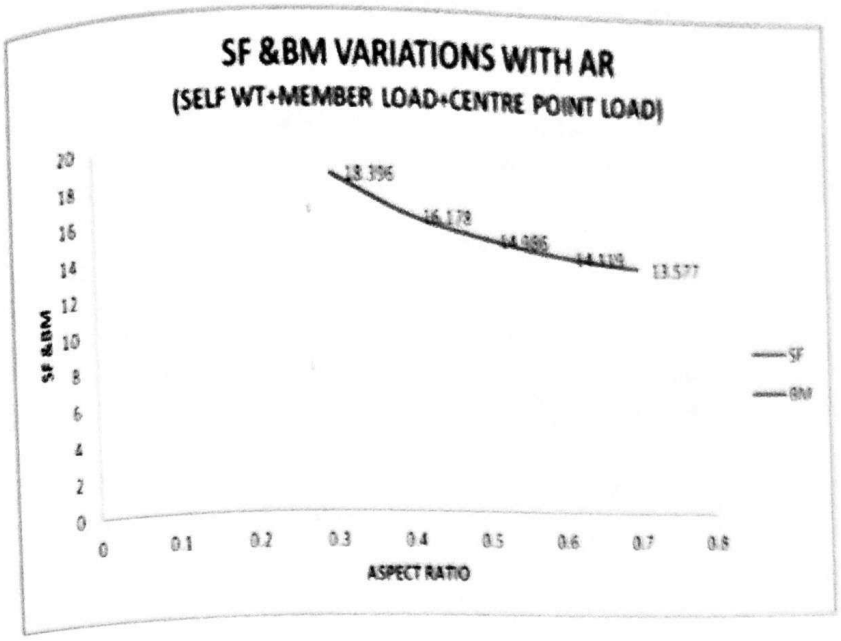


Fig.2

Observation

- In above graph , relation in between shear force and bending moment with aspect ratio is observed.
- Maximum bending moment and maximum shear force is 18.396KN.m & 18.396KN respectively.
- Relation in obtained in shear force and bending moment is ,Shear force =bending moment*1

To find out optimum shear force and bending moments , following Fig. 2.1 should be consider.

Table 2.1

AR	SF	BM
0.6	14.119	14.119
0.55	14.53	14.53

0.5	14.986	14.986

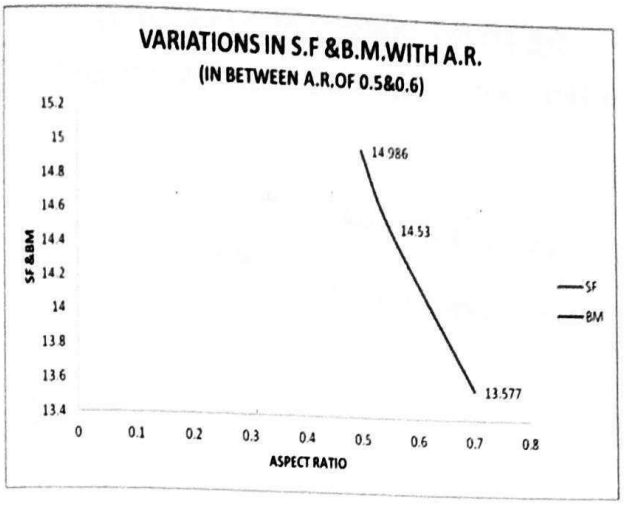


Fig.2.1

observation

- In above graph , relation in between shear force and bending moment with aspect ratio In between 0.5&0.6 is observed.
- Optimum bending moment and maximum shear force is14.53 KN.m & 14.53 KN respectively

Table 3

A.R.	SF	BM
0.3	24.557	30.121
0.4	22.178	28.178
0.5	20.986	26.98
0.6	20.119	26.119

0.7	19.577	25.517

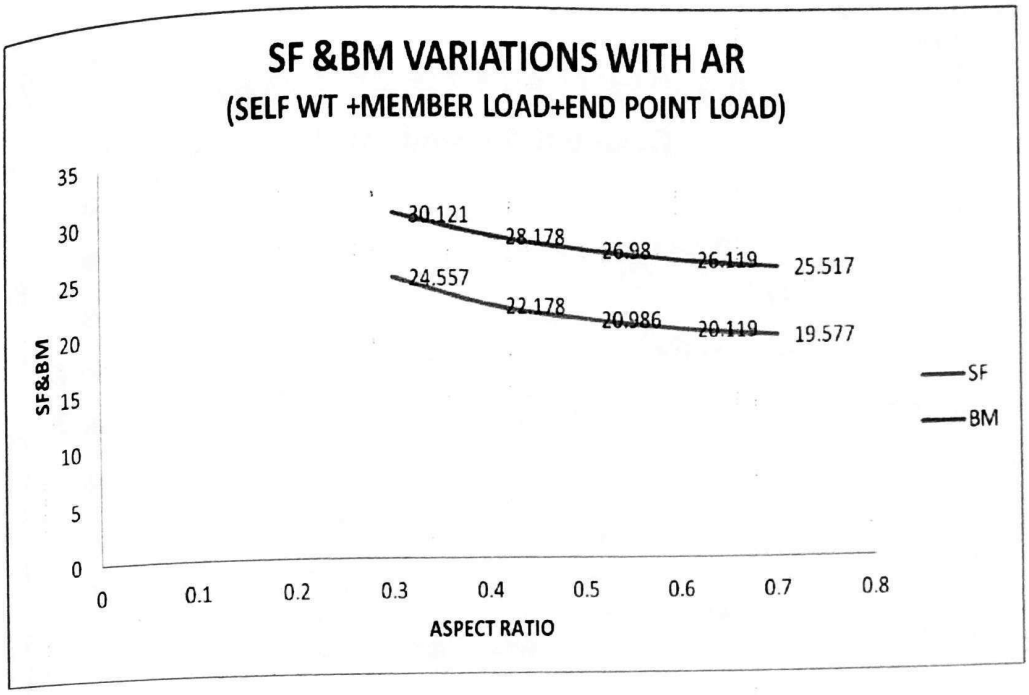


Fig.3

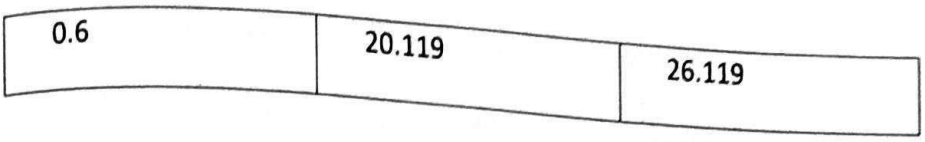
Observations

- In above graph , relation in between shear force and bending moment with aspect ratio is observed. Maximum bending moment and maximum shear force is 30.121 KN .m &24.577 KN respectively.
- Relation in obtained in shear force and bending moment is ,1.3*Shear force =bending moment

To find out optimum shear force and bending moments , following Fig.3.1 should be consider,

Table no 3.1

A.R.	S.F.	B.M.
0.5	20.986	26.98
0.55	20.55	30.424



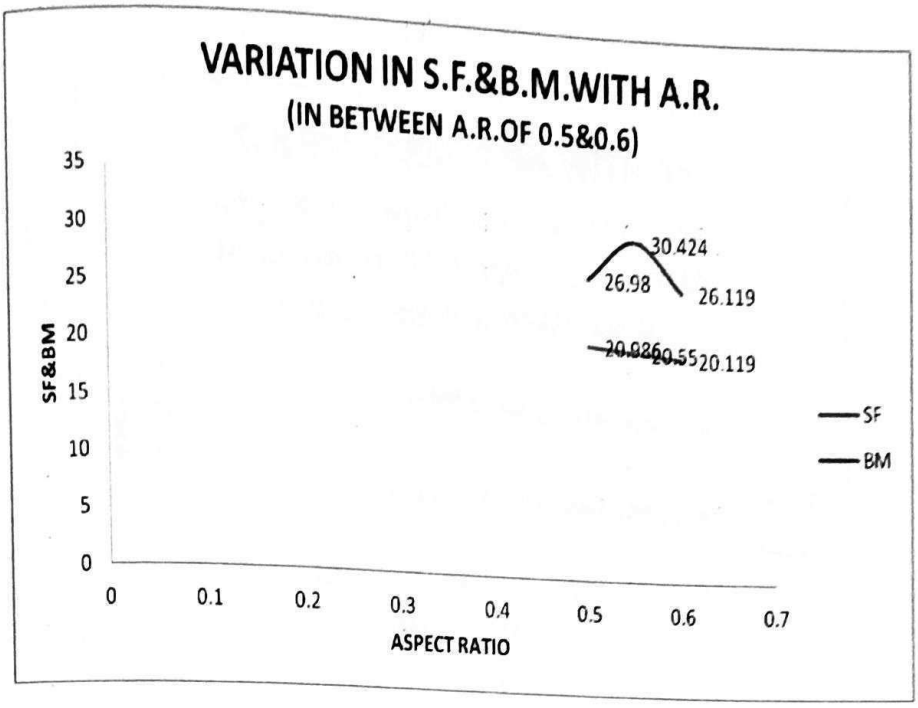


Fig.No 3.1

Observations

- In above graph , relation in between shear force and bending moment with aspect ratio In between 0.5&0.6 is observed.
- Optimum bending moment and maximum shear force is30.424 KN.m & 20.55KN respectively

Table no 4

A.R.	SF	BM
0.3	60.256	178.963
0.4	58.445	173.12
0.5	55.193	164.983

0.6	53.296	160.241
0.7	51.942	156.854

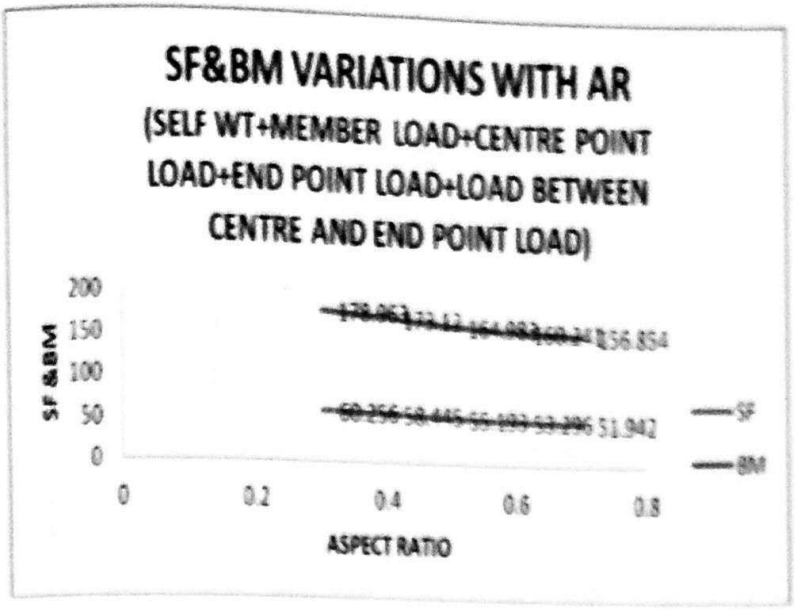


Fig.4

Observations

- In above graph , relation in between shear force and bending moment with aspect ratio is observed.
- Maximum bending moment and maximum shear force is 178.963 KN .m &60.256 KN respectively.
- Relation in obtained in shear force and bending moment is ,3*Shear force =bending moment

To find out optimum shear force and bending moments , following Fig.4.1 should be consider,

Table NO 4.1

A.R	S.F.	B.M

0.5	55.193	164.983
0.55	54.14	162.571
0.6	53.296	160.241

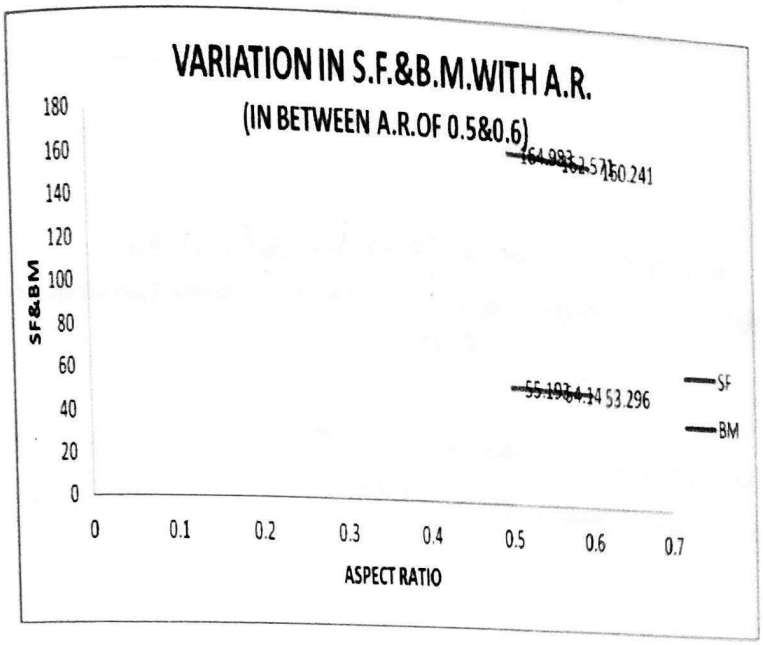


Fig. NO 4.1

Observations

- In above graph , relation in between shear force and bending moment with aspect ratio In between 0.5&0.6 is observed.
- Optimum bending moment and maximum shear force is162.571KN.m & 54.14KN respectively

Table NO. 5

A.R.	S.F	B.M.

0.3	24.236	30.196
0.4	22.178	28.178
0.5	20.986	26.986
0.6	20.119	26.119
0.7	19.577	25.577

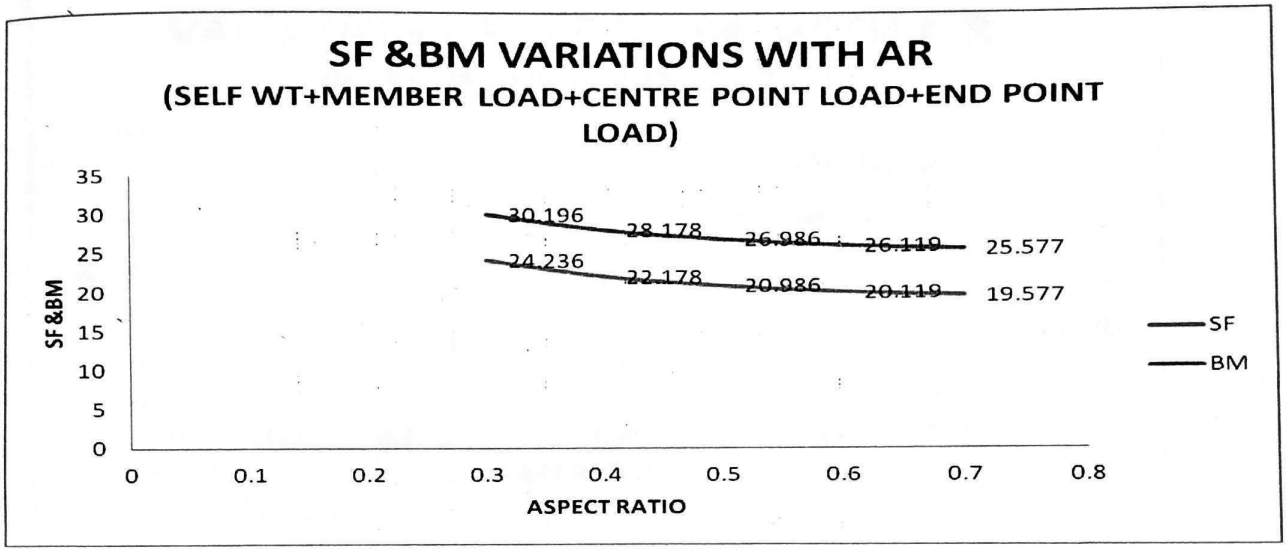


Fig.5

Observations

- In above graph , relation in between shear force and bending moment with aspect ratio is observed.
- Maximum bending moment and maximum shear force is 30.196 KN .m &24.236 KN respectively.
- Relation in obtained in shear force and bending moment is ,1.3*Shear force =bending moment

To find out optimum shear force and bending moments , following Fig.5.1 should be consider,

Table No 5.1

A.R.	S.F.	B.M.
0.5	20.986	26.986
0.55	20.55	26.55
0.6	20.119	26.119

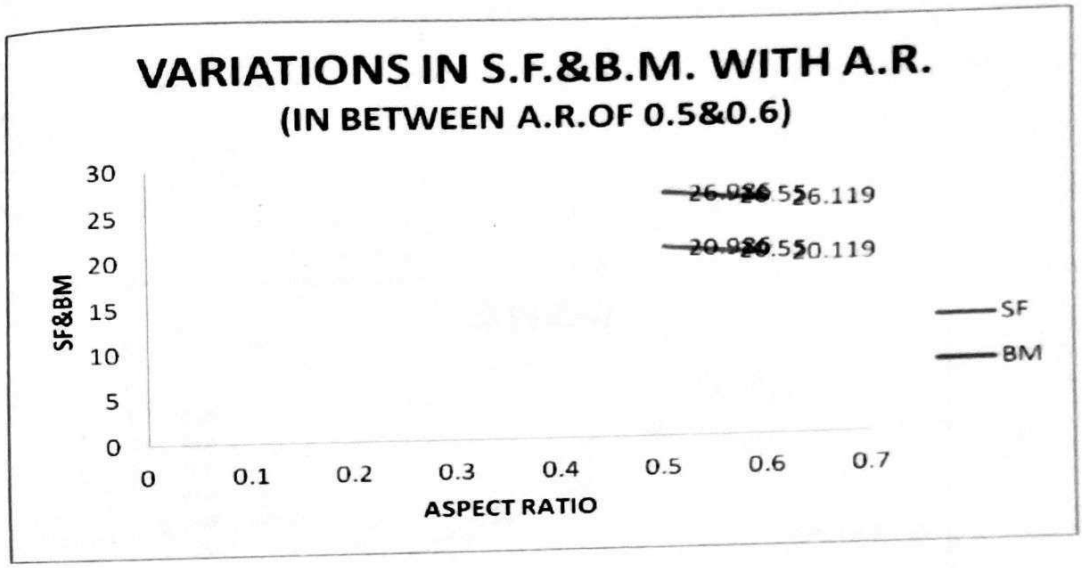


Table no 5.1

Observations

- In above graph , relation in between shear force and bending moment with aspect ratio In between 0.5&0.6 is observed.
- Optimum bending moment and maximum shear force is 26.55KN.m & 20.55KN respectively

Table.6

CU.M.	COST(Rs.)

0.83	3984
0.65	3120
0.52	2502
0.43	2064
0.37	1776

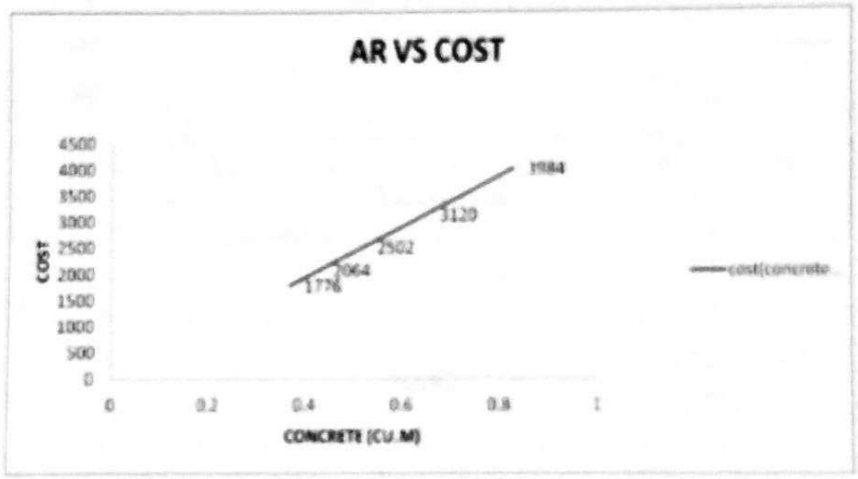


Fig.6

Observatios

- In above graph , relation in between concrete making in cu .m. and cost per cu.m.is defined.
- Maximum cost and minimum cost is as , 3984/-&1776/-respectively for 0.4 &0.83 cu. m .concrete.

To find out optimum cost of cantilever beam is shown in following Fig.6.1

Table No 6.1

Quantity(cu .m)	Cost(Rs)	A.R.
0.52	2502	0.5
0.46	2210	0.55
0.43	2064	0.6

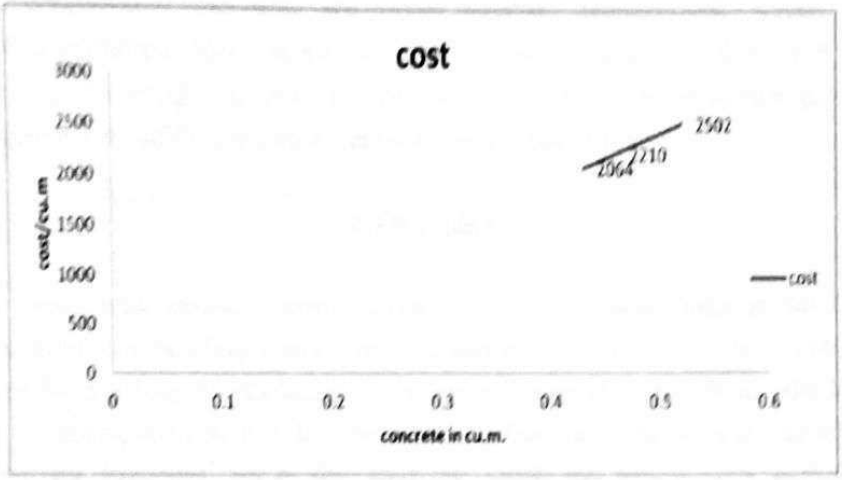


Fig.6.1

Observations

- In above graph , relation in between cu .m concrete and cost per cu. m of concrete.
- Optimum cost for our optimized beam is Rs.2210/-

4.2Beam laying system

Selection of a design space and an analysis method must be carefully determined since the analysis, both in terms of accuracy and efficiency, must be able to handle all possible designs in the chosen design space. That is, the larger the design space, the more sophisticated the analysis capability must be. For example, if larger shape design changes are expected during design optimization, mesh distortion in FEA could be a serious problem and a finite element model that can handle large shape design changes must be used.

A *performance measure* in a simulation-based design is the result of structural analysis. Based on the evaluation of analysis results, such engineering concerns as high stress, clearance, natural frequency, or mass can be identified as performance measures for design improvement. Typical examples of performance measures are mass, volume, displacement, stress, compliance, buckling, natural frequency, noise, fatigue life, and crashworthiness. A definition of performance measures permits the design engineer to specify the structural performance from which the sensitivity information can be computed.(Same as conventional beams.)

4.3Working

A cantilever beam with uniform cross section subjected to point load at the free end has maximum and minimum bending stresses at fixed and free respectively. The weight of the beam can be reduced by tailoring the thickness of the beam, where H, L and W are the height, length and width of the beam, respectively. It is necessary to find the cross-sectional dimensions of the state and objective variables. So in this analysis, width and height were defined as design variables which are independent variables and directly affect the solution of the problem. State variable is the first dependent variable, and so in this analysis maximum stress was defined as a state variable which acts as a constraint for the problem. Since the primary objective is to reduce volume without exceeding the allowable stress in the beam, volume was defined as an objective variable. This is the one variable in the optimization which needs to be minimized.

5.Merits and demerits

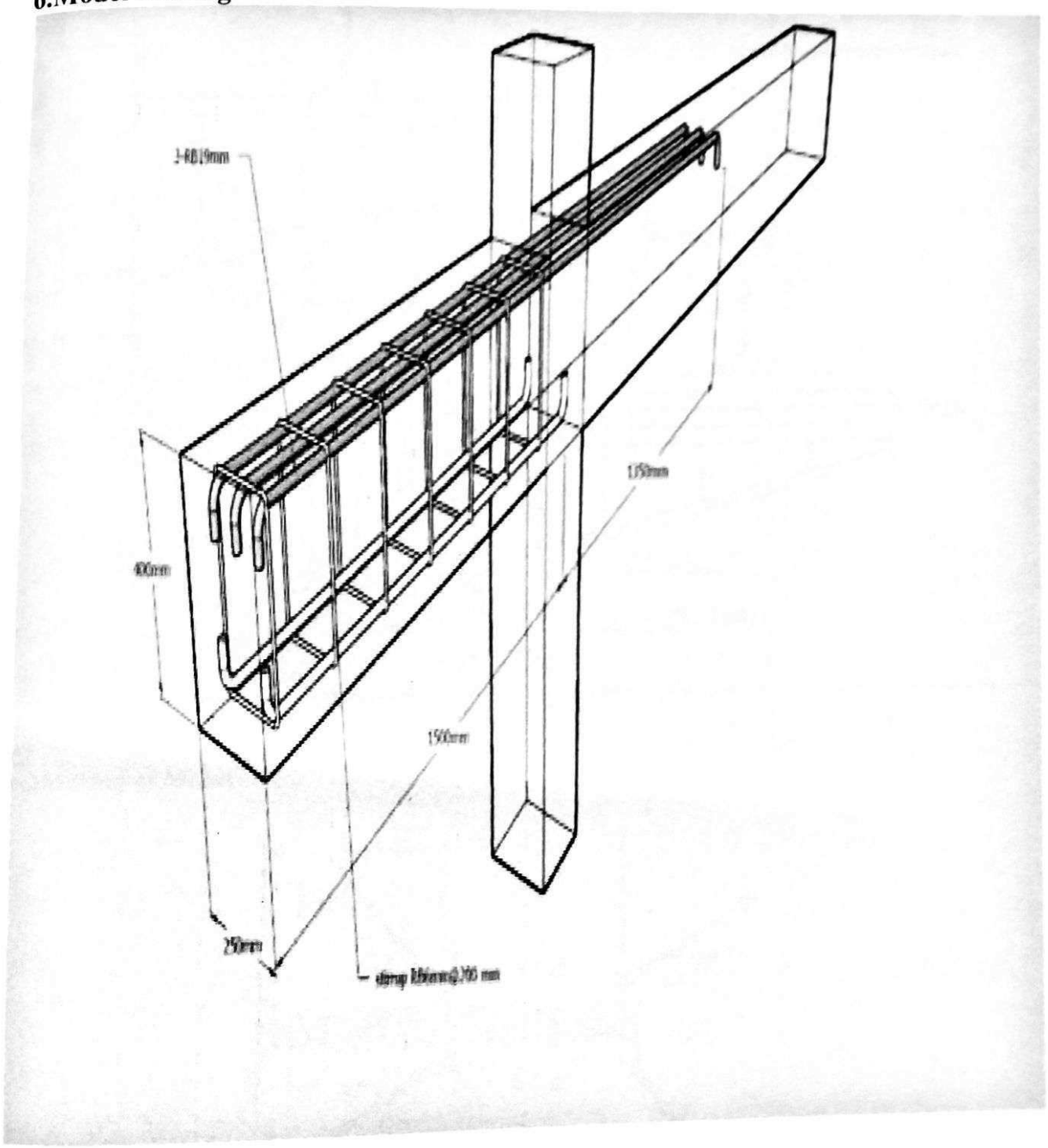
5.1.Merits

Best solution within domain of study.-
Here we design the optimum sized beam which differ from conventional beam but while design it is easy to understand because it link of method of construction similar to this beam.
To required less experiments to achieve optimum formulations.-
It is based on analytical method which based on STADD-Pro analysis method hence simple to understand.
Rectify problems remarkably easier manner-
It quite similar to conventional type beam ,hence problem obtained which easy to analysis.
Optimum safe design-
It carries maximum SF and BM under optimized size .hence it is very safe to design.

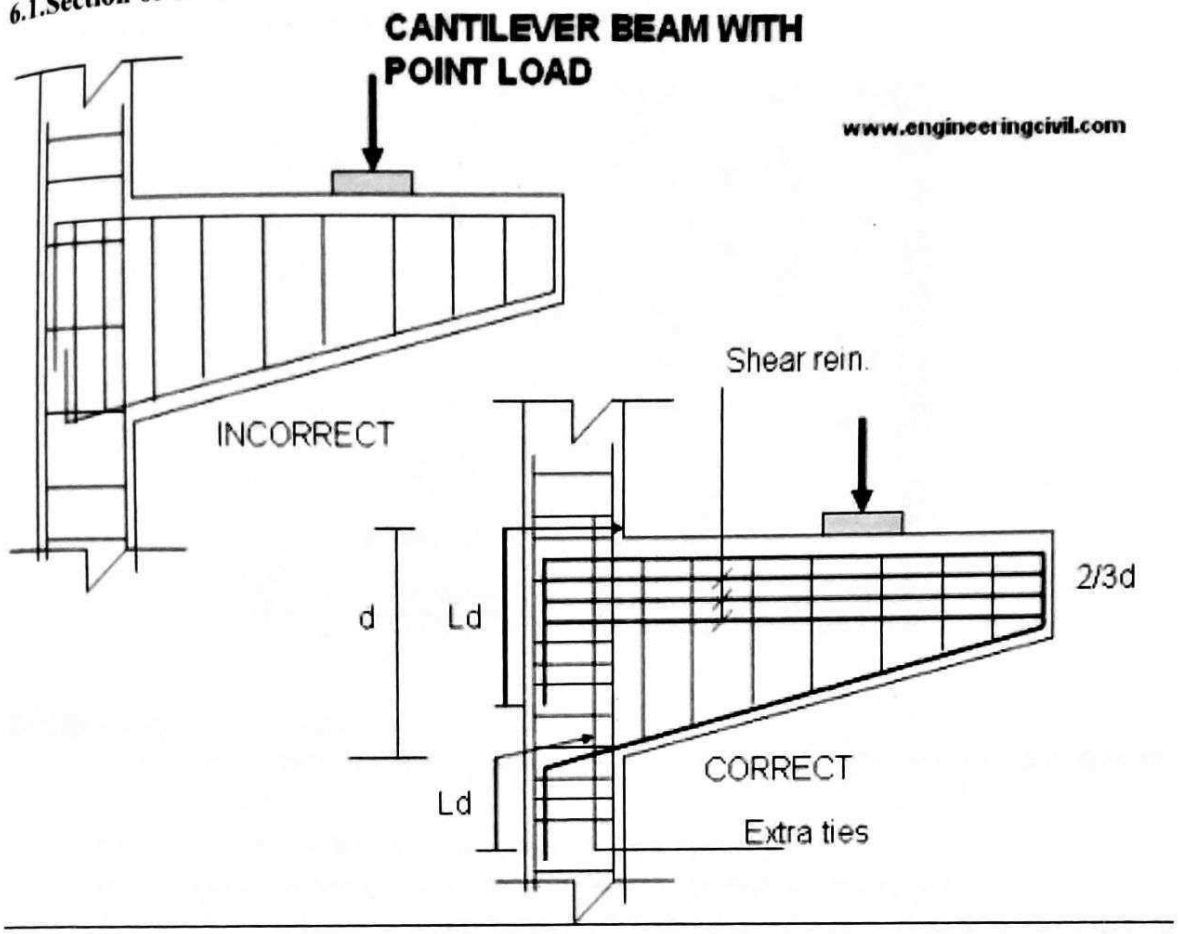
5.2.Demerits

More time consuming.-
It is analytical based hence it requires more time to understand the value of optimized size of beam.
More repetitions is required.-
To find out maximum SF &BM more calculation is carried out and hence ore no. of readings are required to decide.
Expensive to use.-
it is new techniques in India hence new to apply

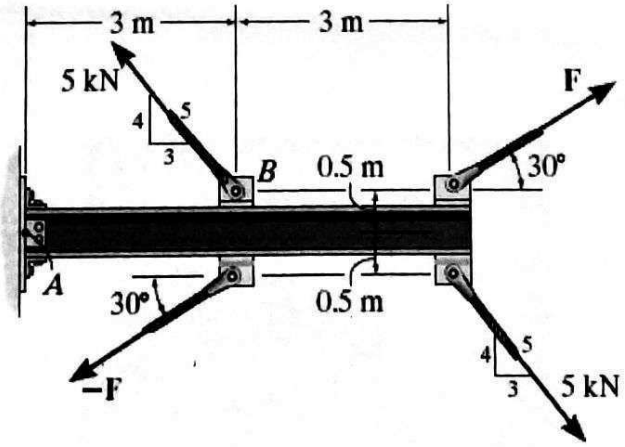
6.Model making



6.1.Section of beam



6.2Making of Model



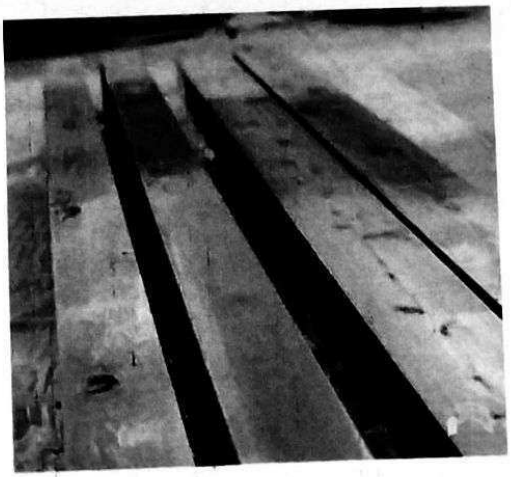
6.2.1Joining of plywood planks



6.2.2Installation of systems

1. Simply supported – a beam supported on the ends which are free to rotate and have no moment resistance.
2. Fixed – a beam supported on both ends and restrained from rotation.
3. Over hanging – a simple beam extending beyond its support on one end.
4. Double overhanging – a simple beam with both ends extending beyond its supports on both ends.
5. Continuous – a beam extending over more than two supports.
6. Cantilever – a projecting beam fixed only at one end.
7. Trussed – a beam strengthened by adding a cable or rod to form a truss.

6.3finishing



conclusion

These methods were applied to a general problem, pertinent to a cantilever beam of rectangular cross-section and the results were analyzed Following table consider ,as a conclusions.

Sr. No.	case	Load	Relation in SF & BM	M.F.for SF	M.F. for BM
1.	Self weight+ Member load	6	B.M.=2.5 *S.F	17.72	7.1
2.	Self weight+ Member load+ point load(mid)	6	B.M.=1.0*S.F.	2.79	2.59
3.	Self weight+ Member load+ point load(end)	6	B.M.=1.3 *S.F.	3.8	4.83
4.	Self weight+ Member load+ point load(mid)+point load(end)	18	B.M.=1.3 *S.F	1.25	1.59
5.	Self weight+ Member load+ pointload(mid)+ point load(end)+point load(between mid&end load)	24	B.M.=3.0*S.F.	2.45	7.25

Refreces

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6.Walker M, Smith RE, "A technique for the multi-objective optimization of laminated composite structures using genetic algorithms and finite element analysis", Composite structures; Vol.62, No.8, 2003, pp.123-128.

7..Kumar N, Tauchert TR, "Multi-objective design of symmetrically laminated plates", Journal of mechanical design; Vol.114, No.4, 1992, pp.620-625.

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Appendices

SVERI's
College of Engineering, Pandharpur

Department of Civil Engineering

Industrial Visit Record

A.Y.: 2018-19

SVERI's College of Engineering, Pandharpur

Civil Engineering Department

Industrial Visit

Class: SE-(Civil) A.Y.: 2018-2019

Date- 24-08-2018

To,

The Principal/Dean Students,

COE, Pandharpur

Subject : Permission for industrial visit of SE CIVIL

Respected Sir,

As per curriculum laid down by Solapur University, Solapur for SE (CIVIl part.I) , the subject of **Building planning & costruction** , Geology , Structural mechanics , fluid mechanics & concrete Tech. includes industrial visits . In the Processing of same we have sent letter related to industrial spots. In view of this , we requested you to grant us the permission to arrange visit of SE CIVIL on 28/08/2018 To 30/08/2018.

Thanking you .

Yours sincerely,

(Prof. M.S.Survase)
CC –SE civil

(Prof. R.D.Kapse)
Subject Teacher

(Dr. P.M. Pawar)
H.O.D(civil Dept.)

To,
HoD(Civil)
Permitted on following condition.
1) No other site seen are allowed.
2) Discipline & decorum be maintained.
3) Schedule of industrial visit be strictly followed.
4) Subject teacher shall give presentation about the outcomes of visit.

24/08/18

DATE	DETAILS OF JOURNEY					SPOT OF VISIT	OBJECTIVE
	FROM	TIME	TO	TIME	Dist.		
28/08/ 2018	PANDHARPUR	12.00am	Aihole	6.00am	241 km	Ancient architectrual school	Architectural concept in building planning and construction.
[redacted]	Aihole	1.00pm	Hosapete	4.00pm	126km	Tungabhadra dam & ~~Halt~~ Hault	Concept of structural mechanics & fluid mechanics. (Strength of material & Fluid mechanics)
29/08/ 2018	Hosapete	7.00am	Hampi	7.30am	13km	Hampi ancient village	Architectural concept in building planning and construction , Engineering geology & town planning.
	Hampi	6.00pm	Badami	9.00pm	140km	Kudalsangam & Halt	Architectural concept in building planning & design (Building conscruction & Drawing)
[redacted]08/ 2018	Badami	12.00pm	Pattakadal	12.30pm	22km	UNESCO'S World Heritage site. 10 major temples	Harmonius blend of architectural forms from northern & southern India. Culturl of 7th century. (Building conscruction & Drawing)
	Pattakadal	4.00pm	Pandharpur (vijapur)	10.00pm	250km		

SHRI VITHAL EDUCATION & RESEARCH INSTITUTE'S

COLLEGE OF ENGINEERING, PANDHARPUR.

Department of Civil Engineering

Academic Year 2018-19 SE- I

Roll No.	Full Name	Mobile No	HOSTEL / LOCAL	SIGN	Roll No.	Full Name	Mobile No	HOSTEL/ LOCAL	SIGN
1	/BENARE SHIVANI VIVEK	9270053406	LOCAL		36	JADHAV AJIT ANNA	9921852536	HOSTEL	
2	/BHOSALE KAJAL SANJAY	7350607438	HOSTEL		37	JAYKAR SAJAN ANIL	9921409306	LOCAL	
3	/BODAKE SANJIVANI SAMBHAJI	9921422700	HOSTEL		38	KALE PRAMOD BIRUDEV	9503116388	HOSTEL	
4	/CHAVAN ROHINI RAMCHANDRA	9763459650	LOCAL		39	KAMBLE MANTHAN LAXMAN	9860834301	LOCAL	
5	/DESHMUKH PRANJALI SATISH	9561240850	HOSTEL		40	MORE SATYAWAN TUKARAM	9767292441	LOCAL	
6	/Gadade Amruta Audumbar	8975578905	LOCAL		41	MULLA SAQIB SAJID	7350308783	HOSTEL	
7	/GAIKWAD MAYURI PRATAP	9921253826	HOSTEL		42	NAGANE RANJEET RAOSAHEB	9822967473	HOSTEL	
8	/GAIKWAD SRUSHTI JALINDAR	9922188262	LOCAL		43	PADOLE DIGAMBAR CHANDRAHARSHA	9552313599	HOSTEL	
9	/JADHAV ASMITA SANJAY	9822114010	HOSTEL		44	PAWAR PRAVIN RAGHUNATHRAO	9921910210	HOSTEL	
10	/JADHAVAR AISHWARYA DINKAR	9421353638	HOSTEL		45	PUJARI PRAFULL PRASHANT	9403729992	LOCAL	
11	/KAMBLE DNYANESHWARI KRUSHNA	7798247595	HOSTEL		46	RAUT HARSHAD DATTATRAY	9850385982	HOSTEL	
12	/KECHE ANJALI DATTATRAY	9763892323	HOSTEL		47	RONGE KAPIL BHIMRAO	9890731732	LOCAL	
13	/KEMKAR SAYALI VISHWANATH	8412813120	HOSTEL		48	SHAIKH AMIR SHILAVAR	9306571211	HOSTEL	
14	/KEVALE ANKITA NAMDEV	8806691245	HOSTEL		49	SHINDE SHUBHAM HARI	7028822703	LOCAL	
15	/KHUNE POOJA BALASAHEB	7588163550	HOSTEL		50	SHIVPUJE SURAJ SUNIL	9922340490	HOSTEL	
16	/LANGOTE SHWETA ASHOK	9404650591	LOCAL		51	SURVASE AJINKYA ANAND	7757925521	LOCAL	
17	/MADANE GEETANJALI DATTA	9922118853	HOSTEL		52	TARANGE VIJAYKUMAR SHAM	9011415949	HOSTEL	
18	/NAGTILAK PRANALI KAMLAKAR	9155836815	LOCAL		53	TARAPURKAR ANIKET VISHWAS	9763890171	LOCAL	
19	/PARSE KAVITA BHIMA	9112779945	HOSTEL		54	GHODAKE SACHIN SHIVAJI	9158062858	HOSTEL	
20	/PAWAR RUTUJA BHASKAR	9850626529	LOCAL		55	VITEKARI SHUBHAM RAVINDRA	9423334978	HOSTEL	
21	/VAYADANDE MANISHA BHAUSAHEB	9975761101	LOCAL		56	URADE VIJAY JAMBUWANT	7709118673, 8668503668	HOSTEL	
22	AAFAQ AHMED	7298637163	HOSTEL		57	BHOSALE ABHAYRAJE RAMESH	9623492216		
23	ATKALE PRAMOD PRADHAN	9890989776	LOCAL		58	BORAMANIKAR AKASH MADHUKAR	7410101002		
24	BABAR SWAPNIL BALASAHEB	9420674317	HOSTEL		59	CHAVAN MALHARI BHAGWAN			
25	BADGUDE ROHIT RAMESH	9503238050	HOSTEL		60	KALBHOR JAGDISH PANDURANG	8600176236		
26	BANSODE LAXMAN PANDURANG	9767562781	LOCAL		61	LAKHOLE SAURABH DINKAR			
27	BHARATI MAHESH PANDURANG	9766857414	HOSTEL		62	PAWAR AVINASH VISHNU	7028339510		
28	BHOSALE PRAVIN BHARAT	7588609299	HOSTEL		63	SADDALGI SAMARTH SHIVKUMAR			
29	BURADE ASHISH PRAMOD	9763447457, 9156491817	HOSTEL		64	SAVANT PRATIK ANILKUMAR	8329493584		
30	CHATE DNYANESHWAR DINKAR	9970302022	HOSTEL		65	WAGHMARE VIKRAMSHEEL SUNIL	7028547054		
31	DOLLE SANTOSH ISHWAR	8007400792	HOSTEL		66	/LAWATE AHILYABAI MOHAN	8291083043		
32	GANGA SHIVANAND BASAVRAJ	9527046057	HOSTEL		67	/MALAVE AMRUTA NAGESH	8860522605		
33	GAVALI SAURABH ASHOK	8605029824	HOSTEL		68	/SARODE PRAJAKTA BABASAHEB			
34	GORE AMIT SAJJAN	9890170645	HOSTEL		69	/WAGHMARE ROHINI HANUMANT	8007958603		
35	GURAV SATYAJEET BHARATRAO	7719020143	HOSTEL						

(Prof. M. S. Survase)
Class Coordinator

(Dr. P. M. Pawar)
HOD Civil Engg

SHRI VITHAL EDUCATION & RESEARCH INSTITUTE'S

COLLEGE OF ENGINEERING, PANDHARPUR.

ISO 9001-2000 Certified Institute & Accredited by Institutes of Engineers, India,
Gopalpur -Ranjani Road, Gopalpur, P.B. No. 54, Tal - Pandharpur- 413 304,
Dist. Solapur (Maharashtra) Ph.: (02186) 225083, Fax: (02186) 225082.
(NBA Accredited and NACC Accredited)
Approved by AICTE, New Delhi and affiliated to Solapur University, Solapur)
E-mail : coe@sveri.ac.in Website: www.sveri.ac.in

Date: 17/09/2018

To,
The Head Civil Engg.Dept
SVERI's COE Pandharpur.

Subject: S.E. Civil Industrial visit report of academic year 2018-19 SEM-I.

Respected sir,

We have organized an industrial visit for the class S.E.Class From date. 28/8/2017 to 30/8/2017. Under this industrial visit we have made arrangement to give the practical expose to the students for the following points and ANNEXURE-I is attached with important photographs during visit,

1) Humpy : We have visited old buildings and Temples constructed in stone masonry at Humpy in 15th century..

2) Tungabhadra Dam: We have visited Tungabhadra dam and students got practical approach of components of dam and Hydropower generation.

3) Aihole: We have Aihole village where architecture school was there in 15th century and many temples and buildings were constructed in stone masonry.

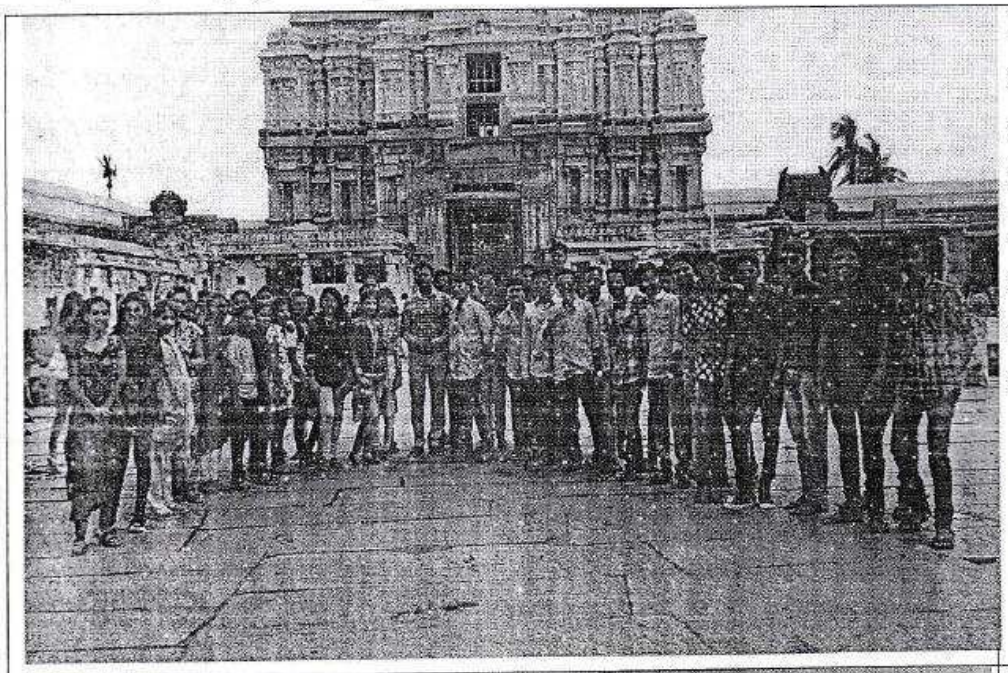
Yours Sincerely

Mr. M. S. Survase
Class Coordinator

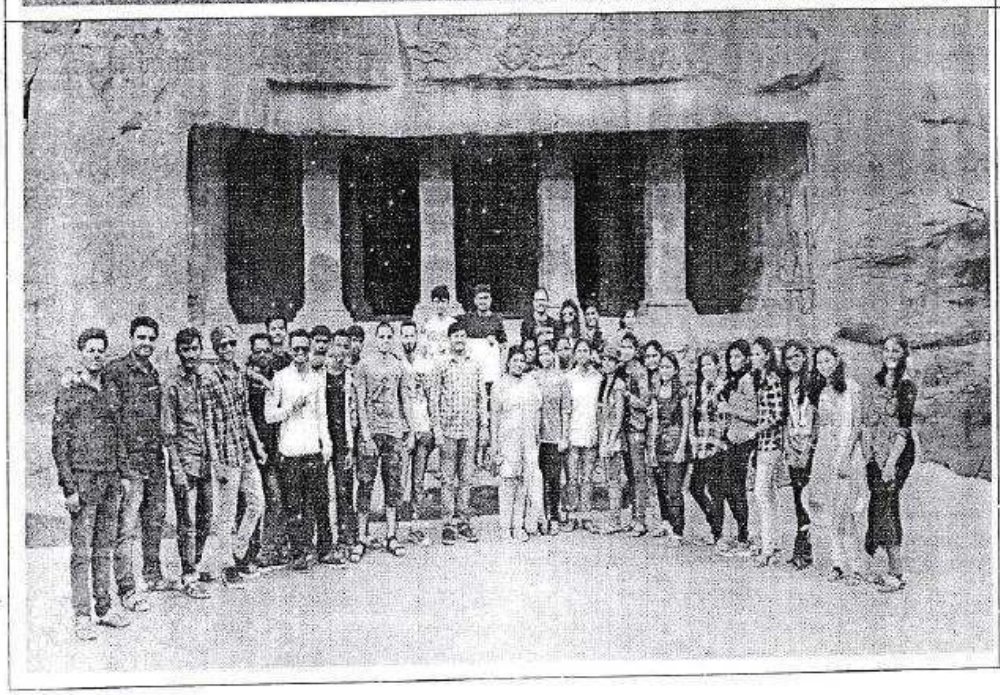
HoD Civil

ANNEXURE-I

Important photographs during industrial visit and description.



The photograph shows old buildings and Temples constructed in stone masonry at Humpy.



The photograph shows Badami caves constructed in big rock.

SVERI's College of Engineering, Pandharpur

Civil Engineering Department

Industrial Visit

Class: TE-(Civil) A.Y.: 2018-2019

Shri Vithal Education & Research Institute's
COLLEGE OF ENGINEERING, PANDHARPUR
P.B.No.54, Gopalpur - Ranjani Road, Gopalpur, Pandharpur - 413304, **District**: Solapur (Maharashtra)
Tel.: (02186) 216063, 9503103757, **Toll Free No.**: 1800-3000-4131 **e-mail.**: coe@sveri.ac.in
Website.: www.sveri.ac.in (Approved by A.I.C.T.E., New Delhi and Affiliated to Solapur University, Solapur)
NBA Accredited all eligible UG Programmes, **NAAC** Accreditated Institute, ISO 9001:2015 Certified Institute.
Accredited by The Institution of Engineers (India), Kolkata and TCS, Pune.

Ref.:- COEPR/(CIVIL)2018-19/1804 Date:- 02/03/2019

To,

Executive Engineer,

Bhatghar Hydro Power Station,

A/P Nare Colony,Tal:-Bhor

Dist:-Pune, 412206

Subject:-Permission to Visit Bhatghar Hydro Power Station.

Respected Sir,

As per curriculum of Solapur University, students of SE and TE civil class are interested to visit Bhatghar Hydro Power Station to study working system of Hydro Power Station.

So I kindly request you to permit us for this technical visit and spare one technical person to give information. List of students is attached herewith.

Your help in this regard is highly appreciated.

Thanking you in anticipation.

Date of visit:-14/03/2019

SE student:-69 TE student:-71

Total students:-140

No of faculty members:-08

Visited to Bhatghar HPS on dated 14.03.2019

Accepted 14/3/19

(Dr. P M. Pawar)

HOD-Civil Engg.

MAHAGENCO

MAHARASHTRA STATE POWER GENERATION CO. LTD.

Tele. no.: 020 - 25637610
020-25632717
Fax no.: 020 - 25630359
Email: segenpune@mahagenco.in

Office of the Supdtg. Engineer
Renewable Energy Circle, "Prakash Bhavan"
Plot No.106, 5th floor , Senapati Bapat Road,
Pune - 411 016.

Ref No.: SE / REC / MON/Pune/ No - 0353 Date: 11 MAR 2019

To,
The Head of the Department,
Shri Vithal Education & Research Institute's,
College of Engineering,
Pandharpur - 413304

E-mail : crhimbkar@coe.sveri.ac.in

Sub: Grant of permission for industrial visit at Bhatghar Hydro Power Station.

Ref: Your office letter no.COEPR/Civil/2018-19/1804 dtd 02/03/2019.

Dear Sir/Madam,

With reference to above, this is to inform that the permission is here by granted for Industrial visit of Mechanical Engineering students of your college on 14th Mar 2019.

Sr. No	No. of students + Staff members	Name of HPS	Date	Time
1	50 Students + 4 Staff	Bhatghar	14th Mar 2019	10:00 hrs to 12:00 hrs
2	50 Students + 4 Staff	Bhatghar	14th Mar 2019	14:00 hrs to 16:00 hrs

Terms & conditions:

1. You can report to Shri.S.P.Inamdar, Additional Executive Engineer, contact no. 9420692015 during the period of visit.
2. Students shall abide by the rules & regulations of the company & observe discipline during visit.
3. They shall make their own arrangement for residential accommodation, transportation, lodging, boarding etc.
4. They should contact our Security Officer prior to commencement of visit and obtain suitable gate pass for entry at 10:00 am.
5. At least one staff member must be present along with the students to take care of their safety & security within & outside the premises during visit.
6. The visit is allowed as per your request only & it will not create any right or obligation on the company.
7. Students should possess Identity Card during the visit. No loose clothes allowed.
8. They shall follow all safety rules and use own protective equipments like apron and safety shoes as per factory rules. (Shoes are compulsory).
9. The visit should be in two groups, precaution shall be taken so that normal working in the plant is not hampered.
10. Mobile will not be allowed strictly. (To be kept on silent mode)

11. One day industrial visit fee is ₹ 100/- per student and shall be payable in the form of Demand Draft in favor of "Maharashtra State Power Generation Company Ltd., Payable at Pune", (18% GST extra) or through RTGS. The DD/ RTGS payment shall be remitted to this office before visit; otherwise said permission stands cancelled.

Following are the Company's bank details for RTGS payment mode.

1. Account Name: - MSPGCL, PUNE
2. Account No.:- 04510200000320
3. IFSC code:-BARB0POOSEN
4. Account type:-Current account
5. Branch Name: - Bank of Baroda, SB Road Pune-411016

RTGS payment screenshot invariably mailed on mail id :

"segenpune@mahagenco.in" and "ee_monitoringpune@mahagenco.in"

Thanking you,

Yours faithfully,

Superintending Engineer,
REC, Pune

Copy to:
1.Executive Engineer Bhatghar HPS, Dn. Mob. No. 8411968687 – For information.
2.The Addl. Executive Engineer, Bhatghar H.P.S. (Mob 9420773093):- **Please confirm the payment is received or not, if not received visit should be cancelled.**
3. F&A,REC,Pune

SVERI

Chetan Limkar <crlimkar@coe.sveri.ac.in>

RE: Subject:-Permission to Visit Construction site at (Rohiniyard) Dive agar.

1 message

Nishant Khade <nishant.khade@dasoffshore.com> Thu, Mar 7, 2019 at 4:39 PM
To: crlimkar@coe.sveri.ac.in
Cc: Datta Khade <dattakhade81@gmail.com>, "rajkumar.jagtap" <rajkumar.jagtap@dasoffshore.com>, Rohini DAS <rohiniyard.das@gmail.com>

Dear Mr. Limkar,

We appreciate your interest in visiting our Rohini yard.

We will be happy to have you at our yard on said dates.

As Rohini yard is in development stage, we won't be able to host you for any kind of refreshments.

Regards,

Nishant Khade

Director

das group

DAS OFFSHORE ENGG. PVT. LTD.

ISO 9001:2015,BS-OHSAS-18001:2007, EMS 14001:2015,U&R Stamp Certified Company

'Sagar Uday 'Plot No F-3, Agroli Village

CBD Belapur, Navi Mumbai-400614

Tel: - 91-22-67606760

Fax:- 91-22-27570795

Email: info@dasoffshore.com

www.dasoffshore.com

Date: 06/03/2019

To,

The Principal/Dean Students,

SVERI's COE Pandharpur.

Subject: Permission for industrial visit of TE Civil.

Respected Sir,

As per curriculum laid down by Solapur university, solapur for TE Civil (Part II), the subject of Geotechnical Engg II, Advanced Concrete Technology, Structural Steel Design and Drawing includes visits. In the Processing of same we have sent letter related to Industrial spot. In view of this, We requested you to grant us the permission to arrange visit of TE Civil on 12/03/2019 to 14/03/2019.

Thanking You,

Yours Sincerely,

(Prof.C.R.Limkar)	(Prof. S.J.Mobile) (Prof.~~S.C.Bagal~~)	(Prof.M.G.Deshmukh)	(Dr. P. M .Pawar)
Class Cordinator	Subject Teacher	Subject Teacher	HOD Civil Engg.

~~Sangave~~
(Prof. A.A.Sangave)

permitted as per schedule

SHRI VITHAL EDUCATION & RESEARCH INSTITUTE'S

COLLEGE OF ENGINEERING, PANDHARPUR.

Department of Civil Engineering

Payment Towards Industrial Visit of T E-II (CIVIL) Students For The Academic Year 2018-2019. Visit date from 12-03-2019 to 14-03-2019. **Students 55 X 566 = 31130.**

Roll No.	NAME OF STUDENT	Amount	Sign.
1	/BHISE KIRAN KISAN	566	K.K.Bhise
2	/BHOSALE KAJAL BHARAT	566	Bhosale.
3	/CHIKMANE ANKITA ANIL	566	
4	/DAHIHANDE JYOTI GAURISHANKAR	566	Jyoti
5	/DESHMUKH SNEHA SHIVAJIRAO	566	
6	/DESHMUKH SUSHAMA MAHADEV	566	
7	/DHUMAL HARSHADA PANDURANG	566	H.P.Dhumal
8	/KAMBLE ASHWINI ARVIND	566	
9	/KATE PRANITA ANAND	566	Pakate.
10	/KUMBHAR ANJALI GANPAT	566	A.G.kumbhar.
11	/MASAL AISHWARYA NILKHANT	566	
12	/PAREKAR MRUNALI BIRUDEV	566	
13	/PATIL RUTUJA NAGESH	566	Patil.
14	/PAWALE SHRADDHA RAJENDRA	566	
15	/PAWAR MRUNAL MADHUKAR	566	Mrunal.
16	/POLAS POOJA PRUSHOTTAM	566	Polaspf
17	/PUJARI PRIYANKA TUKARAM	566	
18	/RONGE POOJA BABRUVAHAN	566	
19	/SHIKHARE SADHANA NAGNATH	566	
20	/WAGHMODE PRAJAKTA SOPAN	566	
21	/ZENDE PRIYA BRAMHADEO	566	Zendepb.
22	/JAGTAP PRAGATI MITU	566	Pragati
23	/DONGARE SHUBHANGI KANHOBARAO	566	SKD
24	/ THORAT AISHWARYA A.	566	
25	/SARTAPE PRANALI RAJENDRA	566	
26	ATKALE AKASH SHASHIKANT	566	
27	BABAR GANESH SHANKAR	566	
28	BANDGAR SHUBHAM SHIVAJI	566	
29	BHARTI SHRINIVAS VISHNU	566	Bharti
30	Gadase Akash Sureshrao	566	
	Balance c/d	**16980**	

	Balance b/d	16980	
31	GAIKWAD KAPIL VIJAY	566	
32	GAWADE AJAY SANTOSH	566	
33	Gore Krishna Devidas	566	
34	GURAV SANKET SHRIRANG	566	
35	HONMANE SAGAR SIDDHESHWAR	566	
36	JADHAV VAIBHAV DEVIDAS	566	
37	KADAM SHUBHAM SUNIL	566	
38	KADAM VIRAJ MARUTI	566	
39	KANGUDE YOGESH BALKRISHNA	566	
40	LONDHE AVINASH RAJENDRA	566	
41	MALI PRATHAMESH KRISHANA	566	
42	MULANI MOIN LATIF	566	
43	NARSALE SUHAS JAYHIND	566	
44	PAWAR SAURABH BABAN	566	
45	PUJARI HANAMANT SHRISHAIL	566	
46	SAWANT GAURAV VITTHAL	566	
47	SAWANT SHAILESH SHASHIKANT	566	
48	SHAIKH SHOAIB SALIM	566	
49	SHINDE GANESH MADAN	566	
50	SOUDAGAR PRASAD SHIVAJI	566	
51	THENGAL ABHIJIT DATTATRAYA	566	
52	PUJARI PRAKASH RAJKUMAR	566	
53	GADADE ABASAHEB DADASO	566	
54	PATIL PRASAD MANIKRAO	566	
55	KADAM SAGAR	566	
	Total:-	31130	

(Rs. Thirty One Thousand One Hundred Thirty Only.)

Prof. C. R. Limkar
Class Coordinator

Dr. P.M.Pawar
HOD Civil Dept.

Mr.R.G.Zarkar
REGISTRAR

Dr.B.P.Ronge
PRINCIPAL

VISIT REPORT-TE Class

Place of visit- Jawaharlal Nehru Port Trust, Tal-Sheva, uran Dist- Thane.

Date of visit- 12th March, 2019

Visit In charge- Prof. Limkar C.R

Staff member: - Prof. A.B.Kokare, Prof./S.J.Mohite, Prof.S.M.Patil, Prof.Saddam Pathan, Prof. A A Sangave

Aim of visit- To understand working of port.

Salient feature of Jawaharlal Nehru Port Trust-

1. Commisoned on 26 may 1989.

2. Total land area acquire is 2584 hectares.

3. Here, It handles container, liquid bulk & cement ships.

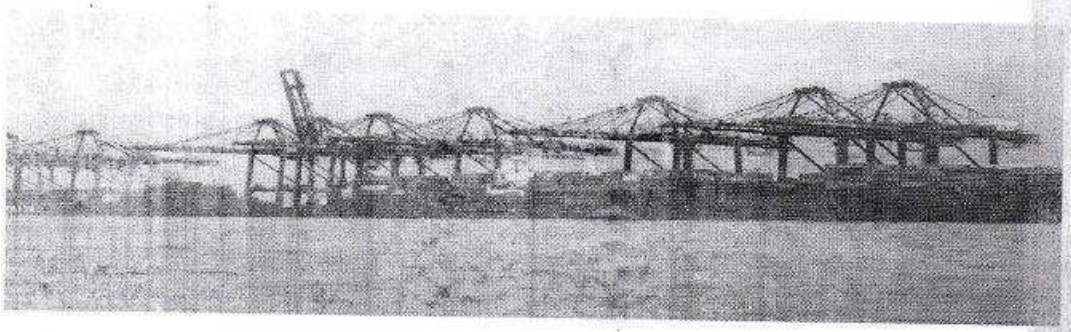
4. It has three dedicated container terminal namely JNPCT, NSICT& GTIPL.

5. It has got four ISO certification as ISO 9001:2008, ISO 2700:2005, ISO 1400:2004,& OHSAS 18001:2007 CERTIFIED PORT.

6. Ranked 24 among top 100 container ports in the world.

7. Handles about 60% of total container handled by all major ports in India.

8. Handled 64.30 million tones of cargo including year 2010-11 & larger of handling 10 million tonnes container.



JNPT has three container terminals-

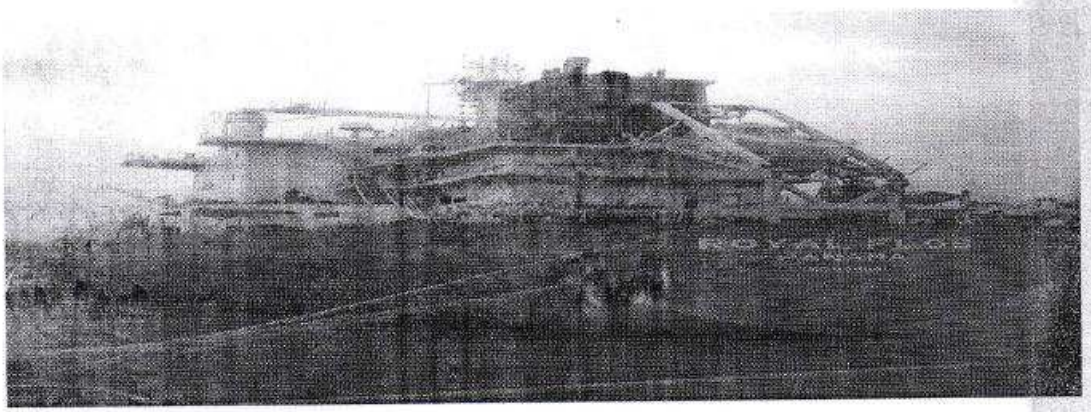
1. Jawaharlal Nehru port container terminal.

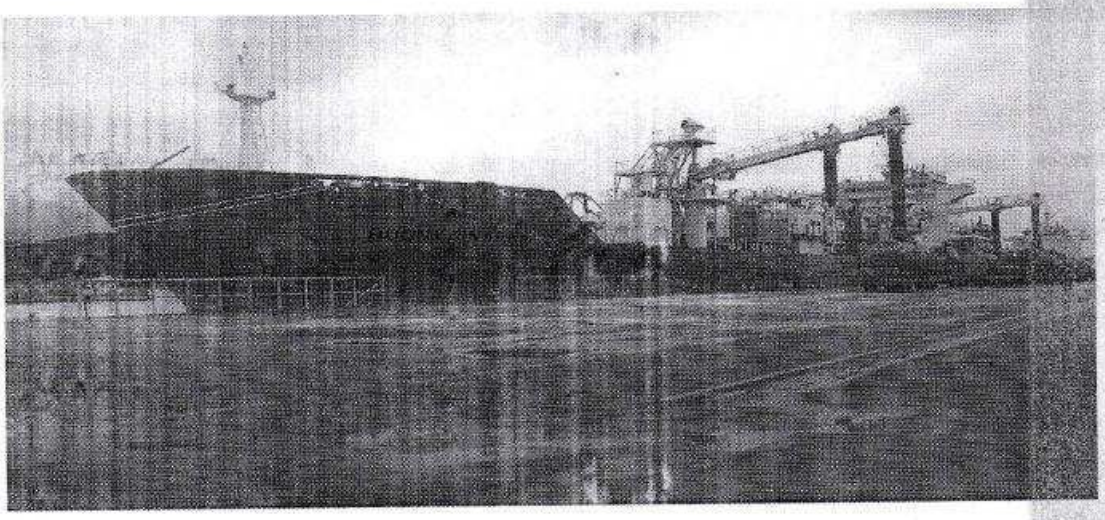
2. Nhava Sheva International container terminal.

3. Gateway Terminal India Pvt. Ltd.

JNPT announced of port handled 65-75 million tonnes of Total Cargo during financial year 2011-12 which is all time record.

Out of this, container cargo was 58.25 million tones liquid cargo is of 6.66 million tonnes with remaining 0.84 million tonnes made up of dry bulk and wet bulk JNPT is operating of more than 100% capacity and it remains largest among the major ports in INDIA in container handling with a market share of 55.63%.





Nhava –sheva port:

A brand new port has been established opposite the Elephanta Islands , Mumbai Maharashtra. It has risen from the sea by reclaiming about 132 hectares of land and it is supposed to relieve pressure on the old Bombay port and also to decongest the metropolis of heavy vechicular traffic.

JN PORT : Existing Facilities				
CONTAINER TERMINAL	JNPCT	NSICT	APMT	TOTAL
QUAY LENGTH(Mtrs.)	680	600	712	1,992
DRAUGHT (Mtrs.)	12.5	12.5	12.5	---------
DESIGN CAPACITY IN MIL. TEUs (In Million Tonnes/Year)	1.1	1.2	1.8	4.1 (51.25)
REEFER POINTS (Nos.)	390	772	880	1,972
RMQCs (Nos.)	9	8	10	27
RTGCs (Nos.)	18	29	40	87
RMGCs (Nos)	5	3	3	11
Yard Area(Nos.)	71.4	25.84	54.57	151.81
JNP CFS & BUFFER YARD (in hectares)	25.42	-------	----------	25.42
LIQUID CARGO BERTH (BPCL)				
QUAY LENGTH	300 Mtrs . (Sea) /280 Mtrs. (Shore)			
DESIGN CAPACITY	5.5 Million Tonnes / Year			
SHALLOW DRAUGHT BERTH				
QUAY LENGTH	445 Mtrs.			
DESIGN CAPACITY	1.2 MILLION TONNES / YEAR			

It sure is a grand vision which, if implemented as per the proposed schedule, would change the face of JN Port and make it the definitive first-choice facility for the trade.



Shri Vithal Education & Research Institute's
COLLEGE OF ENGINEERING, PANDHARPUR
P.B No 54, Gopalpur - Ranjani Road, Gopalpur, Pandharpur - 413304, District: Solapur (Maharashtra)
Tel.: (02186) 216063, 9503103757, Toll Free No.: 1800-3000-4131 e-mail.: coe@sveri.ac.in
Website.: www.sveri.ac.in (Approved by A.I.C.T.E., New Delhi and Affiliated to Solapur University, Solapur)
NBA Accredited all eligible UG Programmes, NAAC Accreditated Institute,ISO 9001:2015 Certified Institute.
Accredited by The Institution of Engineers (India), Kolkata and TCS, Pune.

Ref:- Date:-

1.3.3 Number of the student studied course on experimental learning through Project Work / Internship

Programme Name: Master of Business Administration (MBA) Program Code: 1-1408968337			
Year of offering: 2018-19			
Sr. No.	Name of the Course that include experiential learning through project work/field work/internship	Course code	Number of the student studied course on experiential learning through project work/field work/internship
1.	Project Report & Viva		47

PRINCIPAL,
College of Engineering
PANDHARPUR

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SVERI's
College of Engineering, Pandharpur

Master of Business Administration
(MBA) Department

Project Report & Viva Record

A.Y.: 2018-19

SVERI's College of Engineering, Pandharpur

Master of Business Administration

A.Y.:- 2018-19

List of Students Studied the Course "Project Report & Viva"

Sr. No.	Name Of The Student	Project Title	Guide Name
1.	MORE KIRAN SANJAY	A Study On Cost Volume Profit Analysis With Respect Sahakar Shiromani Vastoraw Kale Sahakari Sakhar Karkhana Ltd Bhalavani	Prof.S.A.Jagtap
2.	PATIL MAHESH PARMESHWAR	A Study On Expectations Of Customers With Respect To Recruitment Services In Pune Area For Shivneri Enterprises Pvt.Ltd.	Prof.M.M.Bhore
3.	MULE PALLAVI ANURATH	A Study On Customer Relationship Management	Prof.A.K.Shahane
4.	TAMTAM PAYAL DATTATRAY	A Study On Customer Satisfaction Towards IT WEBNET, Pandharpur	Prof.A.K.Shahane
5.	KAWADE ROHIT SUBHASH	A Study On Behavior In Equity Market And Investment Strategy	Prof.S.A.Jagtap
6.	HALANWAR SANKET MOHAN	The Study On Analysis Of Financial Statement Through Ratios With Special Reference To Apex Enterprises,Pune	Prof.S.A.Jagtap
7.	DIXIT SHITAL SANJAY	To Study On Customer Buying Behavior And Customer Satisfaction Of Yamaha Bikes With Special Reference To Shree Moters Yamaha,Pandharpur	Prof.K.B.Patil
8.	PAWAR SHRIKANT RAWASAHEB	To Study On Consumer Behavior With Respect To Soft Beverages Especialy Maaza For Coca-Cola Beverages Pvt.Ltd.	Prof.S.A.Jagtap

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Master of Business Administration
C. O. E. Pandharpur.

HOD, MBA Dept.

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SVERI's College of Engineering, Pandharpur

Master of Business Administration

A.Y.:- 2018-19

List of Students Studied the Course "Project Report & Viva"

Sr. No.	Name Of The Student	Project Title	Guide Name
9.	JOSHI SHRIKRUSHNA HARIBHAU	A Study On Cash Management With Reference Apex Enterprises, Pune	Mrs. R. N. Misal
10.	HONMANE SONALI PANDURANG	A Study On Analysis Of Financial Statement With Special Reference To Treezec-E-Solution Pvt. Ltd. Mumbai	Mrs. R. N. Misal
11.	SHINDENAIK SONALI DILIP	A Study On Customer Awareness And Perception With Respect To Different Solar Products For Adisun Solar India Pvt.Ltd,Pune	Prof.M.M.Bhore
12.	SALUNKHE VAIBHAV VASUDEV	A Study On Credit And Recovery Management With Special Reference To Hindustan Coca-Cola Beverages Pvt.Ltd,Mumbai	Prof.R.N.Misal
13.	DONGARE VIJAY KALYAN	A Study On Customer Satisfaction With Respect To After Sales Services Of TATA MOTARS With Special Reference Ghadagde Automobiles Pandharpur	Prof.S.A.Jagtap
14.	PAWAR AKASH SOMNATH	A study on customer behavior towards Tafe Tractor services,Pandharpur	Prof.A.K.Shahane
15.	NIKAM AMRUTA SANJAY	A Study On Training And Development Of Employee In Shri Sant Damaji Sahakari Sakhar Karakhana,Managalvedha	Prof.R.R.Pol
16.	NIKAM ANKITA SANJAY	A Study On The Labour Absenteeism Of The Non-Seasonal Workers Comparative Study	Prof.R.R.Pol
17.	DESHPANDE BHAKTI BHALCHANDRA	A Study On Recruitment & Selecton Process With Special Reference To Design Tech System Ltd, Pune	Prof.K.B.Patil

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Master of Business Administration

A.Y.:- 2018-19

List of Students Studied the Course "Project Report & Viva"

Sr. No.	Name Of The Student	Project Title	Guide Name
18.	BHALERAO BIPIN DEEPAK	A Study On Consumers Buying Behavior Towards Buying Cars.	Prof.M.M.Bhore
19.	YEVANKAR CHETAN ASHOK	To Study On Market Research Of Electronic Systems For Orange Technologies, Pune.	Prof.M.M.Bhore
20.	BHANVASE GANESH MADHUKAR	A Study On Customer Satisfaction Towards Honda Bike With Special Reference To Sangram Wheels Pvt.Ltd,Pandharpur	Prof.K.B.Patil
21.	LAWATE NITIN PANDURANGA	A study on Brand positioning of Yamaha bikes with special reference to Shree motars Yamaha bike,Pandharpur	Prof.K.B.Patil
22.	MALI PRAKASH DHARMANNA	To Study Employee Welfare With Respect To G4S Facility Services (I) Pvt.Ltd.	Prof.R.R.Pol
23.	MALI PRAMOD MOTIRAM	To Study On Customer Satisfaction Towards Refrigeration And Air Conditioning Products With Special Reference To Coldway Innovation Pvt.Ltd Gujarat	Prof.K.B.Patil
24.	SABALE PUJA PRAKASH	A Study Stress Management Of Employees For Delval Flow Controls Pvt.Ltd, Satara.	Prof.R.R.Pol

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Master of Business Administration

A.Y.:- 2018-19

List of Students Studied the Course "Project Report & Viva"

Sr. No.	Name Of The Student	Project Title	Guide Name
25.	DESHMUKH RAJGAURI SANJAY	A Study Of HR Policies & Practices In Spinning Mill Sector With Special Reference To "Babasaheb Deshmukh Shetkari Soot Girni Maryadit Atpadi"	Prof.K.B.Patil
26.	GADADE RANI VITTHAL	A Study On Customer Preference Towards DVP Mart PVT Ltd.Pandharpur	Prof.A.K.Shahane
27.	PARASWAR RUPALI RAMESH	A Roll of Social Networking Sites in Recruitment with special reference to Square vision Technology, Pune	Prof. K. B. Patil
28.	SHEMBDE RUTUJA DILIP	To Study On Employee Training With The Special Reference To Fabtech Company	Prof.K.B.Patil
29.	JAGTAP SNEHA ARUN	A Study On Customer Satisfaction Towards Solar Industry With Special Reference To Adisun Solar India Pvt.Ltd.Company	Prof.K.B.Patil
30.	WAGHMARE SONAM RAJU	A Study On Branding Of Milk & Milk Product With Specific Reference To Shivamrut Dudh Utpadak Sahakari Sangh Maryadit Vijaynager Akluj	Prof.M.M.Bhore
31.	SARVADE VIDYA SUBRAO	To Study The Dealers Satisfaction With Respect To Shivamrut Milk And Milk Production For Shivamrut Dudh Utpadak Sahakari Sangh Maryadit Vijaynager Akluj	Prof.M.M.Bhore

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Master of Business Administration

A.Y.:- 2018-19

List of Students Studied the Course "Project Report & Viva"

Sr. No.	Name Of The Student	Project Title	Guide Name
32.	ASABE GANESH NAGANATH	A Study On The Promogranate Farming & Organic Farming Practices In Sangola Taluka With Special Reference To Ashwini Biotech.	Prof.S.A.Jagtap
33.	THOMBARE INDRAYANEE DATTATRAY	A Study On Inventory Management Shivamrut Milk Dudh Utpadak Sahakari Sangh Maryadit Vijay Nager Akluj.	Prof.S.A.Jagtap
34.	GHONGADE LAXMI BHARAT	A Study On Leverage Analysis With Special Reference To Shetakari Sahakari Soot Girani Maryadit,Sangola	Prof.R.N.Misal
35.	MALI MAYURI VITTHAL	A Study On Cost Analysis With Special Reference To Shetakari Sahakari Soot Girani Maryadit,Sangole	Prof.R.N.Misal
36.	HIPPARKAR PUJA KRISHNA	A Study On Employees Wages And Salary Administration At G4S Facility Services (I) Pvt.Ltd,Pune	Prof.K.B.Patil
37.	SHAIKH SANNA AFAQUE AHMAD	A Study On Effectiveness Of Recruitment Policy ,Process And Selection In G4S Facility Services (I) Pvt.Ltd, Pune	Prof.R.R.Pol
38.	SHINDE SNEHAL KUMAR	A Study On Employee Performance Appraisal In G4S Facility Services (I) Pvt.Ltd	Prof.R.R.Pol
39.	MISKAR AKASH MANOHAR	A Study On Market Research Of E-Banking Services In Pandharpur Area For Corporation Bank.	Prof.M.M.Bhore

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SVERI's College of Engineering, Pandharpur
Master of Business Administration
A.Y.:- 2018-19
List of Students Studied the Course "Project Report & Viva"

Sr. No.	Name Of The Student	Project Title	Guide Name
40.	YADAV AKSHAY KAUSHIK	A Study On Customer Behavior Towards Swaraj Tractor Services In Pandharpur Area	Prof.A.K.Shahane
41.	GAWADE SAGAR UDDHAV	A Study On Consumer Satisfaction Of FZ Model With Special Reference To Shree Moters Yamaha,Pandharpur	Prof.A.K.Shahane
42.	NAKATE POOJA ARUN	A Study On Grapes Farming And Use Of Organic Products In Pandharpur Taluka With Special Reference To By Agro Crop Sciences,Supali,Pandharpur	Prof.S.A.Jagtap
43.	SARVADE HARI UTTAM	A Study Of Market Potential In Antibiotic Product.	Prof.S.A.Jagtap
44.	SARGAR MANJUSHREE SUBHASH	A Study Of Recruitment & Selection Process With Reference To York Transport Equipment (India) Pvt,Ltd.	Prof.K.B.Patil
45.	VYAVAHARE PARMESHWAR DATTATRAYA	To Study Of Employee Retention	Prof.A.K.Shahane
46.	SHINDE APPASO NAVANATH	A Study On Employee Retention With Special Reference To Business2brands Limited Liability Company,Pune	Prof.R.R.pol
47.	MACHALE AJINKYA DILIP	A Study Corporate Training With Return On Investment To Aphron Infotech Pvt. Ltd,Pune	Prof.K.B.Patil

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SAHAKAR SHIROMANI
VASANTRAO KALE SAHAKARI SAKHAR
KARKHANA LTD; CHANDRABHAGANAGAR
BHALWANI, TAL-PANDHARPUR,
PIN-413304, DIST-SOLAPUR
Maharashtra State, INDIA



सहकार शिरोमणी
वसंतराव काळे सह. साखर कारखाना लि.
चंद्रभागानगर
पो. भाळवणी ता. पंढरपूर, पिन - ४१३३०४
जिल्हा - सोलापूर (महाराष्ट्र राज्य)

Phone No. (02186) 247258 / 247256 Fax No. (02186) 247257 E-mail: mdsssksspr@gmail.com

SSVKSSK/LWO/2310 /2018-19 Date :- 16 / 11 /2018

CERTIFICATE

(TO WHOM SO EVER IT MAY CONCERN)

This is to certify that, **Mr. Kiran Sanjay More** a student of Master of Business Administration (MBA) of SEVERI's College of Engineering, Pandharpur (Solapur University) has Successfully completed summer Internship in the field of Finance from 25 May 2018 To 30 June 2018 with titled " Cost Volume Profit Analysis " under the guidance of Mr.K.R.Kadam sir, Dy. General Manager of SAHAKAR SHIROMANI VASANTRAO KALE SAHAKARI SAKHAR KARKHANA LTD;

During above period of his internship program with us he had been exposed to different process was found punctual, hard working and inquisitive.

Place :- Chandrabhaganagar,

Date :- 16 / 11 /2018

Managing Director

SSVKSSK Ltd. Chandrabhaganagar Pin-413304 Dist-Solapur

No. SUR/ PRR/PRG/ (A) 29(S) 90 22/1/90

Shivneri
Enterprises

CERTIFICATE

This is to certify that Mr. Mahesh Parmeshwar Patil who is a MBA student of Shree Vitthal Education & Research Institutes College of Engineering Pandharpur, has completed Summer Project in Shivneri Enterprises from 1st June, 2018 to 30th June, 2018 on 'A study on the Expectations of Customers with respect to Recruitment Services in Pune area for Shivneri Enterprises'

During the tenure of the project we found him hard working & sincere and we wish him all the very Best in his future endeavors.

Thank You

Shivneri Enterprises

For SHIVNERI ENTERPRISES

Partner

Partner

Shop No. 5, ABC Junction, Plot No. 26, Near Akurdi Railway Station, Nigdi Pune-411044

Email Id: shivneri19@gmail.com Web Side:Shivneri-enterprises.com 7887551191/855100200

IT WEBNET

2078, Gokul Nagar, Janata Plot, Pandharpur.

Email:itwebnet0107@gmail.com

Contact:+91 90 28 888 181

Date: 30 June 2018

CERTIFICATE

This is certify that **Miss. Payal Dattatray Tawtam** who is a **MBA** student of Shree Vitthal & Research Institute College of Engineering Pandharpur has completed, summer project in IT Web net from 1st June 2018 to 30th June 2018 on **"A Study on Customer Satisfaction Towards IT Web net, Pandharpur"** for our **IT** services section."

During the tenure of the project we found she is hard working & sincere and we wish her all the very best in her future endeavors.

Thank YOU!!

For IT WEBNET

IT WEBNET

PROPRIETOR

Mr. Vijay Yadav

Mr. Shri Vedpathak

KRChoksey
INTEGRATED FINANCIAL SOLUTIONS

Reg. No. AP0132002191

Ratilal Choksey Shares and Securities Pvt. Ltd.

1595, Ghongade Galli, Pandharpur - 413304

Date : 11/7/

TO WHOM SO EVER IT CONCERN

This is certifying that, Mr. Rohit Subhash Kawade is MBA Student of SVERI's College of Engineering and MBA, Pandharpur Mr. Rohit Kawade has undergone a training and completed a project on **"A Study On Behavior in Equity Market And Investment Strategy"** With reference to K. R. Choksey Shares and Sec. Pvt. Ltd.

He has carried our this project in K. R. Choksey Shares and Sec. Pvt. Ltd. from **11/6/2018 to 11/7/2018** in this span of project duration his candature was found to be very sincere and hardworking.

We wish him bright future.

Kisan Ratilal Choksey Share & Sec. Pvt Ltd

(G. S. Kulkarni)

For Kisan Ratilal Choksey Shares and Sec. Pvt. L

...ering Desses, Pharma
...r equipment components,
...ion components with CNC lathe,
...ns of Control panels & Industrial
...ation of S.S. & M.S.

TÜV AUSTRIA

APEX ENTERPRISESS

Date : 01/07/2018

CERTIFICATE

This is to certify that Mr. Halanwar Sanket Mohan, student of MBA II" Year, SVERI's College of Engineering Pandharpur (Dist- Solapur), has successfully completed his summer internship in the field of Finance from 1 June 2018 to 30 June 2018 with the title "A Study on Analysis of Financial statement Through Ratios with reference to Apex Enterprisess, Pune" under the guidance of Mr. Mahesh Joshi Sir. During the period of his internship program we found his sincere about the hardworking, punctual and regular attendance.

We wish his all the best in better future.

...t Enterprises
Nana Peth
Pune

Coca-Cola Hindustan Coca-Cola Beverages Pvt. Ltd.

Hindustan Coca-Cola Beverages Pvt. Ltd
Survey No. 78A & ... Post ...
Bhiwandi-Wada Road, Taluka Wada
Dist. Palghar - 421 ...
T : +91 2526 220678
T : +91 2526 220604
F : +91 2526 220091

Date :30th June 2018

TO WHOM IT MAY CONCERN

This is to certify that **Mr. Shrikant R. Pawar** student of **'Master of Business Administration' (MBA) of SVERI's College of Engineering, Pandharpur (Solapur University)**, he has successfully completed summer internship in field of Finance from **1-June-2018 to 30 June-2018** with titled **"A study on consumer behavior with respect to soft beverage especially Mazza for the Hindustan Coca-Cola Beverages Pvt. Ltd."**

During the period of his internship program with us he had been exposed to different process was found punctual, hardworking and inquisitive.

We wish him all the best for his future endeavors.

For Hindustan Coca – Cola Beverages Pvt. Ltd

Ranjan Khirade
Team Leader -HR

Hindustan Coca-Cola Beverages Pvt. Ltd. * Wada

...ary equipment components.
...casion components with CNC lathe.
...Kinds of Control panels & Industrial
...rication of S.S. & M.S.

TÜV AUSTRIA

APEX ENTERPRISES

Date : 01/07/2018

CERTIFICATE

This is to certify that **Mr. Joshi Shrikrushna Haribhau,** student of **MBA II[nd] Year, SVERI's College of Engineering Pandharpur (Dist- Solapur),** has successfully completed his summer internship in the field of **Finance** from **1 June 2018 to 30 June 2018** with the title **"A STUDY ON CASH MANAGEMENT WITH REFERENCE TO APEX ENTERPRISES, PUNE"** under the guidance of **Mr. Mahesh Joshi Sir.** Dur... period of his internship program we found his sincere about the hardworking, punctual and regular attendance.

We wish him all the best in better future.

Apex Enterprises
Narhe
Pune

pehla job
We help recruit

TO WHOMEVER IT MAY CONCERN

This is to certify that **Ms. Sonali Pandurang Honmane** from SVERI College of Engineering, Pandharpur has successfully completed her internship with us. Her internship term was **4th June 2018 to 12th June 2018**

As part of the internship program, she was placed with our Accounts and finance department. She was actively involved with project into Analysis of Financial Statement with Reference to Treezec E Solutions Pvt. Ltd Mumbai

During the internship, she was found to be punctual, positive and performance oriented.

Ms. Sonali Pandurang Honmane has completed her projects with commitment and sincerity.

We wish success in her career.

Sincerely,

TREEZEC-E SOLUTIONS PVT LTD MUMBAI 400013

For Treezec-E Solution Pvt Ltd.

Place: Mumbai

Treezec-E Solutions Private Limited

adisun
SOLAR INDIA PVT. LTD.
INFINITE ENERGY

CERTFICATE

Date: 30th June 2018

TO WHOM IT MAY CONCERN

This is to certify that **Miss. Sonali Dilip Shindenaik** , student of **'Master of Business Administration' (MBA) of SYERI's College of Engineering, Pandharpur (Solapur Univereity)**, has successfully completed summer internship in the field of **Marketing Management** , from **1-June-2018 to 30-June 2018**,with title of "**A study on customer awareness and perception with respect to different solar products, for Adisun solar India Pvt. Ltd.** " under the guidance of, **Mr. Krishnakant B. Potdar** General Manager of **"Adisun Solar India Pvt. Ltd. , Pune".**

During the period of her internship program with us, she has been exposed to different process and was found punctual, hard working and inquisitive. We wish her every success in her life and career.

For Adisun Solar India Pvt.Ltd.

Adisun Solar India Pvt. Ltd. Pune 411009 * 411009 *

Sunil. S. Jaybhay

Director

GHADAGE AUTOMOTIVES
(TATA MOTORS AUTHO.SERVICES STATION)

DATE:-20/08/201

TO WHOMSOEVER MAY CONCERN

CERTIFICATE

This is to certify that Mr.Dongre Vijay Kalyan a student of MBA Departmen
MBA-II)studies SVERI's college of engineering, pandharpur he has succesfull
mpleted his summer intership in our orgnization -for the title "A STUDY ON
STOMER SATISACTION WITH RESPECT TO AFTER SALES SERVICES
TATA MOTORS" Work /Industrial Implent Training for the period of 01/06/2
4/07/2018.During the period of training we found that he is sincere and
dworking..

GHADAGE AUTOMOTIVES

GHADAGE AUTOMOTIVES Manager PANDHARPUR

PANDHARPUR-SANGOLA ROAD,NR TOLL,4 MAIL,KASEGAON,TAL-PANDHAR
02186)216444,9890910410,7774046050



M/s. SURAJ TRACTORS

Near Pune-Solapur By pass Road, TEMBHURNI,
Tal. Madha, Dist. Solapur
Ph :- (02183)231777, Mob 9423332877

AUTHORISED DEALERS
MASSEY FERGUSON TRACTORS & FARM IMPLIMENTS

TAFE
MASSEY FERGUSON

To whom so ever it my concern

This is to certify that **Mr. Pawar Akash Somnath** a student of SVERI's College of Engineering, Pandharpur, Dist. Solapur has worked in our organization on a project assigned by us. He has worked on the project **"A STUDY ON CUSTOMER BEHAVIOUR OF TAFE TRACTORS WITH SPECIAL REFERANCE TO SURAJ TRACTORS, PANDHARPUR".**

He has successfully completed his summer internship from 01/06/2018 to 30/06/2018 at **SURAJ TRACTORS**Pandharpur. During the period of his project he was participated in all activities of our showroom

We wish him all the best luck in his future endevaour.

SURAJ TRACTORS
Karmala Chowk, Tambhurni
Tal:- Madha, Dist:- Solapur
☎: (02183) 231777
SurajTractors

Mr. Vikas Pandhari Mane

CERTIFICATE

This is to certify that Miss. Amruta Sanjay Nikam student of Master of Business Administration from SVERI College of Engineering Pandharpur (M.B.A) has successfully completed her data collection for "The Training & Development" comparative study.

Miss. A.S. Nikam has shown keen interest in her data collection and the project report work while she was with us from 1st June 2018 to 10th June 2018.

Managing Director

Shri Sant Damaji S.S.K Ltd., Mangalwedha

CERTIFICATE

This is to certify that Miss. Ankita Sanjay Niham student of Master of Business Administration from SVERI College of Engineering Pandharpur (M.S) has successfully completed her data collection for "The Labor Investment of the non seasonal workers" comparative study.

Miss. A.S. Niham has shown keen interest in his data collection and the report work while she was with us from 1st June 2018 to 30th June 2018.

Managing Director
Shri Sant Damaji S.S.K Ltd. Mangalwedha

To Whom It May Concern

This is to certify that Ms. Bhakti Deshpande a student of 'College of Engineering, Pandharpur, Maharashtra' has completed the project titled "A Study on Recruitment and Selection Process" in fulfillment of submission for the academic year 2018-2019.

She has completed the project within One month duration i.e. from 1st June 2018 to 30th June 2018 as a Project Trainee under the guidance of Ms. Meghana Kulkarni. We found the Project satisfactory and as per the company standards and specifications.

Meghana Kulkarni
Sr. Manager HR - ADMIN
DesignTech Systems Ltd.

DesignTech Systems Ltd. Pune 411038

Sky

Sky Moto

Internship Certificate

This is to certify that Mr. Bipin Deepak Bhalerao who is a MBA student of **Shri Vithal Education & Research institute's college Of Engineering Pandharpur,** has successfully completed summer project internship in our organization starting from, 4th June to 4th July 2018, on "A study of consumers buying behaviour towards buying car" for sales department.

During the training he was found punctual, hardworking and sincere to work.

We wish him good luck and look forward for brilliant success in his career.

For & on behalf of:

Sky Moto Automobiles Pvt Ltd.

HR Manager

Sky Motor Automobiles Pvt. Ltd. Pune

Shop # A2, Kunal Park, Keshav Nagar, Chinchwad, Pune – 411033.
Web: www.orangetechindia.in / Email: sales@orangetechindia.in
Call: +91 855 284 7979 / +91 7722 08 1114

Orange Technologies

Ref. No:- OT / HR / ST / 2017-18 / 023

Date :- 30th June2018

CERTIFICATE

This is to certify that **Mr. Chetan Ashok Yevankar** who is a MBA student o

Shree Vitthal Education & Research Institutes College of Engineering Pandharpu

has completed, Summer Project in Orange Technologies from 1st June, 2018 to 3

June, 2018 on **"A Study on Market Research of Electronic Security Systems**

Orange Technologies" for our Electronic Surveillance section.

During the tenure of the project we found him hard working & sincere an

wish him all the very Best in his future endeavors.

YOU!

ange Technologies

ORANGE TECHNOLOGIES • PUNE • OT

Salil Shrikant T

52847979 / 7722081114

HONDA

Date / /2018

CERTIFICATE

This is to certify that **Mr. Ganesh Madhukar Bhanvase** a student of **SVERI'S** college of Engineering Pandharpur Dist. Solapur has worked in our organization on a Project assigned by us. He has worked on the project named **"A STUDY ON COSTOMER SATISFICATION TWOWORDS "HONDA BIKE" WITH SPECIAL REFERANCE OF SANGRAM WHEELS PVT. LTD.** He has successfully completed his summer internship in **"SANGRAM WHEELES PVT LTD"** during the period of 01/05/2018 to 03/07/2018 his project he was participated in all showroom activity We wish him all the best in future.

MANAGER

MR. MANOJ PATIL

YAMAHA

श्री मोटर्स

(अधिकृत सर्व्हिस हब्ब सेल्स अँड सर्व्हिस)

दिनांक : / / २०१८

CERTIFICATE

This is the certify that **Mr. LAWATE NITIN PANDURANG.** Is student of **M.B.A II SVERI college of engineering Pandharpur.** He has completed project on "A Study on brand positioning of Yamaha bikes with Special reference to **Shree Motors Yamaha, Pandharpur**" In our organization from **05th June 2018 to 05th July 2018.**

We found his hard working ability and punctual.

We wish him every success in her future assignment.

SHREE MOTORS YAMAHA

SHREE MOTORS 191.30 PANDHARPUR

PANDHARPUR.

G4S

Date: 30th June 2018

TO WHOM IT MAY CONCERN

This is to certify that **Mr. Prakash Dharmanna Mali**, a student of the **SVERI's College of Engineering, Pandharpur**, Dist- Solapur, has worked on a project assigned by us, name was **"A study on employee welfare measures with respect to G4S Facility Services (I) Pvt. Ltd"** He has successfully completed his internship from 1st June, 2018 to 30th June,2018 at **G4S Facility Services (I) Pvt. Ltd, Pune.**

During the period of internship he was found to be, ambitious and hard working. His commitment to learn and work gives lot of pleasure in issuing this certificate to him.

I wish him success for all his future endeavors.

FOR G4S FACILITY SERVICES (INDIA) PVT LTD.

PRADIPKUMAR PATOLE
ASST. MANGER HR

Organizational Guide: Mr. Pradipkumar Patole

Designation: Assistant manager HR

Organization: G4S Facility Services (I) Pvt. Ltd

Date: 30th June, 2018

G4S Facility Services (India) Pvt. Ltd. PUNE

ISSA MEMBER The Experts in Cleaning and Maintenance

Registered Office

COLDWAY
Innovation Pvt. Ltd.
Office : 35/B Anand nagar Society, B/h. Ambience Arcade,
Opp. Fatehpura Post Office, Bhattha, Paldi, Ahmedabad. Ph. 079 - 26614222

DATE : 10/07/2018

TO WHOM SO EVER IT MAY CONCERN

This is to certify that Mr. Pramod M. Mali student of M.B.A. (Marketing), College of Engineering, Pandharpur has done a project report on

"To study on customer satisfaction towards Refrigeration & air conditioning products With special reference at **Coldway Innovations Pvt. Ltd.** Gujarat." for the period of 35 days from 05/06/2018 to 10/07/2018.

He has worked under our guidance and direction. During his project his behavior and conduct was good & his work found genuine and excellent in all respect.

Best Regards,

For, **Coldway Innovations Pvt. Ltd.**

achin Mehta

irector

DelVal Flow Controls Private Limited
Gat No. 28, At - Kawathe, Post - Javale, Tal. Khandala, Dist. Satara, Pin - 412801 INDIA
• Phone : 02169 241285/86/87 • Fax : 02169 241286
• Website : www.delvalflow.com

DelVal
Flow Controls

Date – 30/05/2018

To Whom So Ever It May Concerned

This is to certify that Ms. Puja Prakash Sabale from Shri Vitthal Education & Research Institutes College of Engineering, Pandharpur had undergone training and done her project on "To Study Stress Management of Employees" in our organization from 1st June 2018 to 30th June 2018.

During her training she found sincere and hardworking. We wish her all the best for her future prospect.

For Delval Flow Controls Pvt.Ltd.

Ajay Upadhyay
Senior Executive
HR & Administration

DELVAL FLOW CONTROLS PVT. LTD. SATARA

बाबासाहेब देशमुख शेतकरी सहकारी सूत गिरणी मर्यादित
आटपाडी-४१५ ३०१, जि. सांगली (महाराष्ट्र)
BABASAHEB DESHMUKH SHETKARI SAHAKARI SOOT GIRI
MARYADIT, ATPADI - 415 301, DIST. SANGLI (MAHARASHTR
(02343) 221165, 221166 Fax (02343) 221165 Email ID- bdsgirni@gmail.com, bdsgirni_atpadi@rediffmail.
Founder Chairman : N.R. Alias Rajendra Babasaheb Deshm

Date 03/05/2018

Certificate

This is to Certify Miss. Deshmukh Rajgauri Sanjay is Student of (MBA) of Shri. Vitthal Education & Research institutes college of Engineering Pandharpur. She Completed Summer project in Babasaheb Deshmukh Shetkari Sahakari Soot Girni Maryadit Atpadi form 03/05/2018 to 03/06/2018 on a study of 'HR' Policies and Practices' in our Spinning Mill.

We found her and hard working and punctual we wish every success in her further endeavourment.

(U. N. Nanage)

Managing Director

Babasaheb Deshmukh Shetkari Sahakari Soot Girni Maryadit
Reg No
SAN/PRG-(Ah-11
Date 27/09/1990

D.V.Patil Developers Pvt.Ltd.

K.B.P. College Road, Pandharpur, Dist. Solapur

Mo.8459602009

Ref.No. DVPM: /oy 18-19 Date: 01-Jul-2018

To whom so every it may concern

This is to certify that **Miss: Rani Vitthal Gadade.** Student of Shri Vitthal Education &Research Institute College of Engineering.Pandharpur, has successfully completed her summer internship project training in marketing from 01-Jun-2018 to 01-Jul-2018 in our organization on the topic of **Study on Customer Preference towards DVP MART** in Pandharpur.

During the internship period she was found to be hard working and sincere, we wish her all the best of her future career.

Authorized signature

General Manager

DVP MART

SQUARE VISION TECHNOLOGIES

CERTIFICATE

TO WHOM IT MAY CONCERN

Date: 05/07/2018

This is to certify that Miss. Rupali Ramesh Paraswar a student of sver's(MBA Department) Pandharpur had completed her project report on A project title **"A Role Of Social Networking sites in Recruitment"** in our company as a part of curriculum from 03-jun-2018 to 03-jul-2018.

During this period she was exposed to the various recruitment aspects of the company and had extensive training on recruitment procedure

Her performance, behavior and attendance were found to be good during the training period.

We wish all success in her future and endeavor's.

(Authorised signatory)

Shivkumar Shivappnor

adisun

CERTFICATE

Date:30th Jun2018

TO WHOM IT MAY CONCERN

This is to certify that **Miss. Sneha Arun Jagtap**, student of

'Master of Business Administration' (MBA) of SVERI's College of Engineering, Pandharpur (Solapur Univercity), has successfully completed summer internship in the field of **Marketing Management**, from **1-June-2018 to 30-June 2018**, with title of "**A study on customer satisfaction towards solar industry with special reference to Adisun solar India Pvt. Ltd Pune**" under the guidance of, **Mr. Krishnakant B. Potdar** ,General Manager of **"Adisun Solar India Pvt. Ltd Pune".**

During the period of her internship program with us, she has been exposed to different process and was found punctual, hard working and inquisitive. We wish her every success in her life and career.

For Adisun Solar India Pvt.Ltd.

M. S. Jaybhay

Director

Founder : Late Sahakar Maharshi Shankarrao Mohite-Patil
SHIVAMRUT Dudh UtpadakSahakari Sangh Maryadit; Vijaynagar-Akluj
Regd. No. S.U.R./M.K.T./Dairy 104/1976 Date : 27/1/1976

O.W.No.Shivamrut-Adm./1255/2018-19 Date:- 12th Nov. 2018.

TO WHOM SOEVER IT MAY CONCERN

This is to certify that Miss. **Sonam Raju Waghmare** Student of **Shri Vitthal Education & Research Institute College of Engineering, Pandharpur** has successfully completed her Summer Internship Project Training in marketing from 01/06/2018 to 02/07/2018 in our Organization on the topic of **'Study on Branding of milk & milk products with specific reference to Shivamrut Dudh Utpadak Sahakari Sangh Maryadit Vijaynagar-Akluj.'**

During the internship period she was found to be hard working and sincere. We wish her all the best of her future career.

Managing Director
Shivamrut-Vijaynagar

Founder : Late Sanakar Maharshi Shankarrao Mohite Patil

SHIVAMRUT

Dudh Utpadak Sahakari Sangh
Maryadit; Vijaynagar-Akluj

Regd. No. S.U.R./M.K.T./Dairy/1941/2015 Date: 20/10/2015

O.W. No. Shivamrut-Adm./ 600 /2018-19 Dated:- 03rd June 2018.

TO WHOM SOEVER IT MAY CONCERN

This is to certify that Miss. **Vidva Subrao Sarvade** Student of **Shri Vitthal Education & Research Institute College of Engineering, Pandharpur** has successfully completed her Summer Internship Project Training in marketing from 01/06/2018 to 02/07/2018 in our Organization on the topic of **'Dealers satisfaction with respect to Shivamrut co-operative milk union.'**

During the internship period she was found to be hard working and sincere. We wish her all the best of her future career.

Managing Director
Shivamrut-Vijaynagar

Ashwini Biotech

Bhumata-Pailwan-Sugarking-Pancharatna-Pruthviraj

Gat No. 20/1 K Pokharapur, Mohol, Dist- Solapur-413308
Mob: 9850222333
E-Mail: ashwinibiotech@rediffmail.com

Ref: ABM/D/2018-19/12

Date: 02/09/2018

To Whomsoever It May Concern

This is to be certified that Mr. Ganesh Asabe, student of SVERI's college of Engineering Pandharpur, MBA dept. has done one month summer internship with our company. The project work was carried out on "A STUDY ON POMEGRANATE FARMING AND USE OF ORGANIC FARMING PRACTICES IN SANGOLA TALUKA WITH SPECIAL REFERENCE TO ASHWINI BIOTECH, POKHARAPUR, MOHOL" during the period of 5th June 2018 to 4 July 2018.

We found Mr. Ganesh sincere and hard working during project work and wish him all the best for his future endeavors.

(Mr. C. C. Pisange)
General Manager Sales

ASHWINI BIOTECH

(Mr. A. R. Pawar)
Chief Executive Officer

G4S Facility Services (India) Pvt. Ltd.
CIN No. U67120DL1981PTC102278
Office No. 5 Plot 14(1/1,
Aadhar Highte, Kharadi
Pune - 411014
INDIA

www.g4s.in

Date:- 30th June 2018

TO WHOM IT MAY CONCERN

This is to certify that **Miss.Snehal Kumar Shinde**, a student of the **SVERI's College of Engineering, Pandharpur**, Dist – Solapur, has worked on a project assigned by us, name was **"A study on employees performance appraisal in G4S Facility Services (I) Pvt. Ltd"** She has successfully completed her internship from 1st June, 2018 to 30th June,2018 at **G4S Facility Services (I) Pvt. Ltd.** Pune.

During the period of internship she was found to be, ambitious and hard working. Her commitment to learn and work gives lot of pleasure in issuing this certificate to her.

I wish her success for all future endeavors.

FOR G4S FACILITY SERVICES (INDIA) PVT LTD.

PRADIPKUMAR PATOLE
ASST. MANGER HR

Organizational Guide: Mr. Pradipkumar Patole

Designation: Assistant manager HR

Organization: G4S Facility Services (I) Pvt. Ltd.

Date: 30th June, 2018

G4S Facility Services (India) Pvt. Ltd. PUNE

CORPORATION BANK
PANDHARPUR

Ref No:-

Date:-

CERTIFICATE

TO WHOM SO EVER IT MAY CONCERN

This is to certify that Mr.Miskar Akash Manohar is a student of SVERI'S COLLEGE OF ENGINEERING Pandharpur dist-solapur has completed her summer internship project in Title "A STUDY ON MARKET RESERCH OF E-BANKING SERVICES IN PANDHARPUR AREA FOR CORPORATION BANK" he has completed his Project work from 01/06/2018 to 30/06/2018 During the Project he was Found pratical Sincere and hardworking.

ress.
7/98 Navipeth Pandharpur(413304)Tal-Pandharpur,
-Solapur (MAHARASHTRA)
tact No:-(02186)222577



M/S AKIL ENTERPRISES
PANDHARPUR
SWARAJ

Dated: 30-7-18

TO WHOMSOEVER MAY CONCERN

CERTIFICATE

This is to certify that Mr.Yadav Akshay Kaushik a student of MBA Department (MBA-II) studies SVERI's College of Engineering,Pandharpur he has to succesfully completed his summer intership in our orgnization for the title"A STUDY ON USTOMER BEHAVIOUR TOWORDS SWARAJ TRACTOR SERVICES IN PANDHARPUR AREA"Work/Industrial implent Training for the period of 04/06/2018 to 16/07/2018.During the period of training we found that he is sincere and hardworking

M/S AKIL ENTERPRISES

AKIL ENTERPRISES Pandharpur

AMAHA

श्री मोटर्स

(अधिकृत यामाहा विक्रय केन्द्र व सेवा केन्द्र)

दिनांक : 30 / 8 / 2018

To whom so ever it my concern

This is to certify that Mr. Gawade Sagar Siddhas a student of SVERI's College of Engineering, Pandharpur, Dist. Solapur has worked in our organization on a project assigned by us. He has worked on the project **"A STUDY ON CONSUMER SATISFICATION OF FZ MODEL WITH SPECIAL REFERANCE TO SHREE MOTORS YAMAHA, PANDHARPUR".**

He has successfully completed his summer internship from 05/06/2018 to 07/2018 at **SHREE MOTORS YAMAHA** Pandharpur. During the period of project he was participated in all activities of our showroom

We wish him all the best luck in his future endevpour.

Owner

Mr. Shrishankar Suryavanshi

SHREE MOTORS
PANDHARPUR

BY Agro Crop Sciences 2013 14

Supali Tal.Pandharpur Dist. Solapur Ph.(02186)272311

Off.SR No.148, Adarshanagar Hinjawadi Pune

Certificate

This is to certify that Miss. Nakate Pooja Arun

Student of MBA -II of SVERI Pandharpur Has sucessfully completed her

Project " A STUDY OF GRAPE FARMING AND USE OF ORGANIC

AGRICULTURAL PRODUCTS IN PANDHARPUR TALUKA

She has done the project for the period 05/06/2018 to 05/07/2018

We Wish her Best of luck for her bright future

B. Y. Agro Crop Sciences
Prop. Plot No. 302, A/P. Supali 413304
Tal. Pandharpur, Dist. Solapur.
BY Agro Crop

YORK

MORE MILES AHEAD - SINCE 1959

www.yorktransport.com

York Transport Equipment (India) Pvt. Ltd.
Regd. Office & Factory :
Gat No. 537 & 538, Sadhalwadi, Vill. : Nigudsi, Tal.-Maval, Pune, State of Maharashtra (India), Pin - 410 507
Tel. : 02114 - 6450222
CIN-U60100PN2008PTC146916

Ref. No. - HRM / PC/ 2018-19 / 01

Date:- 6th July 2018

CERTIFICATE

This is to certify that Ms. Manjushree Subhash Sargar who is a MBA student of Shree Vitthal Education & Research Institutes College of Engineering Pandharpur, has completed, Summer Project in York Transport Equipment India Pvt. Ltd., from 4th June, 2018 to 6th July, 2018 on "*"Study of Recruitment and Selection Process with reference to YORK TRANSPORT EQUIPMENT INDIA PVT. LTD."*

During the tenure of the project we found her hard working & sincere and we wish her all the very Best in her future endeavors.

Thank YOU!

For York Transport Equipment India Pvt. Ltd.

Abhishek Ojha
Sr. Manager - HR

B2B

Business2Brands LLC,
Office No. 910, Tower-2,
Next to EON IT Park, World
Trade Center, Kharadi,
Pune - 411004.

Date: 13 Jul. 2018

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Mr. Appaso Navanath Shinde** student of **Master of Business Administration (Human Resource)** from **"SVERI's College of Engineering (MBA), Pandharpur, Dist.- Solapur"** has completed Summer Training on the topic of **"A STUDY ON EMPLOYEE RETENTION with Special Reference at Bussiness2Brands Limited Liability Company"** for the period of 30 days from **11 June.2018 to 10 Jul. 2018.**

He has worked under our guidance and direction. During his project his behaviour and conduct was good & also his work found genuine and excellent in all respect. We wish his all the best for the future.

Best Regards,

For Business2Brand LLC.

BUSINESS2BRANDS LLC
INDIA

Manager HR

Signature & Stamp of Issuing Authority

Aphron Infotech

Email: hr@aphroninfotech.in

Date : 09-07-2018

Ref: aphr/088/18

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Mr. Ajinkya Dilip Machale** student of **Master of Business Administration (Human Resource)** from **"SVERI's College of Engineering (MBA), Pandharpur, Dist.- Solapur"** has completed Summer Training on the topic of **"CORPORATE TRAINING with RETURN ON INVESTMENT at APHRON INFOTECH PVT LTD PUNE"** for the period of 30 days from **07 June.2018 to 06 Jul. 2018.**

He has worked under our guidance and direction. During his project his behaviour and conduct was good & also his work found genuine and excellent in all respect. We wish his all the best for the future.

Best Regards,

For, Aphron Infotech Pvt. Ltd.

Nikhil kumbhar

Mr. Nikhil Kumbhar

Founder & CEO

APHRON INFOTECH PVT. LTD. PUNE

Address :
PRIDE ICON, Office No.308, Kharadi-Nadapaar Bypass Road, Near Reliance Smart, Kharadi, Pune-411014

SVERI's
College of Engineering, Pandharpur

Department of Master of Business Administration (MBA)

Sample Project Report

A.Y.: 2018-19

A

PROJECT REPORT

ON

"A STUDY ON CASH MANAGEMENTWITH REFERENCE TOAPEX ENTERPRISES, PUNE".

Submitted to

SOLAPUR UNVERSITY, SOLAPUR

IN PARTIAL FULFILMENT OF REQUIREMENT

FOR THE AWARD OF DEGREE IN

MASTER OF BUSINESS ADMINISTRATION

Submitted By

Mr.Shrikrushna Haribhau Joshi

Under the guidance of

Mrs. R. N. Misal

SVERI

M.B.A Department

S.V.E.R.I's COLLEGE OF ENGINEERING, PANDAHARPUR

Academic Year

2018-2019

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A

PROJECT REPORT

ON

"A STUDY ON CASH MANAGEMENTWITH REFERENCE TOAPEX ENTERPRISES, PUNE".

Submitted to

SOLAPUR UNVERSITY, SOLAPUR

IN PARTIAL FULFILMENT OF REQUIREMENT FOR THE AWARD OF DEGREE IN

MASTER OF BUSINESS ADMINISTRATION

Submitted By

Mr.Shrikrushna Haribhau Joshi

Under the guidance of

Mrs. R. N. Misal



SVERI's College of Engineering, Pandharpur

MBA Department

2018-2019

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CERTIFICATE

This is to certify that project report entitled **"A STUDY ON CASH MANAGEMENT WITH REFERENCE TO APEX ENTERPRISES, PUNE"**has been completed successfully and submitted by **MrShrikrushna Haribhau Joshi** of M.B.A.-II Class in the partial fulfilment for the award of master's Degree in **Master of Business Administration** as per curriculum laid by the **SOLAPUR UNIVERSITY, SOLAPUR** during the academic year 2018 -2019.

(Prof. K.B. Patil)

HOD

(Mrs.R.N.Misal)

Guide

(Dr. B. P. RONGE)

Principal

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DECLARATION

I Mr. Shrikrushna Joshi, a student of MBA Semester-III, of SVERI's College of Engineering, Pandharpur hereby declare that this project report entitled **"A STUDY ON CASH MANAGEMENT WITH REFERENCE TO APEX ENTERPRISES,PUNE"** has been prepared by me as a part of the requirement of the MBA program of **SOLAPUR UNIVERSITY, SOLAPUR** (batch of 2018-2019),under the guidance of Mrs.R.N.Misal.

This project is submitted in partial fulfilment of the requirement of Master of Business Administration course is my original work and is the outcome of the practical knowledge and experience gained by me during the course of my summer internship.

Place: Pandharpur

Joshi S.H

Date: 23/11/2018 **(Mr.Shrikrushna Haribhau Joshi)**

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Mfg of.:
Engineering Goods, Pharma
& Dairy equipment components,
Precision components with CNC lathe.
All Kinds of Control panels & Industrial
Fabrication of S.S. & M.S.

TÜV AUSTRIA

APEX ENTERPRISESS

Date : 01/07/2018

CERTIFICATE

This is to certify that **Mr. Joshi Shrikrushna Haribhau,** student of **MBA II[nd] Year, SVERI's College of Engineering Pandharpur (Dist- Solapur),** has successfully completed his summer internship in the field of **Finance** from **1 June 2018 to 30 June 2018** with the title **"A STUDY ON CASH MANAGEMENT WITH REFERENCE TO APEX ENTERPRISES, PUNE"** under the guidance of **Mr. Mahesh Joshi Sir.** During the period of his internship program we found his sincere about the hardworking, punctual and regular attendance.

We wish him all the best in better future.

Apex Enterprises
Narhe
Pune

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ACKNOWLEDGEMENT

I Sincerely feel that the credit of this project work **"A STUDY ON CASH MANAGEMENT WITH REFERENCE TO APEX ENTERPRISES,PUNE"** could not be narrowed to one individual this is a integrated effort of all those concern with it, through whose able co-operation effective guidance I could complete it.

I take this opportunity to express my sincere gratitude towards my guide Mrs. R.N.Misal for her valuable guidance, advice and encouragement and also all the other faculty members for their constant assistant to me . I take this opportunity of thanking the library staff for their everyday willing help.

I would like to thank concerned authorities inApex Enterprisess , Pune for their kind co-operation and thanks to Owner Mr. Mahesh Joshifor his kind of co-operation and valuable guide in study.

I would like to our respected Principal Dr. B.P.Ronge Founder secretary of SVERI's College of Engineering, Pandharpur and our Head of Department Prof. K.B.Patil for their encouragement.

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CHAPTER – 1

INTRODUCTION OF THE STUDY

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1.1 INTRODUCTION:

Indian market is known as domestic market in Asian region and particularly in all kinds of Control Panels, Dairy Equipment and pharmEquipment. Alfa Laval and Retail is major domestic player in the market and have established their own brand image in India.

I feel great pleasure to undertake the project in Apex Enterprisess which manufacturing Control Panels, Dairy Equipment and Pharm Equipment. I have gone with different outlook which has force me to change and understand different concepts relating to the finance. The company gets ISO 9001 certificate in Austria Certificate GMBH.The competitor of this firm Alfa Laval and Retail. The firm grows their business in manufacturer units.

Finance is the needed for day to day operation of the business. So it may be regarded as the life blood of business. Finance refers to part of total capital which is required for day to day working of the business. The funds are required by the business for conducting its regular operation such as purchases or raw materials or finished goods, payment of wages and manufacturing expenses, selling and distribution.

Cash is the important current asset for the operations of the business, Cash is the basic input needed to keep the business running on a continuous basis, It is also the ultimate output expected to be realized by selling the services or product manufactured by the firm. Cash is the money which a firm can disburse immediately without any restriction.

Financial management is that managerial activity which is concerned with the planning and controlling of the firm's financial resources. As a separate activity or discipline, it is a recent origin.

A firm should in aim at maximizing the wealth of its shareholders. In its endeavor to do so, a firm should earn sufficient return from its operation. Earning a steady amount of profit requires successful sales activity. The firm has to invest enough funds in current asset for generating sales. Current asset are needed because sales do not

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convert into cash instantaneously. There is always an operating cycle involved in the conversion of sales into cash.

The objectives are to analyze the cash management and to determine efficiency in cash, inventories, debtors and creditors. Further, to understand the liquidity and profitability position of the firm. These objectives are achieved by using ratio analysis and then arriving at conclusions, which are important to understand the efficiency/ inefficiency of Cash.

It was noticed in the study that the company had utilized its cash efficiently and also try to get more effective values by working on it. The cash requires to meet out the current liabilities is maintained at a normal level that shows the company follows an average policy.

I have done my project in Apex Enterprisess. The topic for my study is Cash Management. The study is based on the figures and facts provided by the company for the same. This company is located in Narhe, Pune (District), and the manufacturing plant. The company working at manufacturing plant of Control Panels, Dairy Equipment and Pharm Equipment. They are using some polices for maintaining and control the company's position

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1.2 OBJECTIVES OF THE STUDY:

- To study the concept of Cash Management.
- To identify the cash receipts and cash payments transactions for a specific period for three years.
- Evaluate the cash position / Liquidity position of the firm.
- Prepare a Cash flow statement for the three years to identify liquidity position of the company.

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1.3 SCOPE AND LIMITATION OF THE STUDY

SCOPE OF THE STUDY:-

- The study is limited to the topic Cash Management.
- The study based on the few products manufactured by the company.
- The study is related to Apex EnterprisessPharm and Dairy Fitting Components, Emergency Stop Lock, Stainless Steel Panels and Electrical Control Panel only.

LIMITATIONS OF THE STUDY:-

- Time required for the entire study is very limited.
- The collected data is based on past financial statements.
- Study related to only cash transactions.
- To maintain secrecy company did not provide sufficient information for analysis.

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1.4 RESEARCH METHODOLOGY

Methodology is the systematic, theoretical analysis of the methods applied to a field of study. The methodology is the general research strategy that outlines the way in which project is to be undertaken and, among other things, identifies the methods to be used in it. These methods, described in the methodology, define the means or modes of data collection or, sometimes how a specific result is to be calculated.

1.4.1 SOURCES OF DATA:

To fulfill the objectives of my study, I have taken both into consideration i.e. primary and secondary data.

A) Primary Data –

These are the data which are collected from some primary sources i.e., a source of origin where the data generate. Data used in project is originally obtained through the direct efforts through the discussion with

1. Owner of the firm
2. Other concerned employees of the organization

B) Secondary Data –

These are the data which are collected from some secondary source. Secondary data collected for my project through:

1. Annual reports for the period i.e.2014-15, 2015-16 and 2016-17
2. Other Financial Statements
3. Website

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1.4.2 INSTRUMENTS OF DATA:

For the analysis of Cash Management of Apex Enterprises the data of cash flow (i.e. Cash Inflow and Cash Outflow) for the financial years of 2014-15, 2015-16 and 2016-17 were used.

1.4.3 DATA PROCESSING AND ANALYSIS:

Data analysis involves action and methods performed on data that help describe facts, detect pattern, and develop explanation.

For processing and analyzing following ways are identified for the study of Cash Management

- Preparation of Cash Flow Statements
- Graphical presentation of data.
- Interpretation based on calculation and graphs.

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1.5 SIGNIFICANCE OF THE STUDY:

- Cash management ensures that the firm has optimum cash to meet their obligations and payments.
- Cash management helps to meet obligatory cash out flows when they fall due.
- Cash management assists in planning capital expenditure projects.
- It helps to identify liquidity position during specified period.
- Cash Management helps to determine the future requirement of company on the front of cash.

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CHAPTER – 2

COMPANY PROFILE

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2. COMPANY PROFILE:

2.1 INTRODUCTION TO ORGANIZATION:

We, "Apex Enterprisess", got established in the year 2005, as a manufacturer of CNC Turning Component, 19 Inch Cabinet, Stainless Steel Enclosure, Panel System and much more. We Offer Industrial Products are highly acclaimed and appreciated by the clients. We have gained expertise in the manufacture of desk panel, which is commonly used in apartments, homes, offices and shopping malls. Our supplied desk panel is specially designed and engineered by the experts of the trade. Further, our offered, emergency stock lock is a versatile locking device. Our supplied emergency stock lock is made from superior grade raw materials, sourced from very reliable vendors in the market. Additionally, our supplied, fitting tools are specially designed for the laying the plumbing network. Our supplied fitting tools are made from high-grade raw materials, procured from very reliable and trusted vendors in the market.

Our infrastructure is spread over a large area of land. The infrastructure facility houses the production unit, quality assurance unit, warehousing facility, administration unit, logistics department and client support helpdesk. Further, we are able to store the bulk supplies of raw materials in our warehousing facility. Additionally, our offered, steel products are highly liked and appreciated by the clients, owing to the sturdy construct and durable design. Further, our offered, steel products are highly demanded and liked by clients, across the country. Additionally, our clientele includes commercial brands, across the country.

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2.1.1BACKGROUND AND INCEPTION OF THE ORGANIZATION:-

"Apex Enterprisess", got established in the year 2005, as a manufacturer of CNC Turning Component, 19 Inch Cabinet, Stainless Steel Enclosure, Panel System and much more. We Offer Industrial Products are highly acclaimed and appreciated by the clients. We have gained expertise in the manufacture of desk panel, which is commonly used in apartments, homes, offices and shopping malls.

We have become a reputed and reliable name in the list of manufacturers and suppliers of steel products and pipes. In addition to it, we have always made fair business deals with the clients. Further, our offered, steel products and pipes are highly liked and appreciated by the clients, due to the unmatched durability and cost effectiveness. Additionally, we offer, multiple modes of payment to the client organization.

Basic Information of Company:

Name of the Company	Apex Enterprisess
Nature of Business	Manufacturer
Company CEO	Mahesh Joshi
Total Number of Employees	Up to 10 People
Year of Establishment	2005
Legal Status of Firm	Sole Proprietorship (Individual)

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2.1.2 Ownership pattern:

ApexEnterprisess is fully owned company. It means Ownership pattern is SoleProprietorship (Individual). The sole proprietorship is the simplest business form under which one can operate a business. The sole proprietorship is not a legal entity. It simply refers to a person who owns the business and is personally responsible for its debts.

2.1.3 Nature of the firm:

Nature of the business is manufacturing. It is manufacturing the different type of 19 Inch Cabinet, Stainless Steel Enclosure, Panel System and much more.

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2.1.4 VISION, MISSION, OBJECTIVESAND QUALITYPOLICY:-

VISION:

Our vision, to build flow control products that will be installed in all plants world than will be installed in all plants world-wide as preferred brand, instills untiring enthusiasm and energy in us to build new products with a higher PQ and seek new opportunities, endlessly!

MISSION:

Our mission, to provide our customers with superior performance flow control products that are delivered by efficient people and processes, guides us in all our efforts to deliver total customer satisfaction.

OBJECTIVES:

- Ourlong-term objectives are to reach and maintain a "zero defects" quality level for all customer shipments. We achieve this by structuring our manufacturing methods, processes and controls.

- To create a positive impact on society through our initiatives in the areas of healthcare, education, social causes, art & culture and environmental sustainability.

- To work towards the overall progress of the society we live in.

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2.1.5 TYPES OF PRODUCTS AND SERVICES:-

Sr, No.	Product Name
1	Industrial Rotor Die
2	Industrial Die Castings
3	Dairy Equipment
4	Pharm Equipment
5	Assemblies of Dairy Equipment

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2.2MARKET SCENARIO:

The national consumption. It has made for its name for quality in India market. The die having market at Solapur, Pune, Hyderabad, Mumbai, and Tripura etc.

2.2.1 AREA OF OPERATION:-

Organizations are working at-

- National
- Regional

2.2.2 COMPETITOR'S INFORMATION:-

Alfa Laval and Retail.

Gustaf de Laval was a great technical genius whose inventions include the centrifugal separator and the first functional steam turbine. During his lifetime, he registered 92 patents and started 37 companies. In 1883, he and his partner, Oscar Lamm Jr., established the company AB Separator, the forerunner of today's Alfa Laval.

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CHAPTER – 3

THEORETICAL BACKGROUND

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3. THEORETICAL BACKGROUND:

3.1BRIEF REVIEW OF LITERATURE:

Zimmerer2008

cash management is the process of forecasting, collecting, disbursing, investing, and planning for cash a company needs to operate smoothly. They further added that cash management is a vital task because it is the most important yet least productive asset that a small business owns. A business must have enough cash to meet its obligations or it will be declared bankrupt. Creditors, employees and lenders expect to be paid on time and cash is the required medium of exchange.

Westerfield et al, 1999

Noted that it is important to distinguish between true cash management and a more general subject of liquidity management. The distinction is a source of confusion because the word cash is used in practice in two different ways.

Jeffrey P. Davidson et al, 1992

Cash management is particularly important for new and growing businesses. indicated in their book that cash flow can be a problem even when a small business has numerous clients, offers a superior product to its customers, and enjoys a sterling reputation in its industry.

Waltson and Head ,2007

Explained Cash management as the concept which is concerned with optimizing the amount of cash available, maximizing the interest earned by spare funds not required immediately and reducing losses caused by delays in the transmission of funds.

Davidson , 1999

Cash is any medium of exchange, which is immediately negotiable. It must be free of restriction for any business purpose. Cash has to meet the prime requirements of general acceptability and availability for instant use in purchasing and payment of

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debt. Acceptability to a bank for deposit is a common test applied to cash items. This is a process of Planning, controlling, and accounting for cash transactions and cash balances. It is channeling available cash into expenditures that enhance productivity, directly or indirectly. In addition, Cash is ready money in the bank or in the business. It is not inventory, it is not accounts receivable (what you are owed), and it is not property. These might be converted to cash at some point in time, but it takes cash on hand or in the bank to pay suppliers, to pay the rent, and to meet the payroll. Profit growth does not necessarily mean more cash.

Pandey, 2007

Cash is the important current asset for the operations of the business. Cash is the basic input needed to keep the business running on a continuous basis: it is also the ultimate output expected to be realized by selling the service or product manufactured by the firm. The firm should keep sufficient cash, neither more nor less. Cash shortage will disrupt the firm's manufacturing operations while excessive cash will simply remain idle. Without contributing anything towards the tint's profitability. Thus, a major function of the financial manager is to maintain a Sound cash position.

Hampton, 2001

Cash is the money which a firm can disburse immediately without any restriction. The term cash includes coins, currency and cheques held by the firm, and balances in its bank accounts. Sometimes near-cash items, such as marketable securities or bank times deposits, are also included in cash. The basic characteristic of near-cash assets is that they can readily be converted into cash. Generally, when a firm has excess cash, it invests it in marketable securities. This kind of investment contributes some profit to the firm.

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3.2 CONCEPTUAL FRAMEWORK:

3.2.1INTRODUCTION:

Cash is the one of the important current asset in every organization. It is a part of operating cycle as well. Without the proper amount of cash on hand, the organizations can run in to major trouble and even be forced in to bankruptcy. Organization must have cash hand for various reasons, such as investing in infrastructure and dealing with unexpected expenses. A company may have all the revenue in the world, but without the ability to generate cash, it can easily fail. For company availability of cash is essential to not only avoid the possibility of bankruptcy, but also advantage0f various expansion and growth opportunities. For the consumers cash represents one of the safest investments possible while preparing for uncertain times.

Cash is the most liquid asset. Cash common denominator to which all current assets can be reduce because receivables and inventories get convert in to cash. Cash is like blood of any firm needed to acquire supply resources \, equipment and other assets used in generating the product and services. The term cash includes coins, currency and cheques held by the firm, and balances in its bank accounts.

3.2.2 MEANING OF CASH MANAGEMENT

Cash management is the corporate process of collecting and managing cash, as well as using it for (short term) investing. It is key component of ensuring company's financial stability and solvency. Corporate treasures or managers are frequently for overall cash management and the related responsibilities to remain solvent.

Cash management is the treasury function of a business, responsible for achieving optimal efficiency in two key areas receivables which is cash coming in, and payables, which is cash going out. Managing cash enables a company to meet unexpected expenses and to handle regularly occurring events such as pay role distribution

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3.2.3 OBJECTIVES OF CASH MANAGEMENT:

Cash management is a broad term that refers to the collection, construction and disbursement of cash. It encompasses a company's level of liquidity, its management of cash balance and it short term investment strategies. In some ways, managing cash is the most important job of business manager. If at any time a company faces to pay an obligation when it is due because of the lack of the cash, the company is insolvent. Insolvency is the primary reason firms go bankrupt. Obviously, the prospect of such dire consequence should compel companies to manage their cash with care. Moreover, efficient cash management means more than preventing bankruptcy. It improves the profitability and reduces the risk to which the firm is exposed. Objectives of cash management:

To make payment according to payment schedule:

Firm needs cash to meet its routine expenses including wages, salary, taxes etc. Following are main advantages of adequate cash-

a) To prevent firm from being insolvent
b) The relation of firm with bank does not deteriorate.
c) Contingenciescan be met easily
d) It helps firm to maintain good relations with suppliers.

To managing cash balance:

The second objective of cash management is to minimize cash balance. Excessive amount cash balance helps in quicker payments, but excessive cash may remain unused and reduces profitability of business. Contrarily when cash available with firm is less, firm is unable to pay its liabilities in time. Therefore optimum level of cash should be maintained.

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3.3.4 ADVANTAGES OF CASH MANAGEMENT:

Due to cash management, large corporate firms are able to deposit larger sums of money into their accounts through a much easier and simplified method. Companies that mainly deal with cash payments tend to use armored vehicle services, which entails an armored vehicle being sent to the company's location and collecting cash in order to depositinto their primary bank account.

Another advantage of cash management services is that they allow companies to set up a lockbox. This is ideal for companies that receive a large number of payments through postal orders as it allows them to operate via a post office box. The bank or financial institution will register and set up the actual post office box for the company and will manage the entire process of payments made to the company. Through cash management, companies can ensure that the payments made to their lockbox are directly deposited to their company bank account.

Following is the list of benefits of cash management:

1. To estimate cash profit instead of profit from credit sale and outstanding incomes.
2. To estimate the speed of working capital cycle.
3. To find cash embezzlement.
4. To give some reward to debtors for getting cash from them easily.
5. To improve counting.
6. To changes the accounting's accrual system to cash system.
7. To solve the problem of working capital shortness.
8. To speed the operations of company.
9. To use present value of money more effectively.

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3.3.5CASH FLOW STATEMENT:

Meaning:

Cash flow statement is a statement which describes the inflows (sources) and outflow (uses) cash and cash equivalents during the specific period of time. Such a statement enumerates net effect of various business transactions on cash and cash equivalents and takes into account receipts and disbursement of cash. A Cash Flow Statement summarizes the causes of changes in the cash position of business enterprise between the two balance sheets. According to AS-3 (Revised), an enterprise should prepared a cash flow statement and should present it for each period for which financial statement are prepared. The term cash, cash equivalents and cash flow are use in this statement with the following meaning:

Cash:

Cash comprises of cash in hand and cash deposited with bank.

Cash Equivalents:

Cash equivalents are short term, highly liquid investment readily convertible into known amounts of cash and which are subject to an insignificant risk of change in value. Cash equivalents are held for the meeting short term cash commitments rather than for investment or other purpose. For an investment to qualify as cash and be subject to an insignificant risk of changes in value. Therefore, an investment normally qualifies as cash equivalents only when it has short maturity, of say, three months or less from the acquisition. Investments in shares are excluded from cash equivalents unless they are, in substance, cash equivalents.

Cash Flow:

Cash flow are inflow and outflow of cash and cash equivalents. Flow of cash is said to have taken place when any transaction makes changes in the amount of cash and cash equivalents available before happening of the transaction. If the effect of transaction results in the increase of cash and its equivalents, it is called an inflow (source) and if it result in the decrease of total cash, it is known as outflow (use) of cash.

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3.5.6CLASSIFICATION OF CASH FLOW:

According to AS-3 (Revised), the cash flow statement should cash flow during the period. Some transaction, such as the sale of an item of plant, may give rise to gain or loss which is included in the determination of net profit or loss. However, the cash flow relating to such transaction are cash flow from the investing activities.

- Cash Flow from Operating Activities.
- Cash Flow from Investing Activities.
- Cash Flow from Financing Activities.

1. Cash Flow from Operating Activities:

Operating activities are the principle revenue-producing activities of the enterprise and the other activities that are not investing activities or financing activities.

The amount of cash flow arising from operating activities is a key indicator of the extent to which the operation of the enterprise have generated sufficient cash flow to maintain the operating capabilities of the enterprise, pay dividends, repay loans and make a new investments without resource to external source of financing. Information about the specific components of historical operating cash flow useful, in conjunction with other information, in forecasting future operating cash flow.

Cash flow from operating activities are primarily derived from the principal revenue-producing activities of the enterprise. Therefore, they generally result from the transactions and other events that enter into determination of profit or loss.

2. Cash Flow from Investing Activities:

Investing activities are the acquisition and disposal of long term assets and other investments not included in cash equivalents. The separate disclosure of cash flow arising from the investing activities is important because cash flow represent the extent to which expenditures have been made for resources included to generate future income and cash flow.

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3. Cash Flow from Financing Activities:

Financial activities are activities that result in changes in the size and composition of owner's capitals and borrowings of the enterprise.

The separate disclosure of cash flow arising from the financing activities is important because it is useful in predicting claim on future cash flow by providers of funds (both capital and borrowing) to the enterprise.

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3.5.7ADVANTAGES OF CASH FLOW STATEMENT

- Cash Flow Statements help in knowing the liquidity / actual cash position of the company which funds flow and P&L are unable to specify.
- As the liquidity position is known, any shortfalls can be arranged for or excess can be used for the growth of the business
- Any discrepancy in the financial reporting can be gauged through the cash flow statement by comparing the cash position of both.
- Cash is the basis of all financial operations. Therefore, a projected cash flow statement will enable the management to plan and control the financial operations properly.
- Cash Flow analysis together with the ratio analysis helps measure the profitability and financial position of business.
- Cash flow statement helps in internal financial management as it is useful in formulation of financial plans.

3.5.8DISADVANTAGES OF CASH FLOW STATEMENT

- Through the cash flow statement alone, it is not possible to arrive at actual P&L of the company as it shows only the cash position. It has limited usage and in isolation it is of no use and requires BL, P&L for its projections. Cash flow statement does not disclose net income from operations. Therefore, it cannot be a substitute for income statement
- The cash balance as shown by the cash flow statement may not represent the real liquidity position of the business because it can be easily influenced by postponing the purchases and other payments
- Cash flow statement cannot replace the funds flow statement. Each of the two has a separate function to perform.

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3.6 OTHER FACTORS THAT AFFECT THE SIZE OF CASH BALANCE

1. Availability of short-term credit:

To avoid holding unnecessary large balances of cash, most firms' attempts to make arrangements at borrow money is case of unexpected needs. With such an agreement, the firm normally pays interest only during that the money is actually used.

2. Money market rates:

If money will bring a low return a firm may choose not to invest it. Since the loss or profit is small, it may not the worth the trouble to make the loan. On the other hand, if interest rates are very high, every extra rupee will be invested.

3. Variation in cash flows:

Some firms experience wide fluctuation in cash as a routine matter. A firm with steady cash flows can maintain a fairly uniform cash balance.

4. Compensating balance:

It a firm has borrowed money from a bank, the loan agreement may require the firm to maintain a minimum balance of cash in its accounts. This is called compensating balance. In effect this requires the firm to use the services of bank a guaranteed deposit on which it pays no interest.The interest free deposit is the bank's compensation for its advice and assistance.

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3.7 CASH FLOW ANALYSIS:

The cash flow analysis is done with the help of cash flow statement. A cash flow statement isa statement depicting in cash position from one period to another. It is an important planning tool Cash now statement gives a clear picture of the source of cash, the uses of cash and the net changes in cash The primary purpose of cash flow statement is to show that as to where from the cash to be acquired and where to use them.

3.7.1 UTILITY OF CASH FLOW ANALYSIS:

A cash flow analysis is an important financial tool for the management. Its chief advantages are as follows

1. Helps in efficient cash management:

Cash flow analysis helps in evaluating financial policies and cash position. Cash is the basis for all operation and hence a projected cash flow statement will enable the management to plan and coordinate the financial operations properly. The management can know how much cash is needed from which source it will be derived, how much can be generated, how much can be utilized.

2. Helps in internal financial management:

Cash flow analysis information about funds, which will be available from operations. This wall helps the management in repayment of long-term debt, dividend policies etc.

3. Disclose the movements of Cash:

Cash flow statement discloses the complete picture of cash movement. The increase in and decrease of cash and the reasons therefore can be known. It discloses the reasons for low cash balance in spite of heavy operations profits on for heavy cash balance in spite of low profits.

4. Disclose success or failure of cash planning:

The extent of success or failure of cash planning is known by comparing the projected cash low taken statement with the actual cash flow statement and necessary remedial measures can be taken.

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3.8SPECIMEN OF CASH FLOW STATEMENT (DIRECT METHOD)

Sr. No.	Particulars	Amt. (Rs)	Amt. (Rs)
a)	**Cash flow from Operating Activities**		
	Cash receipt from customer		
	Cash paid to suppliers and employees		
	Cash flow from extraordinary items		
	Operating profit		
Add	Increase in Current liabilities		
Add	Decrease in Current liabilities		
Less	Decrease in Current liabilities		
Less	Increase in current asset		
	Cash from Operation Activities		
b)	**Cash flow from Investment Activities**		
	Purchase of fixed asset		
	Proceeds from sale of fixed asset		
	Cash from Investment Activities		
c)	**Cash flow from Financing Activities**		
	Proceed from issuance of share capital		
	Proceed from long term borrowings		
	Repayment of long term borrowing		
	Interest paid		
	Dividend paid		
	Cash from Financing Activities		
	Net increase/ decrease in cash		
Add	Opening cash balance		
	Closing cash balance		

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3.9SPECIMEN FORM OF INDIRECT METHOD:

CASH FROM OPERATION

	PARTICULARS	Amt.(Rs)	Amt.(Rs)
	Net Profit		
Add	**Non cash and non-operating items which have already been debited to profit and loss account**		
	Depreciation		
	Goodwill written off		
	Preliminary expenses written off		
	Loss on sale of fixed asset		
	Bad debts reserve		
	Transfer to various reserve		
	Decrease in current assets		
	Increase in current liabilities		
Less	**Non cash and non-operating items which have already been credited to profit and loss account**		
	Income from investment		
	Profit on sale of fixed asset		
	Increase in current asset		
	Decrease in current liabilities		
	Cash from Operation		

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3.10 SPECIMEN FORM OF INDIRECT METHOD

Cash Flow Statement

For the year ended.....

Inflow	Amt.(Rs)	Outflow	Amt.(Rs)
Opening cash balance		Direct tax paid	
Sales of Fixed assets		Purchase of fixed asset	
Sales in Investment		Purchase of investment	
Long term borrowing		Interest paid	
Issue of share		Dividend paid	
Issue of debenture		Redemption of preference share	
Dividend		Repayment of debenture	
Cash from operation		Repayment of long term loan	
		Cash lost in operation	
		Closing cash balance	
Total (Rs)		**Total (Rs)**	

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CHAPTER – 4

DATA ANALYSIS AND INTERPRETATION

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4.1PREPARATION OF CASH FLOW STATEMENT WITH INDIRECT METHOD

Table 4.1.1 Showing Cash from Operation

For the period 31/03/2014 and 2015

	PARTICULARS	Amt.(Rs)	Amt.(Rs)
	Net Profit		**4,431**
Add	**Non cash and non-operating items which have already been debited to profit and loss account**		
	Depreciation	2,73,797	
	Interest	2,04,583	
	Provision	2,03,038	
	Increase in creditors	3,58,665	
	Other expenses	18,26,032	**28,66,115**
Less	**Non cash and non-operating items which have already been credited to profit and loss account**		
	Increase of stock	3,64,420	
	Increase of Deposit	72,055	
	Increase in Debtors	12,26,192	
	Other Income	1,07,000	
			17,69,667
	CASH LOST FROM OPERATION		**11,00,879**

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Table 4.1.2 Cash Flow Statement

For the period 31/03/2014 and 31/03/2015

Cash Inflow	Amt.(Rs)	Outflow	Amt.(Rs)
Opening balance Cash 62,084 Bank 9,800	71,884	Repayment of Capital Provision	2,07,329 1,39,690
Sale Of Motor Car	5,233	Purchase of Furniture	1,57,610
Loan taken	29,08,743	Purchase of Machinery	11,97,975
Sale Of Motor Cycle	2,593	Purchase of Tools and Equipment	62,904
Sale of Vehicle	11,019	Purchase of Computer	50,690
		Purchase of Investment	13,800
		Cash Lost in operation	11,00,879
		Closing balance Cash 13,400 Bank 55,193	68,593
Total (Rs)	**29,99,472**	**Total (Rs)**	**29,99,472**

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Table 4.1.3 Showing Cash from Operation

For the period 31/03/2015 and 31/03/2016

	PARTICULARS	Amt.(Rs)	Amt.(Rs)
	Net Profit		**2,70,218**
Add	**Non cash and non-operating items which have already been debited to profit and loss account**		
	Interest	1,62,700	
	Provision	10,80,271	
	Increase in creditors	2,24,946	
	Other expenses	6,45,242	**21,13,159**
Less	**Non cash and non-operating items which have already been credited to profit and loss account**		
	Increase of stock	1,61,111	
	Increase of Deposit	48,000	
	Increase in Debtors	10,03,833	
	Loans and Advances	55,000	
	Dividend received	10,903	
	Other Income	7,07,481	
	Depreciation(decreased)	29,288	**23,46,083**
	CASH FROM OPERATION		**37,294**

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Table 4.1.4 Cash Flow Statement

For the period 31/03/2015 and 31/03/2016

Cash Inflow	Amt.(Rs)	Outflow	Amt.(Rs)
Opening balance Cash 13,400 Bank 55,193	68,593	Repayment of Loan Provision	4,50,329 2,03,038
Raising of capital	8,82,526	Purchase of Furniture	58,489
Sale ofMachinery	1,81,990	Purchase of Investment	55,800
Sale Of Motor Cycle	2,204		
Sale of Vehicle	9,449		
Sale Of Tools and Equipment	20,322		
Sale ofComputer	29,214		
Sale Of Motor Car	4,448	Closing balance	4,68,384
Cash from operation	37,294	Cash 14,716 Bank 4,53,668	
Total (Rs)	**12,36,040**	**Total (Rs)**	**12,36,040**

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Table 4.1.5Comparisons of Cash Inflow and Cash Outflow
For the year ended 2014-15, 2015-16 and 2016-17

Particular	2014-15 Amt.(Rs)	2015-16 Amt.(Rs)	2016-17 Amt.(Rs)
Inflow			
Capital	13,92,308	11,84,979	20,67,505
Loan	6,91,560	36,00,303	31,49,974
Provision	1,39,690	2,03,038	10,80,271
Sundry creditors	4,01,877	7,60,542	9,85,488
Closing stock	6,19,210	9,83,630	11,44,741
Sundry Debtors	7,84,368	20,10,560	30,14,393
Total Inflow (Rs.)	**40,29,013**	**87,43,052**	**1,14,42,372**
Outflow			
Computer	-	50,690	21,476
Furniture	17,494	1,75,104	2,33,593
Machinery	15,290	12,13,265	10,31,275
Maruti car	34,886	29,653	25,205
Motor cycle	17,284	14,691	12,487
Vehicle	74,265	63,125	53,656
Tools and equipment	6,251	69,155	48,833
Investment	7,32,585	7,46,385	8,02,185
Deposit	2,51,920	3,23,975	3,71,975
Loans and advances	-	-	55,000
Total Outflow (Rs.)	**11,49,975**	**26,86,043**	**26,55,685**

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Interpretation :

In Table 4.1.5Capital is decreases in the year 2015-2016 because of the firm was suffering the strike for employees. Bust in the 2016-2017 company raise fund. In case of Loan Company taken loan increased in the year 2015-16 for the purpose of company purchased machinery. But in year 2016-17 loan has been decreased as compared to 2015-16. Provision also increases in the years 2015-16 and 2016-17 as compared to 2014-15. Also sundry creditors have been increased in the years 2015-16 and 2016-17 as compared to 2014-15. Sundry creditor's trend has been increasing trend because company preferred raw material purchase in credit basis.Closing stock was increased in the years 2015-16 and 2016-17. Deposit also increased in the year 2015-16 but slowly increased in 2016-17. In case of Sundry Debtors it was more increased in the year 2015-16 and 2016-17 also increased.

In case of computer it is nil in the year 2014-15 but in the increased in the year 2015-16 because of company purchased computer in the same year. In the year 2016-17 computer was decreased because of depreciation. Furniture increased in the year 2015-16 and 2016-17 Company purchased such furniture for the renovation of company. Machinery is increased 2015-16 because company was installed new machinery but in the year 2016-17 machinery was reduces because of depreciation.
In case of Maruti car it was decreased in both year 2015-16 and 2016-17 because of depreciation. Same situation as motor cycle it was decreased in the year 2015-16 and 2016-17 as compared to year 2014-15 because of depreciation. In case of Vehicle it is reduces in the year 2015-16 and 2016-17 the reason of depreciation. Tools and equipment it is increased in the year 2015-16 but in the year 2016-17 it is decreased reason of depreciation.

In case of investment company invest some of money in shares in Pune people bank. Investment increased in the next both year 2015-16 and 2016-17. Closing stock trend is increasing trend. Company sales there products in credit basis. Loans and advances (Prepaid) it is increased in the year 2016-17.

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The company's liquidity position is good in the three years 2014-15, 2015-16 and 2016-17. Company's inflows are more than outflows in three years. But cash inflow in the year 2016-17 is more than in the remaining both years. The company's liquidity position is better in the year 2016-17 as compared to remaining both year.

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CHPATER – 5

FINDINGS AND OBSERVATION

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FINDINGS AND OBSERVATIONS

- Capital is decreases in the year 2015-2016 because of the firm were suffering the strike for employees. Bust in the 2016-2017 company raise fund.
- In case of Loan Company taken loan increased in the year 2015-16 for the purpose of company purchased machinery. But in year 2016-17 loan has been decreased as compared to 2015-16.
- Provision also increases in the years 2015-16 and 2016-17 as compared to 2014-15. Also sundry creditors have been increased in the years 2015-16 and 2016-17 as compared to 2014-15.
- Sundry creditor's trend has been increasing trend because company preferred raw material purchase in credit basis.
- In case of computer it is nil in the year 2014-15 but in the increased in the year 2015-16 because of company purchased computer in the same year. In the year 2016-17 computer was decreased because of depreciation.
- Furniture increased in the year 2015-16 and 2016-17 Company purchased such furniture for the renovation of company.
- Machinery is increased 2015-16 because company was installed new machinery but in the year 2016-17 machinery was reduces because of depreciation.
- In case of Maruti car it was decreased in both year 2015-16 and 2016-17 because of depreciation. Same situation as motor cycle it was decreased in the year 2015-16 and 2016-17 as compared to year 2014-15 because of depreciation.
- In case of Vehicle it is reduces in the year 2015-16 and 2016-17 the reason of depreciation. Tools and equipment it is increased in the year 2015-16 but in the year 2016-17 it is decreased reason of depreciation.
- In case of Investment Company invest some of money in shares in Pune people bank. Investment increased in the next both year 2015-16 and 2016-17.
- Closing stock trend is increasing trend. Closing stock was increased in the years 2015-16 and 2016-17.

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- Deposit also increased in the year 2015-16 but slowly increased in 2016-17.
- In case of Sundry Debtors it was more increased in the year 2015-16 and 2016-17 also increased. Company sales there products in credit basis.
- Loans and advances (Prepaid) it is increased in the year 2016-17.
- The company's liquidity position is good in the three years 2014-15, 2015-16 and 2016-17. Company's inflows are more than outflows in three years. But cash inflow in the year 2016-17 is more than in the remaining both years. The company's liquidity position is better in the year 2016-17 as compared to remaining both year.

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CHAPTER – 6

SUGGETIONS

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SUGGESTIONS

- Most of raw material purchased by the company is on credit basis for short credit period. Hence, company required to generate more funds as early as possible to do the payment of suppliers.
- It is suggested to buy the raw material from suppliers those provides adequate credit period. As well as buy the raw materials from the local suppliers to save the cost of transportation.
- If company not made their payments promptly to suppliers they can't avail the facility of credit in future. They require to pay attention on creditworthiness and prompt payment.
- The company may save in cost of purchases by availing the cash discount on bulk purchases. This may add up to higher profitability.
- To raise the required funds company used mostly loan option, which is fixed obligation for company. Hence the balances on the front of interest will be generating more. On which company can't get the advantage of tax deduction. Company should raise the funds through the combination of debt and equity source to take the advantages of both.
- Company has to maintain more cash/current assets to meet standard and to meet immediate day to day obligations as and when they arise.
- Most of their the funds blocked in debtors. The amount of debtors are increased every year. Company required to frame anadequate policy of credit to customers.
- Prompt collection policy also required to prepare by the company for their debtors for early recovery.

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ANNEXURE

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Apex Enterprises(14-15)

Profit & Loss A/c

1-Apr-2014 to 31-Mar-2015

Particulars	1-Apr-2014 to 31-Mar-2015		Particulars	1-Apr-2014 to 31-Mar-2015	
ning Stock		5,64,620.00	**Sales Accounts**		30,15,795.12
ening Stock	5,64,620.00		*Sales Labour Charges*	*1,52,607.12*	
			Sales Net 12.5%	*24,84,927.00*	
hase Accounts		15,60,911.43	*SALES NET 5%*	*22,455.00*	
bour Charges	760.00		*Sales Vat 12.5%*	*3,10,632.00*	
rchase 8 %	5,630.00		*SALES VAT 5%*	*1,124.00*	
rchase Labour Charges	1,00,142.00		*Transport Charges*	*44,050.00*	
rchase Net 12.5%	7,92,612.62				
rchase Net 5%	4,40,435.50		Closing Stock		6,19,210.00
rchase R D	12,370.00		*Opening Stock*	*6,19,210.00*	
rchase Vat 12.5%	99,076.81				
rchase Vat 5%	22,027.50				
rchase Vat 8%	450.00				
nsport	49,382.00				
D Purchase	38,025.00				
ct Expenses		1,33,440.00			
bour Charges Paid	1,33,440.00				
ss Profit c/o		*13,76,033.69*			
		36,35,005.12			36,35,005.12
irect Expenses		8,68,506.80	Gross Profit b/f		*13,76,033.69*
nk Charges	5,769.80				
preciation	27,649.00		Indirect Incomes		
ctricity Charges	39,614.00				
erest on CC A/c	23,008.00				
fice Expenses	51,942.00				
nting & Stationary	22,945.00				
ofessional Charges	28,500.00				
nt,Rates & Taxes	1,54,800.00				
pairs & Maintenance	41,473.00				
lary &Wages	2,65,472.00				
aff Welfare	39,421.00				
lephone & Mobile Exp	32,128.00				
avelling & Conveyance	56,972.00				
t Paid	34,000.00				
hicle Expenses	44,813.00				
t Profit		*5,07,526.89*			
Total		13,76,033.69	Total		13,76,033.69

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RUPANAWAR B. M. & CO.
Chartered Accountants
Proprietor
B.M. Rupanawar

Apex Enterprises
Proprietor

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Apex Enterprises(14-15)

Balance Sheet

1-Apr-2014 to 31-Mar-2015

Liabilities	as at 31-Mar-2015		Assets	as at 31-Mar-2015	
Account		13,92,308.58	**Fixed Assets**		
Joshi's Capital A/c.	13,92,308.58		Furniture		1,65,470.64
(Liability)		6,91,560.86	Machinary	17,494.64	
OD A/c	2,80,352.86		Maruti Car	15,290.00	
HSG. LOAN A/C	4,11,208.00		Motor Cycle	34,886.00	
			Tools & Equipments	17,284.00	
nt Liabilities		5,41,567.43	Vehicle - Tata Sumo	6,251.00	
visions	1,39,690.00			74,265.00	
dry Creditors	4,01,877.43		**Investments**		
			Residental Flat	7,25,080.00	7,32,585.00
nse A/c			Shares - Pune Peoples	7,505.00	
& Loss A/c			**Current Assets**		
ening Balance			Closing Stock	6,19,210.00	17,27,381.23
rent Period	5,07,526.89		Deposits (Asset)	2,51,920.00	
s: Transferred	5,07,526.89		Sundry Debtors	7,84,368.07	
			Cash-in-hand	62,083.52	
tal		26,25,436.87	Bank Accounts	9,799.64	
			Total		26,25,436.87

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Apex Enterprises

Proprietor

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Proprietor
B.M. Rupanawar

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Apex Enterprises(15-16)

119Towers,"sneha Complex Warje Pune
411058

Profit & Loss A/c

1-Apr-2015 to 31-Mar-2016

Particulars	1-Apr-2015 to 31-Mar-2016		Particulars	1-Apr-2015 to 31-Mar-2016	
Opening Stock		6,19,210.00	Sales Accounts		53,22,469.81
Opening Stock	6,19,210.00		Sales Labour Charges	9,15,369.81	
			Sales Net 12.5%	44,19,637.00	
Purchase Accounts		34,79,885.05	Sales Return	(-)20,313.00	
Purchase Labour Charges	3,20,321.05		Scrap Sales	675.00	
Purchase Net 12.5%	10,13,254.00		Transport Charges	7,101.00	
Purchase Net 5%	18,74,687.00				
Purchase R D	18,472.00		Indirect Incomes		17,832.00
PURCHASES OMS 2%	39,921.00		Dividend Received A/c	1,695.00	
Purchase URD	2,12,701.00		Other income		1,07,000
Transport & Loading	529.00			10,903	
Direct Expenses		5,00,570.00	Closing Stock		9,83,630.00
Labour Charges Paid	1,43,070.00		Opening Stock	9,83,630.00	
Labour Charges Paid	3,57,500.00				
Indirect Expenses		20,11,826			
Advertisement Expenses	35,470.00				
Bank Charges	37,581.18				
Depreciation	3,01,446.00				
Electricity Charges	45,786.38				
Insurance _ Machinery	1,096.00				
Interest on C C	71,856.00				
Interest on Term Loan	1,55,735.00				
Office Expenses	73,253.00				
Printing & Stationary	20,762.00				
Professional Fees	25,500.00				
Repairs & Maintenance	24,817.00				
Salary & Wages	2,15,812.00				
Staff Traning Fees	52,000.00				
Staff Welfare	19,582.00				
Telephone & Mobile Exp	38,264.96				
Travelling & Conveyance	63,736.00				
Vehicle Expenses	29,612.00				
Nett Profit		5,11,957.24			
Total		61,65,231	Total		61,65,231

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Proprietor
B. M. Rupanawar

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Apex Enterprises(15-16)

119Towers,"sneha Complex Warje Pune
411058

Balance Sheet

1-Apr-2015 to 31-Mar-2016

Liabilities	as at 31-Mar-2016		Assets	as at 31-Mar-2016	
Capital Account		11,84,979.16	**Fixed Assets**		16,15,683.64
Mahesh Joshi's Capital A/c.	11,84,979.16		Computer	50,690.00	
			Furniture	1,75,104.64	
Loans (Liability)		36,00,303.32	Machinary	12,13,265.00	
Bank OD A/c	6,35,169.56		Maruti Car	29,653.00	
Unsecured Loans	4,34,750.00		MOBILHANDSET	17,098.00	
570/1119 FD LOAN A/C	60,657.00		Motor Cycle	14,691.00	
570/1128 FD LOAN A/C	1,12,629.00		Office Software	26,811.00	
GOLD LOAN 564 / 704	54,052.00		Tools & Equipments	25,246.00	
GOLD LOAN 564/730	1,51,013.00		Vehicle - Tata Sumo	63,125.00	
GOLD LOAN 564 / 772	85,423.00				
HDFC LOAN A/C (Mudra Loan)	1,71,984.00		**Investments**		7,46,385.00
ICICI HSG. LOAN A/C 2461	2,64,113.00		Residental Flat	7,25,080.00	
ICICI - TOPUP 5615	11,70,662.00		Shares - Pune Peoples	21,305.00	
Pune Peoples 559/42 MACHINERY LOAN	4,59,850.76				
			Current Assets		33,86,793.84
Current Liabilities		9,63,580.00	Closing Stock	9,83,630.00	
Provisions	2,03,038.00		Deposits (Asset)	3,23,975.00	
Sundry Creditors	7,60,542.00		Sundry Debtors	20,10,560.24	
			Cash-in-hand	13,400.54	
Suspense A/c			Bank Accounts	55,193.06	
			TDS	35.00	
Profit & Loss A/c					
Opening Balance					
Current Period	5,11,957.24				
Less: Transferred	5,11,957.24				
Total		57,48,862.48	Total		57,48,862.48

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M.No. 30525
F.No. 124049W

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Chartered Accountants

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Apex Enterprises(16-17)

Profit & Loss A/c

1-Apr-2016 to 31-Mar-2017

Particulars	1-Apr-2016 to 31-Mar-2017		Particulars	1-Apr-2016 to 31-Mar-2017	
Opening Stock		9,83,630.00	Sales Accounts		81,49,629.63
Opening Stock	9,83,630.00		Sale Net 13.5%	44,11,110.00	
			Sales Labour Charges	2,85,116.63	
Purchase Accounts		51,41,362.45	Sales Net 12.5%	34,50,703.00	
Labour Charges	31,059.00		Transport Charges	2,700.00	
Purchase Account	6,62,565.00				
Purchase Labour Charges	5,72,311.00		Closing Stock		11,44,741.00
Purchase Net 12.5%	7,11,440.00		Opening Stock	11,44,741.00	
Purchase Net 13.5%	6,33,083.00				
Purchase Net 5%	6,91,408.00				
Purchase Net 5.5%	6,98,382.00				
Purchase Net 6%	5,57,221.00				
PURCHASES OMS 2%	9,303.00				
JRD Purchase	5,74,590.45				
Direct Expenses		4,83,302.00			
Labour Charges Paid	4,83,302.00				
Gross Profit c/o		26,86,076.18			
		92,94,370.63			92,94,370.63
Indirect Expenses		20,37,212	Gross Profit b/f		26,86,076.18
Interest	3,77,212.75				
Office Expenses	61,859.00		Other income		
Professional Fees	82,113.00				8,14,000
Bank Charges	13,705.60				
Depreciation	2,72,158.00				
Electricity Charges	35,860.00				
Insurance Machinery	13,145.00				
INSURANCE PREMIUM	13,689.00				
Repairs & Maintenance	36,820.00				
Salary & Wages	7,05,793.69				
Shop Rent	1,76,400.00				
Telephone & Mobile Exp	12,980.00				
Transport & Loading	60,130.00				
Travelling & Conveyance	42,960.00				
Nett Profit		7,82,175.72			
Total		27,93,076	otal		27,93076

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Apex Enterprises(16-17)

Balance Sheet

1-Apr-2016 to 31-Mar-2017

Liabilities	as at 31-Mar-2017		Assets	as at 31-Mar-2017	
pital Account		20,67,505.65	**Fixed Assets**		14,26,525.64
Drawings	*(-)1,39,370.00*		*Computer*	*21,476.00*	
Mahesh Joshi's Capital A/c.	*22,06,875.65*		*Furniture*	*2,33,593.64*	
			Machinary	*10,31,275.00*	
ans (Liability)		31,49,974.36	*Maruti Car*	*25,205.00*	
Bank OD A/c	*22,80,497.60*		*MOBILHANDSET*	*15,388.00*	
Unsecured Loans	*3,39,950.00*		*Motor Cycle*	*12,487.00*	
359/42 MACHINERY LOAN	*3,79,526.76*		*Office Software*	*10,724.00*	
Manjusha Tankasale	*1,50,000.00*		*Tools & Equipments*	*22,721.00*	
			Vehicle - Tata Sumo	*53,656.00*	
rrent Liabilities		20,65,759.78			
Provisions	*10,80,271.78*		**Investments**		8,02,185.00
Sundry Creditors	*9,85,488.00*		*Residental Flat*	*7,25,080.00*	
			Shares - Pune Peoples	*77,105.00*	
spense A/c					
			Current Assets		50,54,529.15
ofit & Loss A/c			Closing Stock	*11,44,741.00*	
Opening Balance			Deposits (Asset)	*3,71,975.00*	
Current Period	*7,82,175.72*		Loans & Advances (Asset)	*55,000.00*	
Less: Transferred	*7,82,175.72*		Sundry Debtors	*30,14,393.92*	
			Cash-in-hand	*14,716.17*	
			Bank Accounts	*4,53,668.06*	
			TDS	*35.00*	
Total		72,83,239.79	**Total**		72,83,239.79

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