



SHRI VITHAL EDUCATION & RESEARCH INSTITUTE'S  
**COLLEGE OF ENGINEERING, PANDHARPUR**



ISO 9001:2015



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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](mailto:coe@sveri.ac.in), Website: [www.sveri.ac.in](http://www.sveri.ac.in)  
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 NBA Accredited all Eligible UG Programmes and , NAAC, Accredited Institute,  
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**1.3.3 Number of the student studied course on experimental learning through Project Work /Field Work/Internship**

**Year of offering: 2020-2021**

Programme Name	Programme Code	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	
Mechanical Engineering	1-1408968339	Manufacturing Processes	ME213	134	
		Internal Combustion Engines	ME215(B)		
		Manufacturing Technology	ME222		
		Power Plant and Energy Engineering	ME225(B)		
		Mechanical Workshop-I	ME 226		
	1-1408968339	CAD-CAM & CAE	ME312	156	
		Industrial Hydraulics and Pneumatics	ME 315 (B)		
		Mechanical Workshop – III	ME 317		
		Plastic Engineering	ME 325 (C)		
		Mini Project	ME326		
		Metrology	ME327		
		Mechanical Workshop	ME 328		
		Refrigeration and Air Conditioning	ME412		147
		Automobile Engineering	ME414( C )		
		Project Work -I	ME416		
		Industrial Training	ME417		
		Plastic Engineering	ME424( C )		
		Project Work -II	ME425		



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**Year of offering: 2020-2021**

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Electronics & Tele-communication Engineering	1-1408968324	Mini Hardware Project	ET 326	143
		Seminar & Project	ET416	118
		Vocational Training	ET417	
		Project	ET 425	
Civil Engineering	1-1408968331	Building Construction and Drawing	CV213	141
		Engineering Geology	CV215	
		Water Supply Engineering	CV221	
		Waste water Engineering & Air Pollution	CV313	137
		Assessment of field training report	CV322	
		Hydraulic Structures & Water Power Engg.	CV328	
		Project work	-	74
		Assessment of report on field training-II	-	
		Transportation Engineering-II	-	
		Traffic Engineering and Control	-	
Computer Science & Engineering	1-1408968327	Mini Project	CS327	152
		Project Phase-I	CS417	150
		Vocational Training	CS418	
		Project Phase-II	CS426	



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**Year of offering: 2020-2021**

Programme Name	Programme Code	Name of the Course that include experiential learning through project work/field work/internship	Number of the student studied course on experiential learning through project work/field work/internship
Electrical Engineering	1-3675277161	Power System-II	73
		Mini Hardware Project	67
Master of Business Administration (MBA)	1-1408968337	Project Report & Viva	55
M.Tech. Mechanical-Design Engineering	1-1408968333	Dissertation Phase I : Synopsis Submission Seminar	6
		Dissertation Phase II : Progress Seminar	
		Dissertation Phase III : Progress Report presentation and submission	
		Dissertation Phase IV : Final presentation and submission of report	
		Dissertation Viva-voce	
M. Tech. Computer Science & Engineering	1-1408968341	Dissertation Phase-I : Synopsis Submission Seminar	3
		Dissertation Phase-II : ICA	
		Dissertation Phase-II : Progress Seminar	
		Dissertation Phase-III : Progress Seminar	
		Dissertation Phase-IV : Final presentation and submission of report	
		Final Submission of the Dissertation and Viva-voce	



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

**Year of offering: 2020-2021**

Programme Name	Programme Code	Name of the Course that include experiential learning through project work/field work/internship	Number of the student studied course on experiential learning through project work/field work/internship
M.Tech. Electronics & Tele-communication Engineering	1-1408968335	Dissertation Phase-I: Synopsis Submission Seminar	13
		Dissertation Phase-II: ICA	
		Dissertation Phase-II: Progress Seminar	
		Dissertation Phase-III: Progress Seminar	
		Dissertation Phase IV	
		Final Submission of the Dissertation and Viva –Voce	
M.Tech. Civil - Structural Engineering	1-1408968343	Mini project	19
		Dissertation Phase I : Synopsis Submission Seminar	18
		Dissertation Phase II :ICA	
		Dissertation Phase II : Progress Seminar	
		Dissertation Phase III : Progress Seminar	
		Dissertation Phase IV: Final presentation and submission of report	
		Dissertation Viva –Voce	

**SVERI's**  
**College of Engineering, Pandharpur**  
**Mechanical Engineering Department**  
**Industrial Training/ Internship**  
**Record**  
**A.Y.: 2020-2021**



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**Department of Mechanical Engineering**  
**List of Students those who have completed their**  
**Industrial Training / Internship**  
**Academic Year: 2020-2021**

Sr. No.	Roll No	Name of Student	Name of Company / Organization / Industry	Duration of Internship/Industrial Training
1.	TA 02	Shraddha dattatray Gajakosh	Precision Camshaft Limited, Solapur	11/12/2020 to 18/12/2020
			AFour Technologies Pvt Ltd Pune	10/05/2020 to 26/09/2020
2.	TA 03	Gayatri Vinayak Joshi	Smart Knower	01/11/2020 to 31/12/2020
			Precision Camshaft Limited, Solapur	11/12/2020 to 18/12/2020
3.	TA 07	Namrata Parvat	AFour Technologies Pvt Ltd Pune	28/05/2020 to 28/07/2020
			Techfest, IIT Bombay	01/07/2020 to 31/01/2021
4.	TA 25	Yash Gadekar	Intech Olympiad COEP Pune	28/05/2020 to 28/08/2020
			Precision Camshaft Limited, Solapur	11/12/2020 to 18/12/2020
5.	TA 55	Prajwal Dattatraya Musale	Precision Camshaft Limited, Solapur	11/12/2020 18/12/2020
6.	TB 03	Arati Lale	AFour Technologies Pvt Ltd Pune	28/05/2020 to 28/07/2020
7.	TB 05	Vaishali Dilip More	Wayup, Gate No. 89, Bhavya Enterprises, Makhadumpur, Digha, Patana-11	01/10/2020 to 30/10/2020
8.	TB 34	Patil Madan Kalyan	AFour Technologies Pvt Ltd Pune	28/05/2020 to 28/07/2020
9.	TB 56	Akash Prasad Ajar	AFour Technologies Pvt Ltd Pune	28/05/2020 to 28/07/2020

(Dr. S. S. Wangikar)  
Head, Mech. Engg. Dept.



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+91 217 2357645  
+91 9168646531/32/33  
L24231PN1992PLC067126

Date - Friday, December 25, 2020

**CERTIFICATE FOR INDUSTRIAL EXPOSURE TRAINING**

Name Shradha Dattatray Gajakosh  
Qualification B.Tech (Mechanical) III  
Name of the College SVERI College of Engineering, Pandharpur  
Type of Training Industrial Exposure Training  
Period of Training 11/12/2020 To 18/12/2020  
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  
General Manager – HR

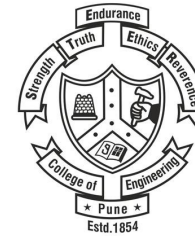


Precision Camshafts Limited

Solapur : D5 MIDC, Chincholi, Solapur, India – 413255  
Solapur : E102 MIDC, Akkalkot Road, Solapur, India – 413006  
Pune : 501/502, Kanchanban "B", Sunit Capital, Senapati Bapat Rd, Pune, India - 411016



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## **INTECH OLYMPIAD ONLINE SUMMER INTERNSHIP CERTIFICATE**

This is to certify that

Mr /Mrs / Ms **Shraddha Gajakosh**

from **SVRI's COE Pandharpur**

participated and successfully completed the project “ **Propose a Delivery system within city limits without human interaction with customer. OR Develop drone delivery system overcoming current challenges** ” assigned in InTech Olympiad during Online Summer internship from 28<sup>th</sup> May 2020 to 28<sup>th</sup> July 2020

**Mr. Mahesh A. Kulkarni**  
*AFour Technologies*

**Prof. Sudhir D. Agashe**  
*COEP*

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TECHNOLOGIES





# CERTIFICATE OF INTERNSHIP



THIS CERTIFICATE IS PROUDLY PRESENTED TO:

*Gayatri Vinayak Joshi*

Has successfully completed Internship On Robotics  
from 01-11-2020 to 31-12-2020. During his/her internship,  
the student was found to be dedicated, hardworking and intelligent

21-01-2021

DATE

Academic Head



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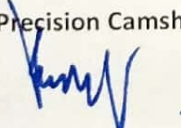
Date - Friday, December 25, 2020

**CERTIFICATE FOR INDUSTRIAL EXPOSURE TRAINING**

Name	Gayatri Vinayak Joshi
Qualification	B.Tech (Mechanical) III
Name of the College	SVERI College of Engineering, Pandharpur
Type of Training	Industrial Exposure Training
Period of Training	<b>11/12/2020 To 18/12/2020</b>
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  
General Manager – HR



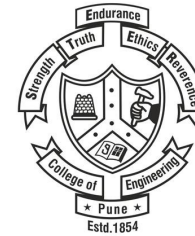
*Joshi*

**Precision Camshafts Limited**

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☺ Pune : 501/502, Kancharban "B", Sunit Capital, Senapati Bapat Rd, Pune, India - 411016



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## **INTECH OLYMPIAD ONLINE SUMMER INTERNSHIP CERTIFICATE**

This is to certify that

Mr /Mrs / Ms **Namrata Parvat**

from **SVETI'S COLLEGE OF ENGINEERING PANDHARPUR**

participated and successfully completed the project “ **Enforcement of Social distancing at any service provider at point of sale/service like shops/malls/Theatres/Ticket Booking Windows/Restaurants etc** ” assigned in InTech Olympiad during Online Summer internship from 28<sup>th</sup> May 2020 to 28<sup>th</sup> July 2020

**Mr. Mahesh A. Kulkarni**  
*AFour Technologies*

**Prof. Sudhir D. Agashe**  
*COEP*

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September 7<sup>th</sup>, 2020



**InTech Olympiad**  
**Online Summer internship**  
**Letter of Recommendation**

**To Whom It May Concern**

I have known Namrata Parvat for last three month, since the beginning of her virtual internship with InTech Olympiad. During the internship, Namrata worked as a Member of a Team with a group assignment on *“Social Distancing at any service provider at point of sale / service”*.

This was a remote assignment during which the Team Members at different & distant locations collaborated *on-line* for arriving at the subject Road Map.

I, the undersigned, mentored the team on behalf of InTech Olympiad, an Organization in Pune conducting various experiments to identify and bridge the gap in Industry’s expectations regarding Skills available with Fresh Graduate Engineers. During this Internship, as a Mentor, I interacted with the Team as well as Individuals frequently, during routine and periodic progress review meetings.

During the interactions, I noted Namrata with abilities in terms of learning the user interface design process and making prototype of the solution.

I highly recommend Namrata for her team spirit specifically for career opportunities user interface design and development. I note her team interaction skills with special emphasis.

With Warm Regards

A rectangular box containing a handwritten signature in blue ink that reads "Makarand Vaidya".

Mentor, Intech Olympiad

Makarand Vaidya  
Founder Director  
CoreView Systems Private Limited  
Email: makarand.vaidya@coreviewsystems.com

# CERTIFICATE OF APPRECIATION

This certificate is awarded to

Namrata Parvat

for successfully completing **Social Media Marketing Internship**

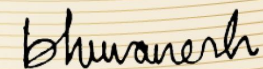
as a **College Ambassador** of Techfest, IIT Bombay

with a **GOLD** medal.



**Prof. R.S. Pant**

Faculty Advisor  
Techfest, IIT Bombay

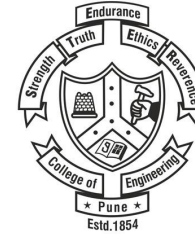


**Bhuvanesh Gupta**

Overall Coordinator  
Techfest 2020-21



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## **INTECH OLYMPIAD ONLINE SUMMER INTERNSHIP CERTIFICATE**

This is to certify that

Mr /Mrs / Ms **Yash Gadekar**  
from **SVETI's COE Pandharpur**

participated and successfully completed the project “ **Propose a Delivery system within city limits without human interaction with customer. OR Develop drone delivery system overcoming current challenges** ” assigned in InTech Olympiad during Online Summer internship from 28<sup>th</sup> May 2020 to 28<sup>th</sup> July 2020

**Mr. Mahesh A. Kulkarni**  
*AFour Technologies*

**Prof. Sudhir D. Agashe**  
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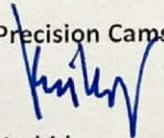
Date - Friday, June 25, 2020

**CERTIFICATE FOR INDUSTRIAL EXPOSURE TRAINING**

Name	Yash Yuvraj Gadekar
Qualification	B.Tech (Mechanical) III
Name of the College	SVERI College of Engineering, Pandharpur
Type of Training	Industrial Exposure Training
Period of Training	<b>11/12/2020 To 18/12/2020</b>
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  
General Manager – HR



**Precision Camshafts Limited**

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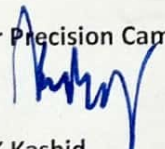
Date - Friday, June 25, 2020

**CERTIFICATE FOR INDUSTRIAL EXPOSURE TRAINING**

Name Prajwal Dattatray Musale  
Qualification B.Tech (Mechanical) III  
Name of the College SVERI College of Engineering, Pandharpur  
Type of Training Industrial Exposure Training  
Period of Training **11/12/2020 To 18/12/2020**  
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  
General Manager – HR



**Precision Camshafts Limited**

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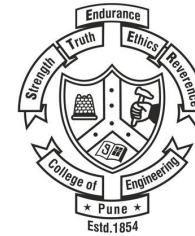
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Pune : 501/502, Kanchanban "B", Sunit Capital, Senapati Bapat Rd, Pune, India - 411016





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## **INTECH OLYMPIAD ONLINE SUMMER INTERNSHIP CERTIFICATE**

This is to certify that

Mr /Mrs / Ms **Arati Lale**

from **SVET'S COLLEGE OF ENGINEERING PANDHARPUR**

participated and successfully completed the project “ **Achieve Effective Online / Remote / Distance education in Rural areas considering limited resources - With Unsupervised learning and Eval and assessment frame work** ” assigned in InTech Olympiad during Online Summer internship from 28<sup>th</sup> May 2020 to 28<sup>th</sup> July 2020

**Mr. Mahesh A. Kulkarni**  
*AFour Technologies*

**Prof. Sudhir D. Agashe**  
*COEP*

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Date : 16.12.2020  
Ref no.: WayupX135

**To whom it may concern,**

This is to certify that Ms. Vaishali Dilip More of SVERI's college of engineering, Pandharpur has successfully completed 28Days internship programme in Social Media Marketing and has completed her tasks with perfection. During the period of her internship programme with us she was found punctual, hardworking and inquisitive.

We wish her every success in life.

From Wayup

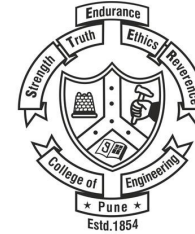
*Abhishek Raj*  
**Abhishek Raj**

Proprietor, WayUp

Mobile: +91 9060496946  
Address: Gate No.89, Bhavya  
Enterprises, Makhdumpur, Digha, Patna-11  
Email: ask.wayup@gmail.com



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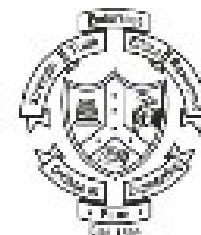
This is to certify that

Mr /Mrs / Ms **Madan Patil**  
from **SVRI's College of Engineering, Pandharpur**  
participated and successfully completed the project “ **Low cost Automation  
Project in industry driven by Covid 19 Social Discipline** ” assigned in InTech  
Olympiad during Online Summer internship from 28<sup>th</sup> May 2020 to 28<sup>th</sup> July 2020

**Mr. Mahesh A. Kulkarni**  
*AFour Technologies*

**Prof. Sudhir D. Agashe**  
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## **INTECH OLYMPIAD ONLINE SUMMER INTERNSHIP CERTIFICATE**

This is to certify that

Mr /Mrs / Ms **Akash Ajar**  
from **SVET's COE Pandharpur**

participated and successfully completed the project " **Propose a Delivery system within city limits without human interaction with customer. OR Develop drone delivery system overcoming current challenges** " assigned in InTech Olympiad during Online Summer internship from 28<sup>th</sup> May 2020 to 28<sup>th</sup> July 2020

Mr. Mahesh A. Kulkarni  
Afour Technologies

Prof. Sudhir D. Agashe  
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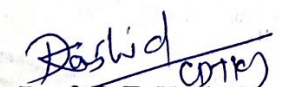


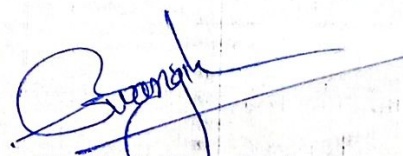
## Department of Mechanical Engineering

### List of Sponsored Projects

Academic Year: 2020-2021

Sr. No.	Name of Project Student	Name of Project	Name of Project Guide	Name of Industry
1.	1) Mr. Dhumal Vikas Vitthal 2) Mr. Kambire Pankaj Popat 3) Mr. Ghadage Vaibhav Prabhakar 4) Mr. Kale Vaibhav Pandurang	Design and Manufacturing of Jig and fixture	Prof. K. S. Pukale	U.S. AUTO CONTROLS Pvt. Ltd. PUNE
2.	1) Magi Prasad Dattatray 2) Ingale Pratik Vasantao 3) Sathe Akshay Sunil 4) Kumbhar Ganesh Naganath	Automatic Sewage Cleaning Machine	Prof. B. T. Gadade	SPARTAN Technologies Pvt. Ltd. Machnur
3.	1) Gavali Anjali Pandurang 2) Gore Gauri Ramchandra 3) Kothawale Shivani Sanjay 4) Bhosale Pranoti Ramchandra	Parametric Optimization for CO <sub>2</sub> Laser Machining of Different Types of Wood	Dr. S. S. Wangikar	Dynamic Lasers, Chikali, Pune
4.	1) Gaikwad Suraj Tanaji 2) Gahirwar Pawansing Kiransing 3) Jadhav Rushikesh Kalyan 4) Jadhav Vivek 5) Patil Ganesh Basavaraj	Automatic Parking brake System for four-wheeler	Prof. S. Y. Salunkhe	Pask Industries Pvt. Ltd., Chakan MIDC, Pune

  
(Prof. D.T. Kashid)  
Project Coordinator

  
(Dr. S. S. Wangikar)  
Head, Mech. Engg. Dept.

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

# U.S. AUTO CONTROLS Pvt. Ltd. PUNE

D-6M.I.D.C. Phase 1,  
OFF TALEGAON-CHAKAN ROAD,  
NEAR H.P.GAS, MAHALUNGE  
CHAKAN-TAL:KHED-PUNE-410501

---

Ref. No: USAC/20-21/06

Date : 05/04/2021

This is to certify that, **Mr. Pankaj Popat Kambire** Student of Final year Mechanical engineering from SVEERI's COE Pandharpur has Successfully Completed Final year project in our factory.

This Project is on **“Design and Manufacturing of Jig and fixture.”**  
We Congregate and think the students for their valuable and effective solution for our Design and Manufacturing Process development activity.

We wish him best of success in their future assignment.

For U.S. Controls Pvt.Ltd.



(Authorized Signature)



# U.S. AUTO CONTROLS Pvt.Ltd. PUNE

D-6M.I.D.C. Phase 1,  
OFF TALEGAON-CHAKAN ROAD,  
NEAR H.P.GAS, MAHALUNGE  
CHAKAN-TAL:KHED-PUNE-410501

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Ref. No :USAC/20-21/05

Date : 05/04/2021

This is to certify that,

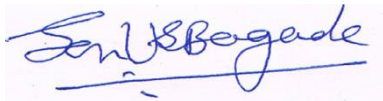
- 1) **Mr. Dhumal Vikas Vitthal**
- 2) **Mr. Kambire Pankaj Popat**
- 3) **Mr. Ghadage Vaibhav Prabhakar**
- 4) **Mr. Kale Vaibhav Pandurang**

Students of Final year Mechanical engineering from SVERI's COE Pandharpur has Successfully Completed Final year project in our factory.

This Project is on "**Design and Manufacturing of Jig and fixture.**" We Congregate and think the students for their valuable and effective solution for our Design and Manufacturing Process development activity.

We wish them best of success in their future assignment.

For U.S. Controls Pvt.Ltd.



(Authorized Signature)



# U.S. AUTO CONTROLS Pvt. Ltd. PUNE

D-6M.I.D.C. Phase 1,  
OFF TALEGAON-CHAKAN ROAD,  
NEAR H.P.GAS, MAHALUNGE  
CHAKAN-TAL:KHED-PUNE-410501

---

Ref. No: USAC/20-21/06

Date : 05/04/2021

This is to certify that, **Mr. Dhumal Vikas Vitthal** Student of Final year Mechanical engineering from SVEERI's COE Pandharpur has Successfully Completed Final year project in our factory.

This Project is on “**Design and Manufacturing of Jig and fixture.**”

We Congregate and think the students for their valuable and effective solution for our Design and Manufacturing Process development activity.

We wish him best of success in their future assignment.

For U.S. Controls Pvt.Ltd.



(Authorized Signature)





# U.S. AUTO CONTROLS Pvt. Ltd. PUNE

D-6M.I.D.C. Phase 1,  
OFF TALEGAON-CHAKAN ROAD,  
NEAR H.P.GAS, MAHALUNGE  
CHAKAN-TAL:KHED-PUNE-410501

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Ref. No: USAC/20-21/07

Date : 05/04/2021

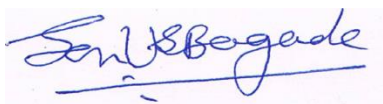
This is to certify that, **Mr. Dhumal Vikas Pandurang** Student of Final year Mechanical engineering from SVEERI's COE Pandharpur has Successfully Completed Final year project in our factory.

This Project is on **“Design and Manufacturing of Jig and fixture.”**

We Congregate and think the students for their valuable and effective solution for our Design and Manufacturing Process development activity.

We wish him best of success in their future assignment.

For U.S. Controls Pvt.Ltd.



(Authorized Signature)



# U.S. AUTO CONTROLS Pvt. Ltd. PUNE

D-6M.I.D.C. Phase 1,  
OFF TALEGAON-CHAKAN ROAD,  
NEAR H.P.GAS, MAHALUNGE  
CHAKAN-TAL:KHED-PUNE-410501

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Ref. No: USAC/20-21/08

Date : 05/04/2021

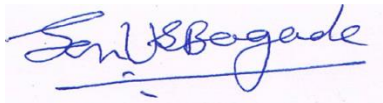
This is to certify that, **Mr. Ghadage Vaibhav Prabhakar** Student of Final year Mechanical engineering from SVEERI's COE Pandharpur has Successfully Completed Final year project in our factory.

This Project is on **“Design and Manufacturing of Jig and fixture.”**

We Congregate and think the students for their valuable and effective solution for our Design and Manufacturing Process development activity.

We wish him best of success in their future assignment.

For U.S. Controls Pvt.Ltd.



(Authorized Signature)



# U.S. AUTO CONTROLS Pvt. Ltd. PUNE

D-6M.I.D.C. Phase 1,  
OFF TALEGAON-CHAKAN ROAD,  
NEAR H.P.GAS, MAHALUNGE  
CHAKAN-TAL:KHED-PUNE-410501

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Ref. No: USAC/20-21/09

Date : 05/04/2021

This is to certify that, **Mr. Kale Vaibhav Pandurang** Student of Final year Mechanical engineering from SVEERI's COE Pandharpur has Successfully Completed Final year project in our factory.

This Project is on "**Design and Manufacturing of Jig and fixture.**"

We Congregate and think the students for their valuable and effective solution for our Design and Manufacturing Process development activity.

We wish him best of success in their future assignment.

For U.S. Controls Pvt.Ltd.



(Authorized Signature)



# U.S. AUTO CONTROLS Pvt. Ltd. PUNE

D-6M.I.D.C. Phase 1,  
OFF TALEGAON-CHAKAN ROAD,  
NEAR H.P.GAS, MAHALUNGE  
CHAKAN-TAL:KHED-PUNE-410501

Ref. No: USAC/20-21/08

Date : 05/04/2021

## ATTENDENCE CERTIFICATE

This is to certify that,

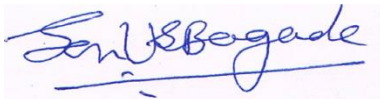
- 1) **Mr. Dhumal Vikas Pandurang**
- 2) **Mr. Kambire Pankaj Popat**
- 3) **Mr. Ghadage Vaibhav Prabhakar**
- 4) **Mr. Kale Vaibhav Pandurang**

Students of Final year Mechanical engineering under guidance of Prof. K. S. Pukale from SVERI's COE Pandharpur has Successfully submitted Final year project in our factory.

This Project is on “**Design and Manufacturing of Jig and fixture.**” We Congregate and think the students for their valuable and effective solution for our Design and Manufacturing Process development activity.

We wish them best of success in their future assignment.

For U.S. Controls Pvt.Ltd.



(Authorized Signature)





# SPARTAN TECHNOLOGIES PVT LTD

(An ISO 9001:2015 Certified Company)

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

[E.mail-spartantechnosltd@gmail.com](mailto:E.mail-spartantechnosltd@gmail.com) , [Website-www.spartantechnos.com](http://Website-www.spartantechnos.com)

Date: 10 /05/2021

To,

The Principal,  
SVERI's College of Engineering, Pandharpur

## Subject: Project completion certificate

Respected Sir,

With reference to industry visit of following students from your department to our organization for their final year project, a sponsored project titled “**Automatic Sewage Cleaning Machine**” was offered.

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

- 1) Magi Prasad Dattatray (BE Mechanical)
- 2) Ingale Pratik Vasantrao (BE Mechanical)
- 3) Sathe Akshay Sunil (BE Mechanical)
- 4) Kumbhar Ganesh Naganath (BE Mechanical)

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

Thanking you.

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

MR.SURAJ DOKE



# M/S DYNAMIC LASER

Mob: 07709281159, Email:- dynamiclazer@gmail.com

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Address:- Gat No. 1402, Sonwane Wasti, Jyotiba Nagar, Chikhali Road, Chikhali, Pune-411062

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Date: 09/05/2021

To,

The Head,  
Department of Mechanical Engineering,  
SVERI's College of Engineering Pandharpur

**Subject: Sponsorship for Final Year Project**

Dear Sir,

With reference industry visit of Dr. S. S. Wangikar and following students from your department to our organization for their final year project, a sponsored project titled **“Parametric Optimization for CO<sub>2</sub> Laser Machining of Different Types of Wood”** was offered.

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

- 1) Gavali Anjali Pandurang ( B.E.-MECH)
- 2) Gore Gauri Ramchandra ( B.E.-MECH)
- 3) Kothawale Shivani Sanjay ( B.E.-MECH)
- 4) Bhosale Pranoti Ramchandra ( B.E.-MECH)

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

Thanking you.

For,

M/S DYAMIC LASER



# Pask Industries

An IATF 16949:2016 Certified Company

Mfg.of Plastic Injection Moulded Components

Plot No. 2, Gat No. 444/4, Village Nighoje, Tal. - Khed, Dist. - Pune, Maharashtra - 410501.

E-mail : info@paskindustries.in, Ph.: 020-65102755.

Date :- 18<sup>th</sup> May, 2021

To,

The Head,  
Department of Mechanical Engineering,  
SVERI's College of Engineering  
Pandharpur

**Subject: Sponsorship for Final Year Project**

Dear Sir,

With reference industry visit of Prof. S. Y. Salunkhe and following students from your department to our organization for their final year project, a sponsored project titled "**Automatic Parking brake System for four-wheeler**" was offered.

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

1. Gaikwad Suraj Tanaji
2. Gahirwar Pawansing Kiransing
3. Jadhav Rushikesh Kalyan
4. Jadhav Vivek
5. Patil Ganesh Basavaraj

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

Thanking you.

For PASK,



**SVERI's**  
**College of Engineering, Pandharpur**  
**Electronics & Telecommunication Engineering**

**Vocational Training Record**

**A.Y.: 2020-2021**



**Department of Electronics & Telecommunication Engineering**

**INTERNSHIP DETAILS**

**A.Y.: 2020-21**

<b>Roll.No.</b>	<b>Name of the student</b>	<b>Industry/Course Name</b>
1	ADSUL ABOLI SANJAY	Internshala: Programming with Python
2	AWATADE PRAJAKTA PANDURANG	Dolphin Labs, Pune
3	BABANAGARE NIVEDITA SANJAYKUMAR	VEDAM Labs, Solapur
4	BAGAL SONALI SAMADHAN	Internshala: Programming with Python
5	BHANDARE GAYATRI CHIMAJI	Shri Vithal Sahakari Karkhana Ltd., Venunagar
6	BHOSALE NIKITA SAMBHAJI	Internshala: Programming with Python
7	BHOSALE PRATIKSHA ANNASAHEB	Solar Electronics, Solapur
8	DESHPANDE KETAKI BHASKAR	VEDAM Labs, Solapur
9	DHENDULE JAGRUTI JAGANNATH	Internshala: Programming with Python
10	DHERE VIDYA TANAJI	Cable Assembly Manufacturing Department Satara
11	DUDGIKAR BHAKTI PURUSHOTTAM	Internshala: Data Structures and Algorithms
12	GHOLAP TANUJA GAUTAM	Internshala: Web Development
13	GORE GAURI SANTOSH	Katare Informatics, Solapur
14	GOTE VAISHNAVI ASHOK	PLC & SCADA, Pune
15	JADHAV KOMAL PRALHAD	VEDAM Labs, Solapur
16	JADHAV RUTUJA RAJESH	Internshala: Programming with Python
17	KADAM GAYATRI NIVRUTTI	Cable Assembly Manufacturing Department Satara
18	KESKAR ARCHANA BIRUDEV	Cable Assembly Manufacturing Department Satara
19	KHOBARE PRATIKSHA SANJAY	Solar Electronics, Solapur
20	KORAKE SAMIKSHA KAILAS	Forage: Stem Connect Virtual Experience Program
21	KULKARNI PRATIKSHA SUNIL	Machine Learning
22	KUNTALA GAYATRI AMBADAS	Internshala: Programming with Python
23	KURNAWAL KSHIPRA VIDHYADHAR	Internshala: Programming with Python
24	LIGADE SHITAL SOMNATH	Ashwini Computers Sales and Service, Solapur
25	LONDHE MANJU GOPEECHAND	Internshala: Programming with Python
26	MAGADE ANJALI NAMDEV	Solar Electronics, Solapur
27	MAGAR SHWETA SHIVAJI	Solar Electronics, Solapur
28	MHAMANE SONALI MAHASIDHA	Core JAVA Programming
29	NALWADE AISHWARYA UMESH	Katare Informatics, Solapur
30	NAMADE MAYURI RAJKUMAR	Digital Marketing
31	NARWADE HARSHADA KEDARI	BSNL, Osmanabad
32	PAPARKAR URMILA PANDURANG	AFTEK Limited, solapur
33	PAWAR RUPALI RAJARAM	VEDAM Labs, Solapur
34	PAWAR SUPRIYA GOPINATH	Solar Electronics, Solapur
35	RITUND PALLAVI RAGHUNATH	Dolphin Labs, Pune
36	SATHE ANKITA BABASAHEB	Internshala: Programming with Python
37	SHAIKH ANCHAL DASTGIR	Internshala: Programming with Python
38	SHAIKH NASREEN SALEEM	VEDAM Labs, Solapur
39	SHELKE ISHWARI GOVIND	Katare Informatics, Solapur
40	SHINDE MONIKA MACHINDRA	Internshala: Programming with Python
41	SURVASE VAISHNAVI ZUMBAR	PLC & SCADA, Pune
42	SURYAPUJARI AISHWARYA PADMAKAR	VEDAM Labs, Solapur
43	TAMBOLI AYESHA SHAFIK	Cable Assembly Manufacturing Department Satara
44	THORAT TEJASVI BAPU	Ashwini Computers Sales and Service, Solapur
45	UMBARE VAISHNAVI VAIBHAV	Cable Assembly Manufacturing Department Satara
46	WAGHMODE ASHWINI RAMCHANDRA	VEDAM Labs, Solapur
47	YADAV KOMAL SURESH	VEDAM Labs, Solapur

48	YADAV RUTUJA ANAND	Dolphin Labs, Pune
49	AUNIKAR SHUBHAM BABAN	VEDAM Labs, Solapur
50	AWATADE SUYASH SHANKAR	VEDAM Labs, Solapur
51	BHOSALE DHANRAJ SANJAY	VEDAM Labs, Solapur
52	GANGTHADE YOGESH TUKARAM	VEDAM Labs, Solapur
53	GATE SUJAY PURUSHOTTAM	VEDAM Labs, Solapur
54	GHAVATE SURAJ HARIDAS	VEDAM Labs, Solapur
55	GHIRADE GIRIPRASAD JANAPPA	Solar Electronics, Solapur
56	HAJARE ROHIT DEELIP	Solar Electronics, Solapur
57	JAGTAP SANKET PRAMOD	Solar Electronics, Solapur
58	KALE SHIVRAJ BALASAHEB	KALA Gensel Pvt. Ltd., Navi Mumbai
59	KAMBLE PRADIP LALASAHEB	Solar Electronics, Solapur
60	KASBE SIDDHESHVAR ABHIMAN	Solar Electronics, Solapur
61	KHILARE SANTOSH SUNIL	Solar Electronics, Solapur
62	KULKARNI KAUSHIK RAVINDRA	Digital Marketing
63	LAD OMKAR MUKUND	Internshala: Programming with Python
64	LUNGARE PRASANNA MANMATH	Internshala: Programming with Python
65	NANDAWATE SUJIT SUDHAKAR	Solar Electronics, Solapur
66	NARALE SHANKAR BALU	Solar Electronics, Solapur
67	PATIL SHLOK RISHIKESH	Bharat Electronics Limited, Taloja, Navi Mumbai
68	SALUNKE VIJAY RANGNATH	VEDAM Labs, Solapur
69	SHINDE KARAN AUDUMBAR	VEDAM Labs, Solapur
70	VEDPATHAK MANGESH DHANANJAY	Internshala: Core JAVA
71	VEDPATHAK PAVAN SANTOSH	VEDAM Labs, Solapur
72	WALUJKAR PRATIK ANIL	Internshala: Programming with Python
73	ABHANGRAO PAYAL HANUMANT	SHAMS Energy, Solapur
74	ALAGI LAXMI GURUPADAPPA	SHAMS Energy, Solapur
75	ANANDPURE DIPALI AMASIDDHA	SHAMS Energy, Solapur
76	BHOSALE MEGHA RAMACHANDRA	SHAMS Energy, Solapur
77	CHAVAN UTKARSHA VILAS	SHAMS Energy, Solapur
78	CHAVAN VISHAKHA RAVI	VEDAM Labs, Solapur
79	DHADVAD ARATI SHANTARAM	SHAMS Energy, Solapur
80	DOKE ASHWINI RAMHARI	Solar Electronics, Solapur
81	GANGEKAR VAISHNAVI SANJAY	SHAMS Energy, Solapur
82	GEND PAYAL NAVNATH	Siddhanath Electrical Industries
83	JAGTAP SHITAL CHANDRAKANT	SHAMS Energy, Solapur
84	JAMDARE SHWETA SUBHASH	SHAMS Energy, Solapur
85	JAVERI VAISHNAVI RANJEET	Intech Olympiad Online summer Internship
86	KSHIRSAGAR PRADNYA VASANT	SHAMS Energy, Solapur
87	KULKARNI PRAJAKTA DATTATRAY	SHAMS Energy, Solapur
88	MANE VISHAKHA PRAMOD	Amit Electrical Industries, Solapur
89	MANE PALLAVI SANJAY	SHAMS Energy, Solapur
90	MARAL SAYALI SUDHIR	SHAMS Energy, Solapur
91	MORE PRAJAKTA ANKUSH	SHAMS Energy, Solapur
92	NAGANE DNYANESHWARI BAPUSAHEB	SHAMS Energy, Solapur

93	PATIL RENUKA NAMADEV	SHAMS Energy, Solapur
94	PATIL PRATIKSHA BALASHAB	Solar Electronics, Solapur
95	PATIL VIDYA RAMESH	SHAMS Energy, Solapur
96	PIMPALE RADHIKA MUKUNDRAJ	SHAMS Energy, Solapur
97	PATHAN MUHRAJ MUHIRUB	Solar Electronics, Solapur
98	PURANIK SNEHAL VYKATESH	Intech Olympiad Online summer Internship
99	SHINDE NAMRITA NAMDEV	SHAMS Energy, Solapur
100	SHINDE URVILA ATUL	SHAMS Energy, Solapur
101	SUTAR AVANTIKA MAULI	SHAMS Energy, Solapur
102	SHIRALKAR AMRUTA DATTATRAYA	SHAMS Energy, Solapur
103	SURYV ANSHI PRAJEKTA PRASAD	SHAMS Energy, Solapur
104	TAKBHATE SANDYA DIPAK	SHAMS Energy, Solapur
105	WANVE SUSHAMA RUBHISHAN	SHAMS Energy, Solapur
106	YADAV SHILPA RAMESH	Solar Electronics, Solapur
107	SHIKHARE PRAJAKTA VIJAY	SHAMS Energy, Solapur
108	BHOSALE NIKHIL RAMESH	SHAMS Energy, Solapur
109	CHAVAN RUSHIKESH ISHWAR	SHAMS Energy, Solapur
110	DESHMUKH RUSHIKESH PITAMBER	SHAMS Energy, Solapur
111	DESHPANDE KAUSTUBH SUNIL	SHAMS Energy, Solapur
112	DHARADE AJAY VAJINATH	Dolphin Labs, Pune
113	GUJARE NITIN TANAJI	SHAMS Energy, Solapur
114	INGALE JAYESH SATISH	Udemy: HTML & CSS Certification
115	INGALE PRADIP SAMADHAN	Forge: Ready, Set, Agile! Virtual Experience Program
116	JADHAV SURAJ GANESH	SHAMS Energy, Solapur
117	JADHAVAR MAYUR BHAGVAN	SHAMS Energy, Solapur
118	KADAM HARSHAL RAJKUMAR	SHAMS Energy, Solapur
119	KAMBLE GOPAL GOVIND	Forge: Ready, Set, Agile! Virtual Experience Program
120	KHADDE JAYESH SANTOSH	Coursera: Introduction to IOT & ES
121	LENDAVE SUNIL AUDUMBAR	SHAMS Energy, Solapur
122	MANE ABHISHEK SHIVAJI	Udemy: HTML & CSS Certification
123	MHANTA YOGESH MAHESH	SHAMS Energy, Solapur
124	MORE RUSHIKESH SHRIKRISHNA	SHAMS Energy, Solapur
125	MULE SATYAJEET BALAJI	SHAMS Energy, Solapur
126	NAGSHETTI ONKAR VILAS	SHAMS Energy, Solapur
127	PATEL KUNJ RAMANBHAI	Forge: Ready, Set, Agile! Virtual Experience Program
128	PATIL SHILISIDH AMOGSIDH	SHAMS Energy, Solapur
129	MOGAL IMRAN IKBAL	SHAMS Energy, Solapur
130	PAWAR ADITYA DATTATRAYA	Maharashtra State Ele.Distribution Co. Ltd., Akluj
131	PAWAR AVINASH DADASAHEB	SHAMS Energy, Solapur
132	SHETTIGAR GIRIDHAR GUNAPALA	SHAMS Energy, Solapur
133	SHINGARE KIRAN DNYANESHWAR	SHAMS Energy, Solapur
134	SUTAR RAHUL IRANNA	SHAMS Energy, Solapur
135	VATTAMWAR PRATHMESH PRAVIN	SHAMS Energy, Solapur
136	YELSANGE ONKAR MAHADEV	SHAMS Energy, Solapur
137	GHADYALJI AISHWARYA CHANDRAKANT	Forge: Ready, Set, Agile! Virtual Experience Program
138	ARPITA VIJAYKUMAR KHATAKE	SHAMS Energy, Solapur
139	KAMBLE KSHITIJA TANAJI	Solar Electronics, Solapur
140	PATIL SHUBHAM BHAUSAHEB	SHAMS Energy, Solapur

(Dr. Mrs. M.M.Pawar)  
HOD ENTIC

HEAD

Dept of Electronics & Telecom. Engg.  
" O E Pandharpur

# Certificate of Training

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**Aboli Adsul**

from SVER's College of Engineering Pandharpur, has successfully completed a six weeks online training on **Programming with Python**. The training consisted of Introduction to Python, Using Variables in Python, Basics of Programming in Python, Principles of Object-oriented Programming (OOP), Connecting to SQLite Database, Developing a GUI with PyQt, Application of Python in Various Disciplines and The Final Project modules.

Aboli scored 100% marks in the final assessment and is a top performer in the training.

We wish Aboli all the best for the future endeavours.



**Sarvesh Agarwal**

FOUNDER & CEO, INTERNSHALA

Date of certification: 2021-08-04      Certificate no. : B522BD30-9D17-8741-2FF2-C09EA753E325

For certificate authentication, please visit [https://trainings.internshala.com/verify\\_certificate](https://trainings.internshala.com/verify_certificate)



This is to certify that **Ms. Prajakta Pandurang Awatade** from **E&TC Engineering of SVERI college of Engineering, Pandharpur** has successfully completed Two Weeks online Internship in our company from 01/08/2021 to 14/08/2021. All necessary details were provided from our side for completion of internship.

We wish her the very best in all her future endeavors.

Mr. Chittaranjan Mahajan  
CEO, Dolphin Labs



Cert. No. 28182021

[www.dolphinlabs.in](http://www.dolphinlabs.in)

**Vedam Labs**

Website: [www.vedamlab.com](http://www.vedamlab.com)

Office: 0217-2655512

Address: 155/5 Akkalkot Road, Solapur 413006

**वेदाम**  
the knowledge of modern era

Date: 10/08/2021

Ref No. CER/TRAIN/2021/0025

## Industrial Training Certificate

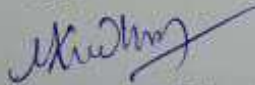
This is to certify that **Ms. Nivedita Sanjaykumar Babanagare** has undergone the training program for 15 days from **26<sup>th</sup> of July 2021 to 10<sup>th</sup> of August 2021** at Vedam Labs, Solapur.

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 in learning the functions of our core division and also willing to put her best efforts and get into the depth of the subject to understand it better.

We wish good luck for her future..

Yours faithfully,  
Vedam Labs

  
Authorized Signature



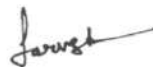
# Certificate of Training

**Sonali Bagal**

has successfully completed a six weeks online training on **Programming with Python**. The training consisted of Introduction to Python, Using Variables in Python, Basics of Programming in Python, Principles of Object-oriented Programming (OOP), Connecting to SQLite Database, Developing a GUI with PyQt, Application of Python in Various Disciplines and The Final Project modules.

In the final assessment, Sonali scored 73% marks.

We wish Sonali all the best for the future endeavours.



**Sarvesh Agarwal**

FOUNDER & CEO, INTERNSHALA

Date of certification: 2021-08-07

Certificate no. : 15886E9F-7A2D-7EC3-841B-89A49A55ECDF

For certificate authentication, please visit [https://trainings.internshala.com/verify\\_certificate](https://trainings.internshala.com/verify_certificate)

Email : shrivithalsugar@yahoo.com  
Reg. No. S.U.R./P.R.G./ (A) -4  
Date : 5/4/1974  
G.ST. NO- 27AAAAS3892H1Z8



(02186) 249502  
249535, 249550  
FAX : (02186) 249625  
Pan No. - AAAAS3892H

## Shri Vithal Sahakari Sakhar Karkhana Ltd. Venunagar

Post-Gursale, Tal. : Pandharpur, Dist. Solapur- 413 304. (Maharashtra)

VSSK/LO../ 384

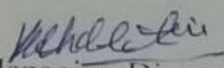
/2021-22

Date: 27/08/2021

### CERTIFICATE

This is to certify that Miss Gayatri Chimaji Bhandare student of *SVERI's College of Engineering, Pandharpur*, Studying in B.Tech. (E&TC). She is completed 15days "Industrial Training" in our Telephone Department from 28-07-2021 to 12-08-2021 very carefully.

This certificate is issued on his request.

  
Managing Director,  
Shri Vithal S.S.K.Ltd.Venunagar



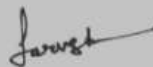
# Certificate of Training

**Nikita Bhosale**

has successfully completed a six weeks online training on **Programming with Python**. The training consisted of Introduction to Python, Using Variables in Python, Basics of Programming in Python, Principles of Object-oriented Programming (OOP), Connecting to SQLite Database, Developing a GUI with PyQt, Application of Python in Various Disciplines and The Final Project modules.

In the final assessment, Nikita scored 46% marks.

We wish Nikita all the best for the future endeavours.



**Sarvesh Agarwal**

FOUNDER & CEO, INTERNSHALA

Date of certification: 2021-08-08

Certificate no. : 7E119645-FABE-FDF3-9A42-2670F07F2841

For certificate authentication, please visit [https://trainings.internshala.com/verify\\_certificate](https://trainings.internshala.com/verify_certificate)



**SOLAR**  
ELECTRONICS  
*green world is the making*

Office/Works : Ijamata, 950, North Sadar Bazar,  
Sat Rasta, Solapur - 413 003 (M.S.), India.  
Tel. 91-217-2312467 / 2311713  
Email : solarlighting11@gmail.com  
solar\_wireless@yahoo.co.in  
SolarElectronics1989@gmail.com

Website : [www.solarelectronics.in](http://www.solarelectronics.in) [www.solarelectronics.tradeindia.com](http://www.solarelectronics.tradeindia.com) [www.indiamart.com/solar-electronics/](http://www.indiamart.com/solar-electronics/)

Date:-12/08/2021

## CERTIFICATE COURSE INDUSTRIAL TRAINING

This is to certify that Miss. Pratiksha annasaheb Bhosale has attended industrial training in our company on the basics and practical training in Electrical / Electronics & Green – Technology products from 24/07/21 to 10/08/21. During the training period student has undergone classroom teaching followed by practical on-hand training.

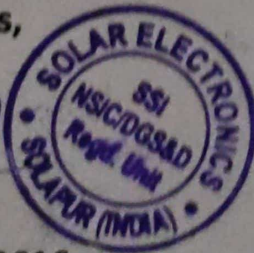
We wish her good luck for her future career.

For Solar Electronics,  
Solapur.

*A.S. Bandal*

(Angad Bandal)

Mob: - 091-7588372616



Pune Office : Building No. 1, Flat No. 4, Zala Housing Society,  
Karishma Chowk, Karve Road, Behind Papa Jones,  
Pune 411 029, (M.S.), INDIA.

**Vedam Labs**

Website: [www.vedamlab.com](http://www.vedamlab.com)

Office: 0217-2655512

Address: 155/5 Akkalkot Road, Solapur 413006

**वेदाम**

the knowledge of modern era

Date: 10/08/2021

Ref No. CER/TRAIN/2021/0027

## Industrial Training Certificate

This is to certify that **Ms. Ketaki Bhaskar Deshpande** has undergone the training program for 15 days from **26<sup>th</sup> of July 2021 to 10<sup>th</sup> of August 2021** 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 in learning the functions of our core division and also willing to put her best efforts and get into the depth of the subject to understand it better.

We wish good luck for her future.

Yours faithfully,  
Vedam Labs



Authorized Signature



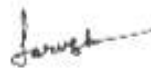
# Certificate of Training

**Jagruti Dhendule**

from SVERI College Of Engineering Pandharpur, has successfully completed a six weeks online training on **Programming with Python**. The training consisted of Introduction to Python, Using Variables in Python, Basics of Programming in Python, Principles of Object-oriented Programming (OOP), Connecting to SQLite Database, Developing a GUI with PyQt, Application of Python in Various Disciplines and The Final Project modules.

In the final assessment, Jagruti scored 85% marks.

We wish Jagruti all the best for the future endeavours.



Sarvesh Agarwal

FOUNDER & CEO, INTERNSHALA

Date of certification: 2021-08-16      Certificate no. : 64F5896B-F5D0-0014-362D-84C286979AC5

For certificate authentication, please visit [https://trainings.internshala.com/verify\\_certificate](https://trainings.internshala.com/verify_certificate)

GAT No. 1122, 1129, 1140, 1295, 1296  
Village Srinewal, Taluka Khandala  
District Satara - 412 801 India  
Tel +91 - 02169 - 246000  
Fax +91 - 02169 - 246030  
www.te.com



Date: - 17<sup>th</sup> Aug 2021

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Ms. Vidya Tanaji Dhere from Sveri's College of Engineering - Pandharpur, had completed her Internship/Vocational Training with us from 2<sup>nd</sup> August 2021 to 17<sup>th</sup> August 2021 in Cable Assembly Manufacturing Department.

During her stay with us, we found her to be sincere and hardworking.

We wish her all the Success in her future endeavors.

For TE Connectivity India Private Limited (P) Ltd.,



Sanjay Hon  
Senior Manager- HR

TE Connectivity India Private Limited

Regd. off. No. 22B, TE Park, Doddanakundi 2nd Phase, Industrial Area, Whitefield Road, Bangalore 560048, Karnataka, India  
CIN : U31909KA1993PTCO15007

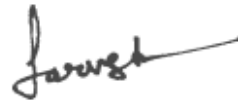
# Certificate of Training

**Bhakti Dudgikar**

from Sveri's COE Pandharpur, has successfully completed a eight weeks online training on **Data Structures & Algorithms**. The training consisted of Introduction to Data Structures, Introduction to Algorithms, Single & Double Dimensional Arrays, Searching & Sorting, Stacks & Queues, Revision of relevant topics in C, Implementation programs of Stacks & Queues, Linear linked list, Circular linked list, Doubly linked list, Trees and Graphs modules.

Bhakti scored 93% marks in the final assessment and is a top performer in the training.

We wish Bhakti all the best for the future endeavours.



**Sarvesh Agarwal**

FOUNDER & CEO, INTERNSHALA

Date of certification: 2021-08-30

Certificate no. : D9397766-648D-4491-D480-9250963BEC39

For certificate authentication, please visit [https://trainings.internshala.com/verify\\_certificate](https://trainings.internshala.com/verify_certificate)

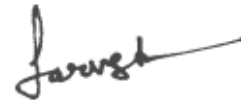
# Certificate of Training

**Tanuja Gholap**

has successfully completed a eight weeks online training on **Web Development**. The training consisted of HTML & CSS, Bootstrap, SQL and PHP modules.

Tanuja is a top performer in the training.

We wish Tanuja all the best for the future endeavours.



**Sarvesh Agarwal**

FOUNDER & CEO, INTERNSHALA

Date of certification: 2021-08-05

Certificate no. : 942B39D9-78B6-9541-EB05-EE63D6ABD15F

For certificate authentication, please visit [https://trainings.internshala.com/verify\\_certificate](https://trainings.internshala.com/verify_certificate)



# Katare Informatics

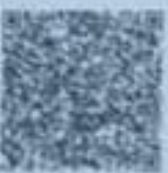
We give a colourful life touch  
for your thoughts

23 B Ekamragar, Near WIT College, Solapur Contact : +91 8007026979, +91 9823040456  
info@katareinfo.com www.katareinfo.com

## CERTIFICATE

Date : 27 / 9 / 2021

This is to certify that Mr/Miss. Gore Gauri Santosh  
has successfully Completed internship in Advance PHP technology  
Full stack development  
Program with A+ grade conducted for duration of Ninety Days  
From 26<sup>th</sup> June to 26<sup>th</sup> Sept



Katare Informatics





Excellent Training Quality

# THE WORLD OF AUTOMATION

50TWOA/WT/00890

## Certificate of Completion

This is to certify that

**Miss. Vaishnavi A Gote** has successfully completed **PLC & SCADA**  
online Workshop Organized by **The World Of Automation**  
during **7<sup>th</sup> Aug 2021 to 22<sup>nd</sup> Aug 2021.**

Delta PLC

In touch SCADA



Balaji Niwas, (B) Wing, Office No -  
12, 3rd Floor, Near Chinchwadgaon Bus Stop,  
Opp Elpro Square Mall, Opp Heritage Plaza, PCMC  
Link Road, Chinchwad-411033.

8530094777/8530084777/9075102234

 Theworldofautomation  
 TheWorldOfAuto1UCXARihllgQgngl-  
6YdGduig  
  info@theworldofautomation.com  
 [www.theworldofautomation.com](http://www.theworldofautomation.com)



Authorised  
Signatory

**Vedam Labs**

Website: [www.vedamlab.com](http://www.vedamlab.com)

Office: 0217-2655512

Address: 155/5 Akkalkot Road, Solapur 413006

**वेदाम**  
The Knowledge of Modern Era

Date: 10/08/2021

Ref No. CER/TRAIN/2021/0024

## Industrial Training Certificate

This is to certify that **Ms. Komal Pralhad Jadhav** has undergone the training program for 15 days from **26<sup>th</sup> of July 2021 to 10<sup>th</sup> of August 2021** at Vedam Labs, Solapur.

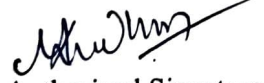
During her internship, she was exposed to various activities in **IOT Application Development**.

We found her extremely inquisitive and hard working. She was very much interested in learning the functions of our core division and also willing to put her best efforts and get into the depth of the subject to understand it better.

We wish good luck for her future.

Yours faithfully,

Vedam Labs



Authorized Signature



# Certificate of Training

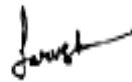
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**Rutuja Jadhav**

from SVERI's College Of Engineering Pandharpur, has successfully completed a six weeks online training on **Programming with Python**. The training consisted of Introduction to Python, Using Variables in Python, Basics of Programming in Python, Principles of Object-oriented Programming (OOP), Connecting to SQLite Database, Developing a GUI with PyQt, Application of Python in Various Disciplines and The Final Project modules.

In the final assessment, Rutuja scored 85% marks.

We wish Rutuja all the best for the future endeavours.



**Sarvesh Agarwal**

FOUNDER & CEO, INTERNSHALA

Date of certification: 2021-08-05      Certificate no. : BC09F09d-0AD1-2BAb-5D31-3A23E7772835

For certificate authentication, please visit [https://trainings.internshala.com/verify\\_certificate](https://trainings.internshala.com/verify_certificate)

Date: - 17<sup>th</sup> Aug 2021


TO WHOMSOEVER IT MAY CONCERN

This is to certify that Ms. Archana Birudev Keskar from Sveri's College of Engineering – Pandharpur, had completed her Internship/Vocational Training with us from 2<sup>nd</sup> August 2021 to 17<sup>th</sup> August 2021 in Cable Assembly Manufacturing Department.

During her stay with us, we found her to be sincere and hardworking.

We wish her all the Success in her future endeavors.

For TE Connectivity India Private Limited (P) Ltd.,



Sanjay Hon  
Senior Manager- HR

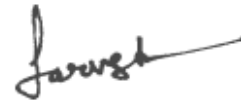
# Certificate of Training

**Gayatri Kuntala**

from SVERI college of engineering pandharpur, has successfully completed a six weeks online training on **Programming with Python**. The training consisted of Introduction to Python, Using Variables in Python, Basics of Programming in Python, Principles of Object-oriented Programming (OOP), Connecting to SQLite Database, Developing a GUI with PyQT, Application of Python in Various Disciplines and The Final Project modules.

In the final assessment, Gayatri scored 76% marks.

We wish Gayatri all the best for the future endeavours.



**Sarvesh Agarwal**

FOUNDER & CEO, INTERNSHALA

Date of certification: 2021-08-12

Certificate no. : E5FF61AF-DD9D-5F2E-1522-87C410827252

For certificate authentication, please visit [https://trainings.internshala.com/verify\\_certificate](https://trainings.internshala.com/verify_certificate)

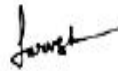
# Certificate of Training

**Kshipra Kurnawal**

from SVERI's College Of Engineering, Pandharpur, has successfully completed a six weeks online training on **Programming with Python**. The training consisted of introduction to Python, Using Variables in Python, Basics of Programming in Python, Principles of Object-oriented Programming (OOP), Connecting to SQLite Database, Developing a GUI with PyQt, Application of Python in Various Disciplines and The Final Project modules.

In the final assessment, Kshipra scored 85% marks.

We wish Kshipra all the best for the future endeavours.



**Sarvesh Agarwal**  
FOUNDER & CEO, INTERNSHALA

Date of certification: 2021-07-27      Certificate no. : 903C7A4F-BE33-F63A-EFDS-B445A39A7667

For certificate authentication, please visit [https://trainings.internshala.com/verify\\_certificate](https://trainings.internshala.com/verify_certificate)



# आश्विनी

९९२१४३८६६६  
७९७२१०७९८३

## कॉम्प्युटर सेल्स अँड सर्विसेस

आफिस: गाळा नं. ३९, कुबेर कॉम्प्लेक्स, विजापूर रोड, सोलापूर. | निवास: ९८७, अशत घाम, डोंबगाव रोड, सोलापूर.

Date: 10/08/2021

TO WHOM IT MAY CONCERN

## CERTIFICATE

This is to certify that **Miss. Shital Somnath Ligade** student of **SVRI's College of Engineering, Pandharpur** has successfully completed a summer internship in our **Software Development Department** from **27/07/2021 to 10/08/2021** under the guidance of **Mr. Adityabodhi Jadhav**.

During the period of her internship program with us, she had been exposed to different processes and was found diligent, hardworking and inquisitive.

We wish her every success in her life and career.

Aswini Computers Sales & Services

  
Proprietor

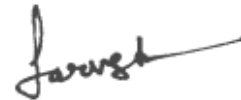
# Certificate of Training

**Manju Londhe**

from SVERI'S College of Engineering Pandharpur, has successfully completed a six weeks online training on **Programming with Python**. The training consisted of Introduction to Python, Using Variables in Python, Basics of Programming in Python, Principles of Object-oriented Programming (OOP), Connecting to SQLite Database, Developing a GUI with PyQT, Application of Python in Various Disciplines and The Final Project modules.

In the final assessment, Manju scored 88% marks.

We wish Manju all the best for the future endeavours.



**Sarvesh Agarwal**

FOUNDER & CEO, INTERNSHALA

Date of certification: 2021-08-16

Certificate no. : BF5E51F9-D61B-78A9-CB5B-6D8DCCDBA793

For certificate authentication, please visit [https://trainings.internshala.com/verify\\_certificate](https://trainings.internshala.com/verify_certificate)





**SOLAR**  
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**Office/Works :** Jijamata, 950, North Sadar Bazar,  
Sat Rasta, Solapur - 413 003 (M.S.), India.  
Tel. 91-217-2312467 / 2311713  
Email : solarlighting11@gmail.com  
solar\_wireless@yahoo.co.in  
Solar.Electronics1989@gmail.com

Website : [www.solarelectronics.in](http://www.solarelectronics.in) [www.solarelectronics.tradeindia.com](http://www.solarelectronics.tradeindia.com) [www.indiamart.com/solar-electronics/](http://www.indiamart.com/solar-electronics/)

Date:-12/08/2021

## CERTIFICATE COURSE INDUSTRIAL TRAINING

This is to certify that Miss. Shweta Magar has attended industrial training in our company on the basics and practical training in Electrical / Electronics & Green – Technology products from 24/07/21 to 10/08/21. During the training period student has undergone classroom teaching followed by practical on-hand training.

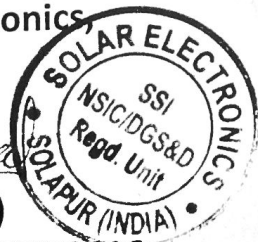
We wish her good luck for her future career.

For Solar Electronics,  
Solapur.

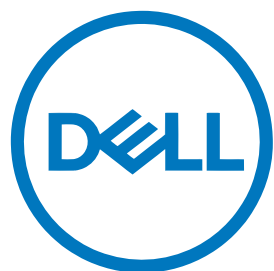
*A.S. Bandal*

(Angad Bandal)

Mob: - 091-7588372616



**Pune Office :** Building No. 1, Flat No. 4, Zala Housing Society,  
Karishma Chowk, Karve Road, Behind Papa Jones,  
Pune 411 029, (M.S.), INDIA.



# Training Completion Certificate

This is to certify that Mayuri Rajkumar Namade has successfully completed 90 hours of training in Digital Marketing conducted by Sambhav Foundation and supported by Dell India Limited.

This training was conducted from 24-Oct-20 to 25-Nov-20 .

Dr. Gayathri Vasudevan  
Trustee  
Sambhav Foundation

UID : 26834



**TRAINING**  
**AT**  
**BSNL, OSMANABAD**



**CERTIFICATE**

**COMPLETION CERTIFICATE OF 15 DAYS VOCATIONAL TRAINING**

This is to certify that Mrs. Harshada Kedari Narwade. Student of SVERI's College of Engineering Pandharpur, pursuing B.Tech, has successfully completed 15 days vocational training in our organization BSNL, Osmanabad for a period of **24th July 2021 to 8th August 2021** and her progress was good.

Date: 09/08/2021

Place: Osmanabd

  
**S. D. E. (Marketing)**  
**BSNL Osmanabad**

## CERTIFICATE

This is to certify that, **Miss Urmila Pandurang Paparkar** a Student of SVERI's College of Engineering, Pandharpur (T.E. E & TC) has successfully completed his concurrent Vacation Training from **1<sup>st</sup> August to 15<sup>th</sup> August 2021** in our company. To best of my knowledge, she is sincere, honest and devoted to the work. She bears a good moral conduct.

Date: 15<sup>th</sup> August 2021  
Place: Solapur



Aftek Limited, Solapur

Authority Signature



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**Office/Works :** Jijamata, 950, North Sadar Bazar,  
Sat Rasta, Solapur - 413 003 (M.S.), India.  
Tel. 91-217-2312467 / 2311713  
Email : solarlighting11@gmail.com  
solar\_wireless@yahoo.co.in  
Solar.Electronics1989@gmail.com

Website : [www.solarelectronics.in](http://www.solarelectronics.in) [www.solarelectronics.tradeindia.com](http://www.solarelectronics.tradeindia.com) [www.indiamart.com/solar-electronics/](http://www.indiamart.com/solar-electronics/)

**Date:-12/08/2021**

## **CERTIFICATE COURSE** **INDUSTRIAL TRAINING**

This is to certify that Miss. Supriya Pawar has attended industrial training in our company on the basics and practical training in Electrical / Electronics & Green – Technology products from 24/07/21 to 10/08/21. During the training period student has undergone classroom teaching followed by practical on-hand training.

We wish her good luck for her future career.

For Solar Electronics,  
Solapur.

(Angad Bandal)

Mob: - 091-7588372616



**Pune Office :** Building No. 1, Flat No. 4, Zala Housing Society,  
Karishma Chowk, Karve Road, Behind Papa Jones,  
Pune 411 029, (M.S.), INDIA.



This is to certify that **Ms. Pallavi Raghunath Ritund** from **E&TC Engineering** of **Shri. Vittal Education and Research Institute College of Engineering, Pandharpur** has successfully completed Two Weeks online Internship in our company from 01/08/2021 to 14/08/2021. All necessary details were provided from our side for completion of internship.

We wish her the very best in all her future endeavors.

Mr. Chittaranjan Mahajan  
CEO, Dolphin Labs



Cert. No. 17182021

[www.dolphinlabs.in](http://www.dolphinlabs.in)

**SVERI's**  
**College of Engineering, Pandharpur**  
**Electronics & Telecommunication Engineering**

**Final Year Project Record**

**A.Y.: 2020-2021**

**BE Project and Seminar  
A.Y. 2020-21**

Sr. No.	Project Group no.	Name of Student	Roll No.	Area of Interest	Name of Guide	Title of Project	Title of seminar
1	BE A 03	Pathan Sameer K.	52	Embedded , Image, A. I.	Mr. H. K. Bhaldar	Design of wearable textile microstrip patch antenna for biomedical application	5G technology
2		Bachute Bhushan S.	33				Wearable Antenna
3		Asutosh Thorat	56				Robotic automation
4	BE A 9	Guruji Gaurav Dattatraya	38	Antenna Design	Mr. Ashish A. Jadhav	4-Port MIMO Antenna with Defected Ground Structure for 5G Millimeter Wave Applications	Design of WLAN 5G MIMO Antenna
5		Darshanale Swapnil Prakash	36				Face mask detection using ML
6		Hodade Rushikesh Somnath	39				Introduction to IOT
7	BE A 10	Chavan Rutuja Shivaji	2	Antenna	Mr. H. K. Bhaldar	Design & development of wearable microstrip antenna for wireless communication	application
8		More Komal Nanasahab	14				5G
9		Repal Shraddha Anil	21				Project Title
10	BE A 02	Amit Danure	35	WSN, Image Processing, VLSI	Mr. S. M. Karve	Blood group Recognition Using Image Processing	Project
11		Santosh Ubale	53				Smart Home Environment Using
12		Imran Sheikh	52				Virtual Reality
13	BE A 05	Mulani Salman Shahajahan	45	IoT and Robotics	Mr. A. M. Kasture	Smart Dustbin Using IOT	Smart Dustbin Using IOT
14		Kulkarni Prathmesh Prakash	42				Raspberry Pi
15		Sarwadkar Manjunath Sidram	51				Internet of things
16	BE A 07	chavare Bhushan Mahavir	34	Robotics	Mr. A. M. Kasture	Fire fighting Robot	Fire fighting Robot
17		Koli Sudarshan Somaraya	41				Infrared plastic solar cell
18		Pachave Nitin Subhash	46				NANOROBOTICS
19	BE A 17	Avadhut Renuka Audumbar	1	IoT, Embedded System & Robotics	Mr. Akshay A. Jadhav	Milk Quality Analyser using Rasberi Pi	Milke Quality Analyser using
20		Rajmane Manali Sunil	20				Block Chain in Education
21		Lokhande Mayui Sanjay	30				Blockchain in Banking
22		Shirame Amruta Dhanaji	23				Blockchain in Voting
23	BE A 01	Namdas Dipika	16	IoT/ IP	Dr. A.S. Vibhute	Development of Image based Chorophyll meter	Machine learning
24		Patil Ashvini Maruti	18				Image Processing
25		Duchal Snehal Balasaheb	3				Chlorophyll
26	Mendhegiri Shweta	11	Chlorophyll meter				
27	BE A 04	Walekar Smita Mahadev	27	IoT	Mr. S. A. Inamdar	Arduino based intelligent Gas Leakage detection system with IoT	IoT
28		Wagaj Sonali Shivaji	26				Haptic Technology
29		Hegade Nikita Maruti	29				Blue eye technology
30		Wagaj Pratiksha Hanumant	25				Project
31		Aldar Sushant Tanaji	32				Home automation using IoT



32	BE A 11	Patil Vishal Vijaykumar	48	Arduino, antenna	Ms. N. P. Kulkarni	Flood alert management system using IoT	Augmented Reality
33		More Rushikesh Machindra	43				Flood alert management system
34		Patil Kiran					Crop Field Management using
35	BE A 16	Ghuge Ashwini Dattatrya	4	Bio- Medical Electronics	Mr. M. S. Mathpati	Wireless Library book Catlog system	Silent sound technology
36		Gunjal Surekha Vilas	5				5G communication
37		Khandekar Nisha Soudagar	9				Wireless Library book Catlog
38	BE A 8	Nikte Geeta Prashant	17	Medical Electronics	Dr. M. M. Pawar	Hospital management system using php and MYSQL data base	LI-FI Technology
39		Nagane Prajakta Dayanand	31				Solar Mobile Charger
40		Shembade Janhavi Dilip	22				using php and MYSQL data base
41		Phulare Nikita Sham	19				WIMAX Technology
42	BE A 12	Salunkhe Omkar Arun	50	Antenna	Ms. S. S. Kadam	IoT Based Accident Location Detection Using Vehicle Tracking System	IoT and It's Application
43		Pawar Sanjay Shankar	49				Virtual Reality
44		Chakote Digvijay Girish	54				Industrial Automation using Fifth Generation
45		More Vikram Aankush	44				IoT and It's Application
46	BE A 13	Vhargar Monali Vilas	24	Embedded Systems	Mr. S. S. Kadam	Fixed path real time tracking using RFID	Rasberi Pi
47		Mule Saujanya Subhash	15				Fixed path real time tracking
48		Kale Abhilasha Avinash	7				Retro fitment of existing Two-wheeler into E-bike
49	BE A 19	Kadam Omkar Sunil	40	IoT ,Power Electronics & Robotics	Mr. M. A. Deshmukh	Retro fitment of existing 2 wheeler into Electric bike	IOT and It's Application
50		Akash yelmar	55				Autonomous vehicles
51		Dandawate Upendra N.	37				
52	BE A 06	Mhamane Aishwarya Sanjay	12	Image Processing	Mrs. J. S. Shinde	Smart Lightning and Security system	On project
53		Mahajan Ishita Pradip	10				Recent Advances in the Field Of Clo
54		Harane Sanjivani Raju	6				Silent Sound Technology
55	BE A 18	Kale Komal Kiran	8	IoT, Power Electronics & Robotics	Mr. D. P. Narsale	Power Analyzer using Arduino	Organic Light Emitting Diode
56		Mirgane Shraddha Bharat	13				Power Analyzer using Arduino
57		Ware Saroja Shyamrao	28				Different types of Arduino

BE Project

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Dept of Electronics & Telecom. Engr.

- D E Pandharur

**BE Project and Seminar  
A.Y. 2020-21**

Sr. No.	Project Group no.	Name of Student	Roll No.	Area of Interest	Name of Guide	Title of Project	Title of seminar
1	BEB 07	Jadhav Vrushali	15	Embedded Systems	Mr. H K Bhaladar	IoT based Patient Health monitoring System	IoT & its application
2		Molak Komal	23				Project Title
3		Ghongade	12				5G technology
4	BEB 12	Manepatil Aarti Shahaji	22	Embedded Systems	Mr. S. P. Swami	Water Level Management System (JAL STROT) Using IOT	Smart Antennas
5		Khandare Darshana Rajesh	18				Water Level Management System (JAL STROT) Using
6		Walugade	40				Flexible Displays
7	BEB 15	Tapise Puja	35	Embedded Systems	Mr. S. P. Swami	Smart Waste Management System	5G Technology
8		Bennesur Laxmi Iranna	2				Smart Waste Management System
9		Jamagi Yogini	17				5G Technology
10	BEB 17	Gaikwad Amruta	9	Antenna Design	Mr. Ashish A. Jadhav	Design of WLAN 5G MIMO antenna for laptop	Reconfigurable MIMO Antenna
11		Bharama swati	4				Design of WLAN 5G MIMO Antenn
12		Bhosale	5				Flexible Electronic skin
13		Kamble Pranjal	60				
14	BEB 02	Maske Akshay	46	Embedded Systems	Mr. Amol Kadam	Temperature Monitoring based on BLE	Li-Fi Technology
15		katkamwar	44				Temperature Monitoring based BLE
16		suryawanshi	51				5G technology
17		Abhishek	42				
18	BEB 06	Mane Priyanka	21	Embedded Systems	Mr. Akshay A. Jadhav	Leaf Diseases Detection using Data Science	Leaf Diseases Detection using
19		Thengal Pallavi	36				Leaf Diseases Detection using
20		Patil Ashvini	28				Leaf Diseases Detection using
21	BEB 01	More Vaishnavi	26	IoT & Image Processing	Dr. A. S. Vibhute	Image based structural Health Monitoring	Different techniques of SHM
22		Devkate Gayatri	6				Overview of SHM
23		Bhaganagare	3				Image based structural Health
24		Nirmale Rutuja	27				Vision based SHM system

25	BEB 03	Shinde Jyoti	34	DSP based system	Prof.M.S.Mat hpati	Hotel managment system using raspberry pi	Hotel managment system using
26		Korape	19				Virtual reality
27		Shelake Puja	33				6G communication
28	BEB 18	Ruchita Bhosale	56	Image and Sensor	Dr. A. S. Vibhute	Phytomonitoring for plant growth using image analysis and sensor network	Autosolar Tracker
29		Anjali Mane	57				Fingerprint recognition
30		Rutuja Vansale	58				Project
31		Trupti Pawar	59				Skinput technology
32	BEB 14	Yadav Prajakta	41	Embedded & VLSI Systems	Ms. N. P. Kulkarni	Automatic Car Parking System using Microcontroller	Introduction to Wi-Fi
33		Gawali Renuka	10				Automatic Car Parking System
34		More Mayuri	24				Bio- Battery devices
35	BEB 08	Shaikh Saniya	32	Bio- Medical Electronics	Mr. J. S. Hallur	E-Jacket Heath care & Biomedical Devices	care
36		Wadtile	39				Project
37		Indi Shivganga	14				
38	BEB 11	More Suhashini	25	Embedded Systems & VLSI	Mr. N. S. Admile	IOT Based Women Security System	Organic LED
39		Deokar Namrata	7				Internet of Things
40		Bagal Madhuri	1				
41	BEB 13	Pujari Sapna	30	Embedded & VLSI Systems	Ms. P B Tate		
42		Vanave Suchitra	37				
43		Vidhate	38				
44	BEB 16	Mukare Vaibhav	47	DSP based system	Mr. N. S. Admile	IoT Based Smart Agriculture	IoT Based Smart Agriculture
45		Salunkhe Tushar	49				Hologram Technology
46		Pandhare Nitin	53				
47		Rajkumar	55				
48	BE B 04	Dhekale	29	Embedded Systems	Mr. D. P. Narsale	Smart Ceiling Fan	Haptic Technology
49		Randive Ashwini	31				Smart Ceiling Fan
50		Ghdage Shivani	11				Quantum LED
51	BEB 05	Godase Shruti	13	Embedded Systems	Mr. D. P. Narsale	Automatic Waste Separator and Management System	Automatic Waste Separator and
52		Dudhal Rutuja	8				Different types of PCB
53		Jagtap Suranjali	16				Plasic Solar Cell
54	BEB 09	Ghodake	43	IoT & Image Processing	Mrs. J. S. Shinde	High Performance Solar Phone Charger	High Performance Solar Phone
55		Vhasale Sagar	52				PLASTIC SOLAR CELL
56	BEB 10	Shaikh Shoyeb	50	Embedded Systems	Ms. V. A. Patil	To provide protection to organic plants using arduino	Big data analytics
57		Pathan Jameer	48				Automatic unified system for LPG
58		Parakhe Vallabh	54				Reusable rocket launching system
59		JADHAV MAHESH	45				system GSM
60	BEB 19	Swapnil P More			Ms. M S		5 G
61		Akshay Dargude			Biswas		Solar energy based portable Mobile

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**SVERI's**  
**College of Engineering, Pandharpur**  
**Electronics & Telecommunication Engineering**

**Mini Project Record**

**A.Y.: 2020-2021**

SVERI's College of Engineering, Pandharpur  
Electronics and Telecommunication Engineering Department  
TY(ENTC) -A A. Y. 2020-21

**MMS - PROJECT GROUPS**

Sr.No.	Project Group no.	Name of Student	Name of Guide	Title of Project
1	TY-A 01	ADSUL ABOLI SANJAY KURNAWAL KSHIPRA VIDHYADHAR JADHAV RUTUJA RAJESH	Dr. Mrs. M. M. Pawar	Plant Species Identification using Deep Learning
2	TY-A 02	BHANDARE GAYATRI CHIMAJI NARWADE HARSHADA KEDARI SHINDE MONIKA MACHINDRA	Dr. Mrs. M. M. Pawar	Image Style Transfer
3	TY-A 03	AWATADE PRAJAKTA PANDURANG DESHPANDE KI TAKI BHASKAR SHAIKH NASREEN SALLEEM	Mr. S. M. Karve	V-2-V Communication to avoid accidents on blind spot
4	TY-A 04	PAPARKAR URMILA PANDURANG DHIRE VIDYA TANAJI KADAM GAYATRI NIVRUTTI	Mr. M. S. Mathpati	Miniatured wearable flat antenna for military application at VHF Band
5	TY-A 05	KHOBARI PRAKASHA SANJAY PAWAR SUPRIYA GOPINATH SURVASE VAISHNAVI ZUMBAR	Mr. S. P. Swami	Detection of Smart Traffic Management system for Medical Ambulance
6	TY-A 06	DHENDULE JAGRUTI JAGANNATH MANGANI MANISHA GANAPATI LONDHE MANJU GOPICHAND	Mrs. J. S. Shinde	MRI Based Image Classification Using Deep Learning
7	TY-A 07	LIGADE SHITAL SOMNATH JADHAV KOMAL PRALHAD TAMBOLI AYESHA SHAFIK	Mrs. N. P. Kulkarni	Image Resolution Enhancement
8	TY-A 08	YADAV RUTUJA ANAND RITUND PALLAVI RAGHUNATH BABANAGARI NIVEDITA SANJAYKUMAR	Ms. S. S. Kadam	Double Band High gain antenna for GPS
9	TY-A 09	BAGAL SONALI SAMADHAN SHELKI ISHWARI GOVIND NALWADE AISHWARYA UMESH	Dr. Mr. V. G. Kale	Neighborhood Matching For Image Retrieval
10	TY-A 10	GHOLAP TANUJA GAUTAM GORE GAURI SANTOSH KESKAR ARCHANA BIRUDEV	Ms. M. S. Biswas	Emotion Recognition using ANN
11	TY-A 11	SATHE ANKITA BABASAHEB THORAT TEJASVI BAPU SHAIKH ANCHAL DASTGIR	Ms. V. A. Patil	Object Detection using Image Processing Application

  
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12	TY-A 12	GOTE VAISHNAVI ASHOK MAGADE ANJALI NAMDEV BHOSALE PRATIKSHA ANNASAHEB	Mr. M.A. Deshmukh	Battery Management System to enhance efficiency of Battery
13	TY-A 13	KULKARNI KAUSHIK RAVINDRA BHOSALE DHANRAJ SANJAY GHERADE GIRUPRASAD JANAPPA	Ms. A. A. Kadam	Block Chain Technology in Electric Power Transaction
14	TY-A 14	VEDPATHAK MANGESH DHANANJAY VEDPATHAK PAVAN SANTOSH AUSLIKAR SHUBHAM BABAN	Mr. A. M. Kasture	Real time embedded Control Applications
15	TY-A 15	GANGTHADE YOGESH TUKARAM HAJARE ROHIT DEELIP WALUJKAR PRATIK ANIL	Dr. Mr. V. G. Kale	Biometric Attendance System over IoT
16	TY-A 16	LAD OMKAR MUKUND GATE SUJAY PURUSHOTTAM GHAVATE SURAJ HARIDAS	Mr. Akshay A. Jadhav	RFID Based Library Management System
17	TY-A 17	GAIKWAD YOGESH KALYAN NARALE SHANKAR BALU KHLARE SANTOSH SUNIL	Mr. J. S. Hallur	Detection and Classification of Brain Tumor using MRI images
18	TY-A 18	PATIL SHLOK RISHIKESH KALE SHIVRAJ BALASAHEB VIJAY RANGNATH SALUNKE	Mr. S. A. Inamdar	Leaf Disease detection using Raspberry Pi
19	TY-A 19	LUNGARE PRASANNA MANMATH SHINDE KARAN AUDUMBAR NANDAWATE SUJIT SUDHAKAR KASBE SIDDHESHWAR ABHIMAN	Mr. S. M. Karve	Smart Home Security System using microcontroller
20	TY-A 20	MAGAR SHWETA SHIVAJI JADHAV RESHMA ANIL YADAV KOMAL SURESH	Mr. H. K. Bhaldar	Identification of Human Act by Image Processing
21	TY-A 21	DUDGIKAR BHAKTI PURUSHOTTAM UMBARE VAISHNAVI VAIBHAV KUNTALA GAYATRI AMBADAS	Mr. A. A. Jadhav	Mutual Coupling Reduction for Dual Band MIMO Antenna with Simple Structure
22	TY-A 22	BHOSALE NIKITA SAMBHAJI SURYAPUJARI AISHWARYA PADMAKAR	Ms. S. A. Atole	Design of Microstrip Patch Antenna for LiFi Application
23	TY-A 23	AWATADE SUYASH SHANKAR JAGTAP SANKET PRAMOD KAMBLE PRADIP LALASAHEB	Ms. S. A. Atole	Smart Home Security System using IOT
24	TY-A 24	KORAKE SAMIKSHA KAILAS PAWAR RUPALI RAJARAM KULKARNI PRATIKSHA SUNIL	Mr. A. A. Kadam	Intelligent Traffic Light Control using Image Processing
25	TY-A 25	NAMADE MAYURI RAJKUMAR MHAMANE SONALI MAHASIDHA WAGHMODE ASHWINI RAMCHANDRA	Mr. D.P. Narsale	IOT based home automation

  
TY-B Project Coordinator

  
HOD E & TC

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**SVERI's College of Engineering, Pandharpur**  
**Electronics and Telecommunication Engineering Department**  
**TY(ENTC) -B** **A. Y. 2020-21**

**MS-PROJECT GROUPS**

Sr.No.	Project Group	Name of Student	Name of Guide	Title of Project
1	TY-B 01	ALAGI LAXMI GURUPADAPPA ANANDPURE DIPALI AMASIDDHA KULKARNI PRAJAKTA DATTATRAY	Mr. A. A. Kadam	Structured Street Monitoring System using Image Processing
2	TY-B 02	PATIL PRAKASHA BALASHAB PATHAN MUHRAJ MEHIBUB DOKI ASHWINI RAMHARI	Dr. Mrs. M. M. Pawar	Image Colorization
3	TY-B 03	SHIRALKAR AMRUTA TAKBHATI SANDYA DIPAK WANVI SUSHAMA BUBHISHAN	Mr. S. M. Karve	Use of IoT to control various Automobile Functions
4	TY-B 04	ABHANGRAO PAYAL HANUMANTI JAMDADI SHWETA SUBHASH MARAL SAYALI SUDHIR	Ms. V.A.Patil	IoT Based Air Pollution Monitoring System
5	TY-B 05	PURANIK SNEHAL VYNKATESH YADAV SHILPA RAMESH CHAVAN VISHAKHA RAVI	Mrs. N. P. Kulkarni	Traffic Management System using IoT
6	TY-B 06	GANGEKAR VAISHNAVI SANJAY PATIL RENUKA NAMADEV SHINDE NAMRITA NAMDEV	Ms. S. A. Atole	Industrial Security Using RFID
7	TY-B 07	SUTAR AVANTIKA MAULI DHADVAD ARATI SHANTARAM PIMPALE RADHIKA MUKUNDRAJ	Ms. M. S. Biswas	Machine Activation using Voice Signal
8	TY-B 08	CHAVAN UTKARSHA VILAS MORE PRAJAKTA ANKUSH NAGANI DNYANESHWARI	Ms. S. S. Kadam	E Shaped Patch Antenna
9	TY-B 09	GENDPAYAL NAVNATH MANE VISHAKHA PRAMOD MANE PALLAVI SNAJAY	Ms. S. S. Kadam	IoT Garbage Monitoring using Raspberry Pi
10	TY-B 10	BHOSALE MUGHRA RAMACHANDRA JAGTAP SHILAL CHANDRAKANTI KSHIRSAGAR PRADNYA VASANT	Ms. M. S. Biswas	An Image Based Approach to detection of Fake coins
11	TY-B 11	JAVERI VAISHNAVI RANJEET PATIL VIDYA RAMESH SHINDE URMILA ATUL	Ms. M. S. Biswas	IoT Based Intelligent Medicine Box
12	TY-B 12	DESHMUKH PRAKASHA SURYVANSHI PRAJAKTA PRASAD SHIKHARE PRAJAKTA VIJAY	Mr.H.K.Bhaldar	Detection of Red Lesions in retina for Diabetic Patients



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**Engg. SVERI'S C.O.E. Pandharpur**

13	TY-B 13	LENDAVE SUNIL AUDUMBAR	Mr. S. A. Inamdar	Face Detection using Python
		MORE RUSHIKESH SHRIKRISHNA		
		GUJARE NITIN TANAJI		
		PAWAR ADITYA DATTATRAYA		
14	TY-B 14	VATTANWAR PRAITHMESH PRAVIN	Mr. A. M. Kasture	Real Time Embedded Control Applications
		PATEL KUNJ RAMANBHAI		
		MOGAL IMRAN IKBAL		
15	TY-B 15	SHETTIGAR GIRIDHAR GUNAPALA	Mr. D.P.Narsale	Railway gate Control using Embedded system
		JADHAVAR MAYUR BHAGVAN		
		KHADDE JAYESH SANTOSH		
16	TY-B 16	BHOSALE NIKHIL RAMESH	Dr. Mr. V. G. Kale	Smart Classroom using Internet of Things
		DESHPANDE KAUSTUBH SUNIL		
		PATIL SHILISIDH AMOGSIDH		
		SUTAR RAHUL IRANNA		
17	TY-B 17	PAWAR AVINASH DADASAHEB	Mr. Akshay A. Jadhav	Real Time Attendance Monitoring System using Face Recognition
		SHINGARE KIRAN DNYANESHWAR		
		CHAVAN RUSHIKESH ISHWAR		
18	YY-B 18	KADAM HARSHAL RAJKUMAR	Mr. M. A. Deshmukh	automatic railway gate controller with high speed alerting system
		KAMBLE GOPAL GOVIND		
		NAGSHETTI ONKAR VILAS		
19	TY-B 19	DHABADE AJAY VAJJINATH	Mr. A. A. Kadam	Automatic disease detection on crops and its solution using image processing
		VAGGU AKSHAY GOPAL		
		YELSANGE ONKAR MAHADEV		
20	TY-B 20	INGALE PRADIP SAMADHAN	Mr. J. S. Hallur	Deep Learning Based Brain Tumor Classification and Detection System
		DESHMUKH RUSHIKESH PITAMBER		
		MHANTA YOGESH MAHESH		
21	TY-B 21	INGALE JAYESH SATISH	Mr. M. S. Mathpati	Design and Construction of a 4G/5G mobile network Antenna
		MANE ABHISHEK SHIVAJI		
		MULE SATYAJEET BALAJI		
22	TY-B 22	JADHAV SURAJ GANESH	Mr. S.P.Swami	Pytho Monitoring System for Plant Growth using Sensor Based Network
		PATIL SHUBHAM BHAUSAHEB		
		DADHE GANESH KUBER		
23	TY-B 23	CHANDRAKANT	Ms. S. A. Atole	Solar Battery Charger with LED light
		ARPITA KHATAKE		
		KAMBLE KSHITJA TANAJI		

  
TY-B Project Coordinator

  
HOD E & TC

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C. O. E. Pandharpur



**SVERI's  
College of Engineering, Pandharpur  
CIVIL Engineering Department**

# **Mini Project**

**Class: TY B.Tech (Civil)**

**A.Y.: 2020-2021**




SHRI VITHAL EDUCATION & RESEARCH INSTITUTE'S  
COLLEGE OF ENGINEERING, PANDHARPUR.

Department Civil Engineering

Mini Project List for TY-A(2020-21)

Sr. No.	Roll No.	NAME OF STUDENT	NAME OF GUIDE
1	TA-1	BHOSALE VAISHNAVI SIDDHESHVAR	Prof. S.P. Patil
2	TA-2	KALE PRAJAKTA SHARAD	
3	TA-3	LENDAVE TEJASHRI BHARAT	
4	TA-4	MANE NISHA VIKAS	
5	TA-5	NAGTILAK MONALI ARJUN	
6	TA-6	RONGE KOMAL RAOSAHEB	
7	TA-7	WANGDE SHRADDHA	Prof. S.S. Patil
8	TA-8	ADHATRAO AISHWARYA VAIBHAV	
9	TA-9	DHOTRE SHITAL SHAM	
10	TA-10	MANGRULE KAVYANJALI CHANDRAKANT	
11	TA-11	JADHAV PRANITA JOTIRAM	
12	TA-12	BHONG BHAGYSHRI RAMESHWAR	Prof. P.S. Lachyan
13	TA-13	SWAMI POOJA SHRISHAIL	
14	TA-14	YADAV MEGHA AUDUMBAR	
15	TA-15	BHAGAT RUTUJA ASHOK	
16	TA-16	CHAVAN AKANKSHA AVINASH	
17	TA-17	CHAVAN SHRADDHA SANJAY	
18	TA-18	CHORAMALE SNEHAL SAMBHAJI	
19	TA-19	DESHMUKH DHANASHREE PRAKASH	
20	TA-20	MANE PRANALI SANJAY	Prof. P.N. Kore
21	TA-21	MULANI NAZNEEN KAYYUM	
22	TA-22	RAUT SNEHAL SANJAY	
23	TA-23	SAKHARE MADHURI NEMINATH	
24	TA-24	TATE SHITAL BALIRAM	
25	TA-25	ROTE VAISHNAVI KIRAN	Prof. A.B. Kokare
26	TA-26	INGAWLE DESHMUKH PRIYADRSNI	
27	TA-27	TAKMOGE MAYURI JAGANNATH	
28	TA-28	BAGWAN ESHA SALIM	
29	TA-29	BORADE SNEHAL SHIVAJI	
30	TA-30	GHAYTIDAK SHIVANI RAJKUMAR	Prof. C.R. Limkar
31	TA-31	SALUNKHE ARTI HARIDAS	
32	TA-32	SADGAR TANYA RAVINDRA	
33	TA-33	TAMBOLI SIMRAN BAKAS	
34	TA-34	JADHAV PRERANA TUKARAM	
35	TA-35	DESHMUKH DIVYA BHALCHANDRA	Prof. M.G. Deshmukh
36	TA-36	MHETRE POONAM BHARAT	
37	TA-37	SURWASE SHRADDHA ANNARAO	
38	TA-38	DEVMARE NANDITA BASWESHWAR	
39	TA-39	SUHAIB TANTRY	
40	TA-40	KAVADE AARAVI RAJESH	

  
Prof. S.A. Gosavi

  
HEAD,  
Dept. of Civil. Engg.  
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SHRI VITHAL EDUCATION & RESEARCH INSTITUTE'S  
COLLEGE OF ENGINEERING, PANDHARPUR.

Department Civil Engineering

Mini Project List for TY-A(2020-21)

Sr. No.	Roll No.	NAME OF STUDENT	NAME OF GUIDE
41	TA-41	JADHAV KEDAR RAJENDRA	Prof. Nitin More
42	TA-42	CHAVAN ABHIJEET APPA	
43	TA-43	PAWAR JANMEJAY VIJAYKUMAR	
44	TA-44	JADHAV HANUMAN MANOHAR	
45	TA-45	PATIL HARSHAD DEVIDAS	
46	TA-46	SAWANT AJAY DNYANDEO	
47	TA-47	TANK GAURAV PRAVIN	Prof. H. R. Pawar
48	TA-48	KUSUMADE HARSHAL UTTAM	
49	TA-49	MISAL MANDAR JIVAJI	
50	TA-50	PADAVALE AMAR VITTHAL	
51	TA-51	BAGAL GANESH BALASAHEB	
52	TA-52	THORBOLE MAHESH ANIL	Prof. G.G. Falmari
53	TA-53	AIWALE PRITISH BABU	
54	TA-54	NIMBALKAR GANESH SHIVAJI	
55	TA-55	KAKADE SWAPNIL SUDHIR	
56	TA-56	ANDESO PUL	
57	TA-57	SHINDE SATYAM MAHADEV	
58	TA-58	SIKCHI KEDAR JAGDISH	Dr. R.S. Pawar
59	TA-59	SADIQ ALI	
60	TA-60	CHAVAN SHAILESH VILAS	
61	TA-61	JADHAV DHAVAL PRABHAKAR	
62	TA-62	JADHAV HARSHVARDHAN NITIN	
63	TA-63	INAMDAR REHAN IRFAN	Dr. G. R Patil
64	TA-64	KHADE SUSHIL MADHAV	
65	TA-65	MAHAJAN AADITYA ABHAY	
66	TA-66	SURVASE MAHESH BALASO	
67	TA-67	KODAG SHANKAR SUBHAS	
68	TA-68	DHEKALE PRASAD RAJARAM	
69	TA-69	GHOLAVE DEEPAK PRAMOD	

Prof. S. A. Gosavi  
Program Coordinator

Dr. P M Pawar  
HOD

HEAD,  
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C.O.E. Pandharpur




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COLLEGE OF ENGINEERING, PANDHARPUR.  
Department of Civil Engineering

Mini Project List for TY-B(2020-21)

Sr.No	Roll No.	Group No.	Name Of Student	Project Guide
1	TB-1	Group 1	DUDHAL PRAPTI PRAVIN	Prof. P.B. Bhaganagare
2	TB-2		BAHIRWADE SIHTAL NAGESH	
3	TB-3		BIRAJDAR PRATIBHA VENKAT	
4	TB-4		DESAI BHAGYASHIRI PANDURANG	
5	TB-5		DHOLE SHIVANI RAJENDRA	
6	TB-6	Group 2	JADHAV VAISHNAVI MANOJ	Prof. Y. M. Mulla
7	TB-7		KAMBLE ANJALI SHIAHAJI	
8	TB-8		KSHIRSAGAR PRAGATI PANDURANG	
9	TB-9		METKARI KSHITIJA NARAYAN	
10	TB-10		PATIL AISHWARYA PANDIT	
11	TB-11	Group 3	PATIL SONALI TANAJI	Dr. R. S. Pawar
12	TB-12		PULA PRIYANKA GURUCHARAN	
13	TB-13		PUKALE AISHWARYA SHYAM	
14	TB-14		SAPKAL MAYURI DILIPKUMAR	
15	TB-15		SHAIKH NIKHAT LALSAB	
16	TB-16	Group 4	SHEKH SHAHEEN JAKIRHUSEN	Prof. S. S. Patil
17	TB-17		SHIVSHARAN VRUSHALI SUNIL	
18	TB-18		SONY KOTWAL	
19	TB-19		SURWASE PRATIKSHA DATTATRAY	
20	TB-20		SHINDE ASHA KISAN	
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# **“Utilization of Waste Material to Produce Eco-friendly Bricks”**

A Dissertation Submitted to  
**Dept. of Civil Engineering, SVERI'S College Of Engineering, Pandharpur**

**Bachelor Of Engineering  
in  
Civil Engineering**

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June,2021**

## **CERTIFICATE**

This is to certify that the dissertation entitled “UTILIZATION OF WASTE MATERIAL TO PRODUCE ECOFRIENDLY BRICKS“ being submitted by Anjali Keche , Pranjali Deshmukh , Amruta Gadade , Asmita Jadhav , Sayali Kemkar. To the Department of Civil Engineering, SVERI'S College Of Engineering, Pandharpur, is a record of bonafide work carried out by them during year 2020-2021. They has worked under our guidance and supervision and has fulfilled the requirements for the submission of this dissertation, which to our knowledge has reached the requisite standards.

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## **DECLARATION OF DISSERTATION**

We, Anjali Keche , Pranjali Deshmukh , Amruta Gadade , Asmita Jadhav , Sa'yali Kemkar. students of 8th semester, BE, SVERI'S College Of Engineering, Pandharpur, the undersigned declare that thisdissertation work entitled “UTILIZATION OF WASTE MATERIAL TO PRODUCE ECOFRIENDLY BRICKS” is a bonafide work carried out by us during 2020-2021 in partial fulfillment of the requirements for the award of the Bachelor Of Engineering in Civil Engineering of SVERI'S College Of Engineering, Pandharpur. and is based on the collected and experiment carried out under the guidance of Prof. Yogesh Survase Assistant Professor, Department of Civil Engineeing, SVERI'S College Of Engineering, Pandharpur. I also declare that this thesis has not been submitted to any other university or institution for the award of any degree.

**Civil Engineering**  
**SVERI'S College Of Engineering, Pandharpur.**  
**June, 2021.**

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Our deepest thanks to my parents for the encouragement and support throughout my course. We have drawn references from various text books, websites, and technical articles by eminent professionals.

## ABSTRACT

Bricks are a generally utilized development and building material all throughout the planet. Brick are set up from common waste material which includes orange strips and coconut waste. Dirt is utilized as a limiting material for characteristic waste material and paper plant waste. The primary target of the current examination is to lessen the amount of mud with characteristic waste material. The orange strips and coconut waste which in any case is land filled has been used to make development Brick that fills a need of strong waste administration. These wastes are utilized to lessen the amount of dirt as there is a more noteworthy lack of earth in numerous pieces of world. At first, portrayal of paper factory waste has been completed by XRF, XRD and SEM. The SEM monographs shows that the waste has permeable and sinewy construction. The Brick of arranged by orange strips and coconut waste wiha shifting creations of mud decreased the amount of earth by (10% - 40% wt.) and (10% - 60%) individually and tried according to Bureau of Indian (BIS) 1077:1992 (fifth update) and ASTM C 67-03a principles. From experimentation it is seen that waste make Brick (WCB) arranged is light weight, stun retaining and meets compressive strength necessities of ASTM C 67-03a and BIS. The block making technique being straightforward can be embraced as country business by incompetent works of agricultural nations. Urbanization lead to a huge age of strong waste and release of these waste materials turned into a significant issue. Unloading and landfilling of strong waste prompts natural debasement i.e. ground water tainting through draining, which brings about soil contamination and furthermore sway on human wellbeing.

Keywords – Natural Waste Material, Solid Waste, Recycle

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## CHAPTER NO 1

# INTRODUCTION

### 1. Definition

Since the large demand of construction material like bricks, sand, cement and any other required materials has been increase due to development of various infrastructure construction industry, especially in the last decade due to increase in pollution which cause a chronic shortage of building resources, the civil engineers have been challenged to convert the industrial waste to useful building and construction materials. One exclusive recycle opportunity is using waste paper as a construction material. Since the construction industry uses up a great amount of nonrenewable resources, therefore the potential function of waste paper for producing a low cost and light weight composite brick for construction not only delivers the potential use of waste paper recycling but it will likewise bring down the demand pressure on global natural resources.

Light weight concrete was popular through the ages, Light weight concrete is used to produce load bearing wall panels, and also as the material for construction of floating marine structures. One of the main problems associated with the use of conventional light weight aggregates produced from clay, slate and shale in concrete is that these porous aggregates absorb very large amount of the water mixed in concrete. This is affecting the performance of the concrete, apart from the fact that it is difficult to maintain specific water content during the casting. Also, this absorption of water by the aggregates will mean that the additional water will be required to maintain the slump at acceptable levels. These increased water contents requires higher cement contents, even without any benefit. Production of lightweight clay bricks and blocks is possible by using combustible additives in appropriate amounts and particle sizes which also increases the thermal insulation property.

Environmental energy also plays a crucial role in the growth of developing countries like India. An increasing interest in environmental issues has pressured industries to develop products and materials that are more environmental friendly. This interest drives in material

production and process development for more sustainable practices. This review focuses more on bricks, which are one of the most important materials in construction industry. They are mainly used for constructing partitions and pillars inside the building of any residential apartment, bungalow or in public places like shopping complexes, malls, airport etc. For making a green building, it is important that the material using in such construction process should be environmental friendly.

The ordinary materials which are dominantly utilized in development measure, for example, solid sort blocks, empty sort blocks, strong squares, asphalt type squares and floor tiles are created from the all-around existing normally accessible assets. This outcomes in defragmentation of the climate because of tremendous investigation and which lead to exhaustion of normally existing assets. Also, various types of harmful substances like undeniable level grouping of carbon monoxide, oxides of sulfur and nitrogen, and suspended particulates are delivered surplus out from the dark environment during the activity stage and assembling of materials. These discharges establishes harmful effect on climate and upset the working expressions of ecological air, normal water asset, broad soil, enormous greenery species, fauna species and amphibian life, and it ponders human wellbeing alongside their expectation for everyday comforts. In this manner, different focuses in the climate may prompt debasement of winning air. To Improve supportability and natural preservation and has acquired importance in our general public lately.

Because of greater improvement in utilizing feasible, minimal effort, ecofriendly, lightweight and corpus development materials in common works has been accentuated to examine as the developing necessities, to improve the nature of climate and to keep up the materials prerequisites according to the norm. Our reality is confronting serious emergency of over populace. In late year's various types of side-effects, produced from different sources like business, family, ventures, emergency clinics, public spots, and so forth amassed in enormous amounts. Because of which contamination blast is produced. To redress this issue of ecological corruption and release of huge amounts of strong waste in standard way. The current work examine about the new development planning blocks from strong waste and tried against fire and other strength properties.

This examination paper has been molded with a thought "use of waste to worth" in development field for projecting blocks utilizing different sorts of waste materials.

Blocks have been a significant development and building material for quite a while. The dried-dirt blocks were utilized without precedent for 8000 BC and the terminated mud blocks were utilized as ahead of schedule as 4500 BC [1,2]. The overall yearly creation of blocks is at present around 1391 billion units and the interest for blocks is relied upon to be constantly rising [3,4]. Traditional blocks are delivered from mud with high temperature furnace terminating or from conventional Portland concrete (OPC) concrete. Quarrying tasks for acquiring the dirt are energy concentrated, antagonistically influence the scene, and produce undeniable degree of wastes. The high temperature oven terminating burns-through critical measure of energy, yet delivers huge amount of ozone depleting substances. Overall, have an epitomized energy of roughly 2.0 kWh and delivery about 0.41 kg of carbon dioxide (CO<sub>2</sub>) per block [5, 6]. It is additionally noticed that there is a deficiency of dirt in numerous pieces of the world. To secure the mud asset and the climate, a few nations, for example, China have begun to restrict the utilization of blocks produced using dirt [7]. The OPC solid blocks are delivered from OPC and totals. It is notable that the creation of OPC is profoundly energy serious and discharges huge measure of ozone harming substances.

Creation of 1 kg of OPC burns-through roughly 1.5 kWh of energy and deliveries around 1 kg of CO<sub>2</sub> to the air. Around the world, creation of OPC is answerable for about 7% of all CO<sub>2</sub> produced [3]. So the creation of OPC solid blocks additionally burns-through enormous measure of energy and deliveries generous amount of CO<sub>2</sub>. What's more, the totals are created from quarrying and subsequently have similar issues as depicted above for mud. Raut et al. [4] made terminated blocks utilizing dirt sand blends in with various rates of rice husk debris. The terminating lengths at 10000C were separately 2, 4 and 6 h. The impacts of rice husk debris content on functional blending water content, Atterberg limits, straight shrinkage, thickness, compressive strength and water assimilation of the blocks were examined.

## Utilization of Waste Material to Produce Eco-friendly Brick

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The outcomes showed that (1) the consideration of rice husk debris expanded the compressive strength of blocks, (2) the ideal terminating span was 4 h at 10000C, and (3) the blocks made of mud sand–rice husk debris blends could be utilized in load bearing dividers. Faria et al. [7] researched the reusing of sugarcane bagasse debris waste as a technique to give crude material to earth block creation. Block tests were created by spending 20% of sugarcane bagasse debris waste to supplant normal earth, and afterward tried to decide their physical and mechanical properties. It was tracked down that the sugarcane bagasse debris waste was principally made out of translucent silica particles and could be utilized as filler in mud blocks. Coconut is a flexible item and has different employments.

Practically every one of the pieces of a newly developed coconut, edible or something else, are utilized in a few or the other way. India is one of the main coconut makers on the planet, delivering 13 billion nuts for every annum. Coconut is for the most part developed in the seaside areas of the country. The states that have bountiful coconut development are Andhra Pradesh, Assam, Goa, Karnataka, Kerala, Maharashtra, Orissa, Tamil Nadu, Tripura, West Bengal, Andaman and Nicobar Islands, Lakshadweep and Puducherry. Coconut has a significant spot in the Indian culture and has been created here since days of yore. As of now, India holds the third spot in the rundown of significant coconut creating nations of the world. Coconut creation in India is 30475 kg/ha according to the measurements given by the Coconut Development Board of India in the statistics behaviors of 2011-12. The territory under the estate development is around 1.78 million hectares in the nation [12]. In India, citrus is filled in 0.62 million ha. territory with the complete creation of 4.79 million tons. The region under orange development in India expanded by 67% from 1.19 lakh ha. in 1991-92 to 1.99 lakh ha. in 2001-02 and the creation expanded by 57% (for example from 10.58 to 16.60 lakh tons). Oranges are generally filled in the territories of Maharashtra, Madhya Pradesh, Tamil Nadu, Assam, Orissa, West Bengal, Rajasthan, Nagaland, Mizoram, Arunachal Pradesh. Maharashtra is the second biggest maker of citrus after Andhra Pradesh in the country and adds to about 18.9% of the complete creation of citrus in the country.

The state produces 1.41 m. MT of citrus from a space of 0.28 m.ha having profitability of 5.1MT/ha. The creation of citrus is moved in the belts of Amravati, Nagpur, Akola and

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Aurangabad. The state is delivering about 15% of the absolute creation of Mandarin orange in the country. The state produces 0.50 m MT of mandarin orange from a space of 0.13 m. ha with profitability of 3.9 MT/ha. The significant orange delivering belt is in the Vidarbha area of the state covering the Districts of Nagpur, Akola, Amravati and Wardha and thus the second capital of the Maharashtra state is named as —Orange City for example Nagpur. The fundamental assortment developed is Nagpur Mandarin. The National Research Center for Citrus, situated at Nagpur has been giving innovative reinforcement.

### 1.1 Introduction of subject area:

Name of topic : Utilization of Waste materials to Produce Ecofriendly Bricks

Date of starting : June 2020

Aim of project : By recycling the by products like building waste As the problem of disposing these waste materials became a big environmental problem, the proper utilization of these materials again in construction activities will be a great relief to the society

### 1.2 Problem Statement :

- 1) There are many different types of waste in each country, state and city/town faces a different picture when it comes to waste generation, waste management and the waste lifecycle.
- 2) It is difficult to form a homogenous mixture.
- 3) Waste can also be categorized by sector, by type, by material and many types of specific waste.
- 4) In general, it can be difficult to accurately track and report waste in a lot of countries for various reasons.
- 5) No proper use of paper, food, plastics, metals, wood and textiles tend to be the most common municipal waste.
- 6) Although some waste might be far less common in terms of quantity, some waste are highly hazardous and have potential for a lot of damage to quantity of uncontained waste, as well as the damage of each type of waste should be reported or measured.
- 7) Some of the main waste disposal or management options are landfill, recycling and incineration with compost being another
- 8) Developed countries produce the most waste, but tend to manage and contain it better

than developing or low to middle income countries.

### 1.3 Objectives study :

The purpose of present research is to utilize the waste materials paper, cement, sand, fly ash, water, foaming agent, demolish waste and to replace the costly and rare conventional building brick which satisfies the following characteristics:

- The objective is to compare the structural of fly ash brick with conventional brick and to determine the most suitable brick and cost optimization of fly ash brick.
- To examine the usage of strong waste to create eco accommodating bricks.
- To examine the planning of bricks from waste material.
- FLY-ASH Bricks are eco friendly as it protects environment through Conservation of top soil and utilization of waste products of coal or lignite based Thermal Power Plants.
- It is stronger than the conventional burnt clay bricks. It plays a vital role in the abatement of carbon-die-oxide a harmful green house gas mass emission of which is threatening to throw the earth's atmosphere out of balance.
- Motive of this study is to prepare material used for low cost housing project without compromising with the durability and compressive strength. Effort has been made by making different proportions of ingredients having composition of fly ash , cement, lime, gypsum, and sand these standard size of brick used in structural work has been adopted low cost light weight brick will be easy to handle and transport and it will required less labor used for handing during industrial work.
- That will reduce the cost of construction without compromising the strength of construction..
- It is eco friendly. As the fly ash used in manufacturing of light weight bricks the storage of waste reduces and reduced the soil pollution.

### 1.4 Scope of study :

- 1) To replace the conventional use of bricks to achieve proper strength
- 2) Due to economical material this will be reduce cost of construction

## Utilization of Waste Material to Produce Eco-friendly Brick

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- 3) This is ecofriendly bricks, hence improving surrounding environmental condition
- 4) Recycling the waste is beneficial and necessary for environmental preservation.
- 5) To conservation of natural resources.
- 6) To develop new method of work and manufacturing that are less harmful to the environment.
- 7) The bricks are use in construction purpose such as compound wall, domestic housing.

### 1.4.1 Motivation for the Study

1. The properties of the resulting product, including green and fired color, shrinkage and deformation, strength and durability
2. The increase in the popularity of using environmental friendly, low cost and lightweight construction materials in building industry has brought about the need to investigate how this can be achieved by benefiting the environment as well as maintaining the material requirements affirmed in the standard.
3. Recycling of waste generated from industrial and agricultural activities as building materials appears to be viable solution not only to such pollution problem but also to the problem of economic design of buildings.
4. Production of light weight bricks and blocks is possible by using combustible additives in appropriate amounts and particle sizes which also increases the thermal insulation property.

### 1.5 Necessity and use of bricks :

1) Any construction activity requires several materials such as concrete, steel, brick, stone, glass, clay, mud, wood, and so on. However, the cement concrete remains the main construction material used in construction industries. For its suitability and adaptability with respect to the changing environment, the concrete must be such that it can conserve resources, protect the environment, economize and lead to proper utilization of energy To achieve the utilization energy, major emphasis must be laid on the use of wastes and byproducts in cement and concrete used for new constructions. The utilization of recycled aggregate is particularly very promising as 75 per cent of concrete is made of aggregates. The enormous quantities of demolished concrete are available at various construction sites, which are now posing a serious problem of disposal in urban areas. This can easily be recycled as aggregate and used in concrete.

2)As the problem of disposing these waste materials became a big environmental problem, the proper utilization of these materials again in construction. Activities will be a great relief to the society.

### CHAPTER NO 3

### LITERATURE REVIEW

1. L.M. Federico, S.E. Chidiac, R.G. Drysdale(2005) Hindawi Publishing Corporation Advances in Materials Science and Engineering Volume 2013, Article ID 160162- Studied on “The use of Waste Material in the Manufacturing of Clay Bricks”. Clay bricks are produced when clay particles bond to one another at high temperatures, forming a glassy material, which, upon cooling, displays high strength and durability properties. High temperatures required to melt SiO<sub>2</sub> mean high energy cost Assistantd with brick production. In addition to cost, challenges facing the modern brick industry include shortages of raw material and environmental impacts of production. The feasibility of using waste material as a brick body was investigated, where several possible waste additives, including slag, biological waste, and waste container glass, were considered.

2. Rohit Kumar Arya<sup>1</sup>, Rajeev Kansal(2013) International Journal of Science and Research (IJSR), Index Copernicus Value (2013): 6.14 , Impact Factor (2015): 6.391.Studied on “Utilization of Waste Papers to Produce Eco-friendly Bricks”. A new nature study estimates the world has 3.04 trillion trees. Almost 4 billion trees worldwide iscut down each year for



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making paper. The construction industry has been known as one of the largest consumers of non-renewable resources. On the other hand, more waste paper ends up in landfill or dump sites than those recycled. The purpose of this research is to determine the weight, compressive strength, water absorption capacity, fire resistance, hardness etc of papercrete brick by using waste papers (newspapers, invitation cards, magazines etc.) in order to determine their aptness for use as a building construction material. While using paper pulp with cement and sand the weight of the brick is approximately 50% lesser than the conventional clay brick. Therefore papercrete bricks will decrease the dead weight of the structure to a significant amount. So it changes our design and building cost as in an economical point of view.

3. Alaa.A.Shakir, Sivakumar Naganathan, Kamal Nasharuddin Bin Mustapha(2013 )- A Review Paper, Australian Journal of Basic and Applied Sciences, 7(8): 812-818, 2013 ISSN 1991-8178 .Studied on “Development Of Bricks From Waste Material” Since the large demand has been placed on building material industry especially in the last decade owing to the increasing population which causes a chronic shortage of building materials, the civil engineers have been challenged to convert waste to useful building and construction material. Recycling of such waste as raw material alternatives may contribute in the exhaustion of the natural resources; the conservation of not renewable resources; improvement of the population health and security preoccupation with environmental matters and reduction in waste disposal costs. In the review of utilization of those waste, this paper reviewed recycling various waste material in bricks production. The effects of those wastes on the bricks properties as physical, mechanical properties will be reviewed and recommendations for future research as out comings of this review will be given. This reviewed approach on bricks making from waste is useful to provide potential and sustainable solution.

4. Juan Bosco Hernandez-Zaragoza, TeresaLopez-Lara, JaimeHortaRangel,Carlos Lopez-Cajun, Eduardo Rojas-Gonzalez, F.J.Garcia-Rodriguez, and JorgeAdué(2013) Hindawi Publishing Corporation Advances in Materials Science and Engineering Volume 2013, Article ID 160162-Studied on “Cellular Concrete Bricks with Recycled Expanded Polystyrene Aggregate”. Cellular concrete bricks were obtained by using a lightweight

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mortar with recycled expanded polystyrene aggregate instead of sandy materials. After determining the block properties it was found that this brick meets the requirements of the masonry standards used in Mexico. The obtained material is lighter than the commercial ones, which facilitates the rapid labor, quality control, and transportation. It is less permeable, which helps prevent moisture for maintaining its strength due to the greater adherence shown with dry polystyrene. It was more flexible, which makes it less vulnerable to cracking walls due to soil displacements. Furthermore, it is economical, because it uses recyclable material and has properties that prevent deterioration increasing its useful life. We commend the use of the fully dry EP under a dry environment to obtain the best properties of brick

5. Mohammad shahid arshad, Dr. P.Y. Pawade(2014) , international journal of scientific & technology research volume 3, issue 6, june 2014 -Studied on "Reuse of natural waste material for making light weight bricks" Bricks are a widely used construction and building material around the world. Bricks are prepared from natural waste material which comprises of orange peels and coconut waste. Clay is used as a binding material for natural waste material and paper mill waste. The main objective of the present study is to reduce the quantity of clay with natural waste material. The orange peels and coconut waste which otherwise is land filled has been utilized to make construction bricks that serves a purpose of solid waste management. These wastes are used to reduce the quantity of clay as there is a greater shortage of clay in many parts of world. Initially, characterization of paper mill waste has been carried out by XRF, XRD and SEM. The SEM monographs shows that the waste has porous and fibrous structure. The bricks prepared by orange peels and coconut waste with varying compositions of clay reduced the quantity of clay by (10% - 40% wt) and (10% - 60%) respectively and tested as per Bureau of Indian (BIS) 1077:1992 (fifth revision) and ASTM C 67-03a standards. From experimentation it is observed that waste create bricks (WCB) prepared is light weight, shock absorbing and meets compressive strength requirements of ASTM C 67-03a and BIS. The brick making procedure being simple can be undertaken as rural entrepreneurship by unskilled labours of developing countries.

6. Tarun Jain<sup>1</sup>, Prof. Archana Tiwari(2017) International Journal for Research in Applied

Science & Engineering Technology (IJRASET), Volume 5 Issue VI, June 2017. Studied on “Light Weight Bricks Using Waste EPS Beads” Demand of construction materials is increasing day by day, Technology has improved a lot in construction techniques of structures. Earlier structures were constructed with heavy materials, but in present time of construction light weight materials like AAC blocks, hollow blocks, and light weight wall panels are also used to decrease the dead load of a building. The EPS beads are the lightweight material which is mixed in a mixture of cement, fly ash, sand and water to develop light weight blocks and bricks. This Experimental work intended to investigate mechanical properties of lightweight bricks and compare its functions with conventional bricks. EPS Geofoam is a light substance that has been utilized in construction applications since last few decades. EPS has good thermal insulation properties with stiffness and compression strength comparable to medium clay. In, this experimental investigation effort Is made to develop light weight brick by combining EPS beads with cement fly-ash and sand.

7. Dr.G.Balamurugan, K.Chockalingam, M.Chidambaram, M.Aravindhha kumar, M.Balasundaram(2017) International Research Journal of Engineering and Technology (IRJET), Volume: 04 Issue: 04 | Apr -2017-Studied on “Experimental study on light weight foam concrete bricks”. This paper presents an experimental study on the effect in strength of foam concrete using three different filler materials such as river sand, sea sand and quarry dust with cement. Cement and filler mixed in proportions 1:0, 1:1, 1:2 and 1:3 in weight basis. The foaming agent was added with water and mixed thoroughly. Mixed cement and filler added slowly with this and after certain minutes this gel poured in to the mould of size 19 x 9 x 9 cm to get the brick specimen. The specimens were water cured for 28 days.

8. Muhammad Ekhlaur Rahman, Phang Ji Ong, Omid Nabinejad, Sumaiya Islam, Neamul Ahsan Noman Khandoker, Vikram Pakrashi and Kazi Md. Shorowordi (2017) , international journal of scientific & technology research volume 3, issue 6, june 2014 - Studied on “Utilization of Blended Waste Materials in Bricks”. Cement is considered a key raw material for brick production. However, excessive use of cement leads to a negative environment impact. Cement replaced with locally available waste materials has a significant potential to address this environmental impact, especially in the construction industry by contributing to cleaner production. The objective of this research is to investigate the performance of brick where cement is replaced by fly ash and palm oil fuel ash, waste materials typically available in Malaysia, where the construction industry is on

the rise. To determine the performance of these bricks, a compressive strength test, a water absorption test, and a thermogravimetric analysis were carried out at different percentage combinations of fly ash and palm oil fuel ash.

9. S.V. Giri Babu<sup>1</sup>, Dr. S. Krishnaiah(2018) International Journal of Computational Engineering Research (IJCER), ISSN (e): 2250 – 3005 ,Volume, 08 ,Issue, 2|,February – 2018 .-Studied on “Manufacturing of Eco-Friendly Brick: A Critical Review”. The oldest building material in the construction industry is the clay brick and in fact, it is the first manufactured one by man. Now-a-days, brick is one of the most common masonry units used as building material in the construction industry. Hence, the huge demand occurred in building material industry especially in the last decade owing to the increasing population. India is the second largest brick manufacturer in the world. India produces bricks using the traditional methods that are more than 125,000 registered / unregistered clay brick kilns, which meet the annual demand of more than 250 billion bricks. The traditional methods consume 350 million tons of fertile soil and 25 million tons of coal annually (KEN RESEARCH Pvt. Ltd). Consequently, it becomes a big issue of environmental concern. Recycling of waste materials such as fly ash, marble sludge, granite sludge, stone sludge, ceramic sludge, Plastic, coal and wheat husk, sawdust, Sugarcane Bagasse Ash (SBA), Rice Husk Ash (RHA), residual coal etc., are alternatives for the raw material instead of fertile clay that may contribute to the exhaustion of the natural resources. Hence, an eco-friendly brick manufacturing is utterly needed to overcome the conservation of non-renewable resources, improvement of the biotic health and security preoccupation with environmental matters and reduction in waste dispoenvironmenta

10. Arul Vivian Marshal J, Girinath R, Arun K, Ms. M. Brindha (2019) International Research Journal of Engineering and Technology (IRJET), Volume: 06 Issue: 04 | Apr 2019-Studied on “An Experimental study of clay brick using polystyrene”.This project is about combining Polystyrene with the raw materials of bricks. Majority of people prefer burnt brick for construction purpose, and to make some improvements in its strength, thermal resistive property, reduce the weight of brick and other properties a raw material called Polystyrene is added to the raw material of brick at various percentages like 5%, 10%, and 15%. Polystyrene ball is solid hydrocarbon substance and it is added to the clay in its solid state itself. By adding this material at various percentage the behaviour of brick

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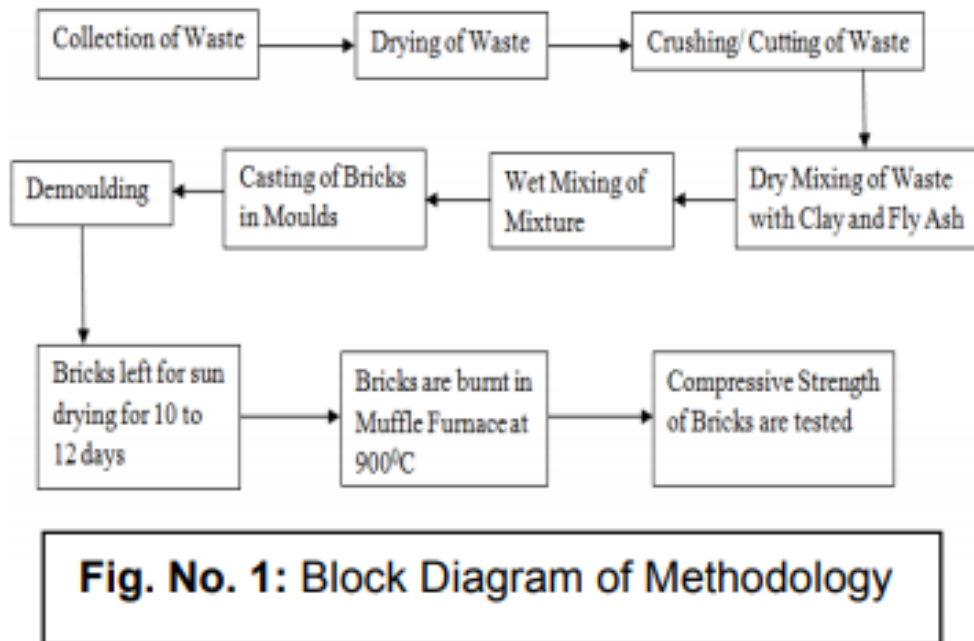
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is checked at various percentage and various tests like compressive strength, water absorption test, are performed and its properties are compared with that of the conventional brick. And addition of polystyrene makes the brick a good thermal insulator, sound absorber, less weight, and absorbs vibration.

### 2.1 Materials and methods:

Nagpur City more mainstream known as Orange city is a significant focal point of regulatory and political, business, culture and monetary exercises. City arranged at a height of 314.79 m above MSL and at 21°8'N scope and 79°8'E longitude. The environment of the city is described by a warm summer (47°C) very much disseminated precipitation, general dryness besides during the blustery season. In our test cycle, we are utilizing dirt as restricting material for both paper plant waste and orange strips and coconut waste blocks. Beginning with the assortment of the material needed as block making dirt (B. C. Soil) is gathered from rural of Nagpur, paper factory waste is gathered from Hardoli Paper Mill, Kondhali, Nagpur and orange strips are gathered from the different juice communities and nearby sellers of Nagpur. Also, coconut wastes are gathered from nearby sellers and different sanctuaries of Nagpur. We are setting up the blocks of size 20cm x 10cm x 10cm which is ostensible size of block as endorsed by BIS 1077:1992 (fifth amendment) and for that the molds of a similar size are created. At first the paper plant waste is described by XRF, XRD and SEM. By doing this the waste is sun dried for a month. At the same time, the orange strips are likewise cut into the bits of size 2cm to 3cm and later it is additionally sun dried for 15 days. At that point the blocks are set up with the combination of dirt – paper factory waste – orange strips of shifting arrangements of and left for sun dried for 10 to 12 days and later it was singed at suppress heater at 9000C at various terms.

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### 1. Mould Preparation –

Brick mould made of metal sheets is used. The sheet is extend up to outside for holding the mould while preparation of brick. The dimensions of the mould 190 mm x 90 mm x 90mm. Joints are made without any hole or gap to avoid any leakage.

### 2. Mixing

Mixing is done after all the ingredients were ready. In this project, mixing is done manually. A tried combination of cement: sand: fly ash (1:1:3) and other waste are used in this project. After the mixing, it should be put in the mould within 30 minutes and tamped with wooden tamper and the surface of the brick should be finished by shovel or wooden tamper. The casted bricks is allowed for sun drying for 14 days. There is no such special care needed for curing of bricks because the material use in bricks itself hold water for a long time. This method are repeated with different other ratio of varied sludge content, fly ash, cement, sludge & demolition waste.

### 3. Casting of specimen

The mould of size 19 x 9 x 9 cm will use to prepare the specimen. After 24 hrs of casting the moulds would remove and the specimens are curing in water for 28 days in room temperature.

### 4.Curing –

The test specimens are stored on the site at a place free from vibration, under damp matting, sacks or other similar material for 24 hours  $\pm$  i hour from the time of adding the water to the other ingredients. The temperature of the place of storage shall be within the range of 22 0 to 32°C. After the period of 24 hours. they shall be marked for later identification, removed from the moulds and. unless required for testing within 24 hours, stored in clean water at a temperature of 24° to 30°C until they are transported to the testing laboratory. Records of the daily maximum and minimum temperature shall be kept both during the period of the specimens remain on the site and in the laboratory.

## CHAPTER NO 3

### EXPERIMENTAL ANALYSIS

#### 3.1Material composition:

##### 3.1.1Cement:

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Cement is one of the binding material in this research. Cement is the important binding material in today's construction world 53 grade Ordinary Portland Cement (OPC) conforming to IS: 8112-1989 cement is use. word "cement" traces to the Romans, who wed the term opus cement to describe masonry resembling modern concrete that was made from crushed rock with burnt lime as binder Cement In concrete mix, Ordinary Portland Cement was used in this project Grade of cement 53

- Characterization Or Cement
- Cement: The cement used for the preparation of concrete is ordinary Portland
- cement of 53 grade conforming to Physical Properties
- The physical properties of the cement
- Consistency of cement 33.0%
- Specific gravity 2.84
- Initial setting time 30 min
- Final setting time 24 hour
- Fineness of cement 1

Fig(2). Cement





### 3.1.2. Fine aggregate (sand)

Fine aggregate (Sand) is a naturally occurring granular material composed of divided rock and mineral particles. It is defined by size, being finer than gravel and coarser than silt. Sand can also refer to a textural class of soil or soil type, i.e a soil soil containing more than 85% sand-sized particles (by mas). The composition of varies, depending on the local rock sources and condition.usually in the form of quartz The second most common type of sand is calcium carbonate, for example aragonite, which has mostly an created, over the past half billion years, by various forms of life, like coral and shellfish. It is, for example, the primary form of sand apparent in areas where reefs have dominated the ecosystem for millions of years like the Caribbean In this research was used as fine aggregate Size of aggregate used 236 mm.



Fig 3 fine aggregate

### 3.1.3 Fly ash

Fly ash is a coal combustion product that is composed of coal fired boilers. We Add 5% ,7.5%,10% and 12.5% of fly ash to reduce cement and check the result. Fly ash or flue ash, also known as pulverised fuel ash in the United Kingdom, is a coal combustion product that is composed of the particulates (fine particles of burned fuel) that are driven out of coal-fired boilers together with the flue gases. Ash that falls to the bottom of the boiler's combustion chamber (commonly called a firebox) is called bottom ash. In modern coal-fired power plants, fly ash is generally captured by electrostatic precipitators or other particle filtration equipment before the flue gases reach the chimneys. Together with bottom ash removed from the bottom of the boiler, it is known as coal ash. Depending upon the source and composition of the coal being burned, the components of fly ash vary considerably, but all fly ash includes substantial amounts of silicon dioxide ( $\text{SiO}_2$ ) (both amorphous and crystalline), aluminium oxide ( $\text{Al}_2\text{O}_3$ ) and calcium oxide ( $\text{CaO}$ ), the main mineral compounds in coal-bearing rock strata.

Fly debris, additionally called as "pounded fuel as". It is the result of coal burning and that contains particulates. Coal gathered by the electrostatic separators or by mechanical techniques from the fuel of gases of nuclear energy stations. Here pounding implies the coal powder. Contingent upon the source and sythesis of the coal utilized in burning, the constituents of fly debris, which contain impartial combination of silicondioxide ( $\text{SiO}_2$ )aluminum oxide ( $\text{Al}_2\text{O}_3$ ) and calcium oxide ( $\text{CaO}$ ), and other mineral mixtures present in coal-bearing stone layers. In this manner block contains fly debris, concrete and fine total. The concrete shifts from 15 to 25% in the fly debris and proportionate amount of fine total. In readiness of block the utilization of fly debris invigorates enough and diminishes the water Fig debris content. The strength of Brick arranged from fly debris is

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high nearly too regular Brick.

The minor constituents of fly ash depend upon the specific coal bed composition but may include one or more of the following elements or compounds found in trace concentrations (up to hundreds ppm): arsenic, beryllium, boron, cadmium, chromium, hexavalent chromium, cobalt, lead, manganese, mercury, molybdenum, selenium, strontium, thallium, and vanadium, along with very small concentrations of dioxins and PAH compounds. It also has unburnt carbon.

In the past, fly ash was generally released into the atmosphere, but air pollution control standards now require that it be captured prior to release by fitting pollution control equipment. In the United States, fly ash is generally stored at coal power plants or placed in landfills. About 43% is recycled, [4] often used as a pozzolan to produce hydraulic cement or hydraulic plaster and a replacement or partial replacement for Portland cement in concrete production. Pozzolans ensure the setting of concrete and plaster and provide concrete with more protection from wet conditions and chemical attack.

Chemical Composition of fly ash :

COMPONENT	Bituminous	Subbituminous	Lignite
SiO <sub>2</sub> (%)	20-60	40-60	15-45
Al <sub>2</sub> O <sub>3</sub> (%)	5-15	20-30	20-25
Fe <sub>2</sub> O <sub>3</sub> (%)	10-40	4-10	4-15
CaO (%)	1-12	5-30	15-40
LOI (%)	0-15	0-3	0-5

Table(1) Chemical Composition of fly ash

Fly ash material solidifies while suspended in the exhaust gases and is collected by electrostatic precipitators or filter bags. Since the particles solidify rapidly while suspended in the exhaust gases, fly ash particles are generally spherical in shape and range in size from 0.5  $\mu\text{m}$  to 300  $\mu\text{m}$ . The major consequence of the rapid cooling is that few minerals have

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time to crystallize, and that mainly amorphous, quenched glass remains. Nevertheless, some refractory phases in the pulverized coal do not melt (entirely), and remain crystalline. In consequence, fly ash is a heterogeneous material. SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, Fe<sub>2</sub>O<sub>3</sub> and occasionally CaO are the main chemical components present in fly ashes. The mineralogy of fly ashes is very diverse. The main phases encountered are a glass phase, together with quartz, mullite and the iron oxides hematite, magnetite and/or maghemite. Other phases often identified are cristobalite, anhydrite, free lime, periclase, calcite, sylvite, halite, portlandite, rutile and anatase. The Ca-bearing minerals anorthite, gehlenite, akermanite and various calcium

silicates and calcium aluminates identical to those found in Portland cement can be identified in Ca-rich fly ashes. The mercury content can reach 1 ppm, but is generally included in the range 0.01–1 ppm for bituminous coal. The concentrations of other trace elements vary as well according to the kind of coal combusted to form it. In fact, in the case of bituminous coal, with the notable exception of boron, trace element concentrations are generally similar to trace element concentrations in unpolluted soils.

Two classes of fly ash are defined by ASTM C618: Class F fly ash and Class C fly ash. The chief difference between these classes is the amount of calcium, silica, alumina, and iron content in the ash. The chemical properties of the fly ash are largely influenced by the chemical content of the coal burned (i.e., anthracite, bituminous, and lignite). Not all fly ashes meet ASTM C618 requirements, although depending on the application, this may not be necessary. Fly ash used as a cement replacement must meet strict construction standards, but no standard environmental regulations have been established in the United States. Seventy-five percent of the fly ash must have a fineness of 45 μm or less, and have a carbon content, measured by the loss on ignition (LOI), of less than 4%. In the US, LOI must be under 6%. The particle size distribution of raw fly ash tends to fluctuate constantly, due to changing performance of the coal mills and the boiler performance.

This makes it necessary that, if fly ash is used in an optimal way to replace cement in concrete production, it must be processed using beneficiation methods like mechanical air classification. But if fly ash is used as a filler to replace sand in concrete production, unbeneficiated fly ash with higher LOI can be also used. Especially important is the ongoing quality verification. This is mainly expressed by quality control seals like the Bureau of Indian Standards.

**3.1.4. Paint Remnants:** Toxic however undesirable waste, this accumulated hydrolyzed paint motored and altogether joined with water and some decalcifying synthetic compounds, known as the two added substances, are added is ordinarily alluded as paint slop or paint remainders. This gooey slurry can be delegated a risky waste subsequently if this waste is arranged arbitrarily on a superficial level. It may prompt debasement of soil ripeness, and results in age of leachate by which ground water gets contaminated. Henceforth it is poisonous to horticultural land, and it might even reason harm to the verdure of that biological system, any place this waste releases. To suggest solution for the maker of the \_paint sludge'unsatisfactory to the controlled standards of ecological law, which doesn't permit the presence of the paint sludge'within the offices of the mechanical unit, where it is made, Maharani Paint industry the board has built up an interaction through which modern \_paint sludge'could be reused back to an item which is exceptionally helpful, and can be burned-through with no issue by the business.

### **3.1.5. Concrete:**

Concrete is a universally utilized restricting material, a matter used for development which helps in setting, solidifies and consolidates with other valuable materials, restricting them together unequivocally. Concrete is regularly utilized in restricting sand and rock (total) together. Concrete is consolidating with fine total particles to set up the customary mortar for common works, or with ocean or stream sand particles and rock totals to plan solid blend. Concrete levels made for development works are by and large not natural in nature; typically lime or calcium silicate based compound, which can be named pressure driven and non-water powered, in light of the adherences of the concrete for setting with the presence of water level.

### **3.1.6. Water**

Water is an important ingredient. Potable water will be use for mixing. It should be free from organic matter and the pH value should be between 6 and 7. If the quality of water to be used for mixing is in doubt, cubes of 75 mm in cement mortar 1:3 mix with distilled water and with the water in question shall be made separately. The latter type of cubes should attain 90% of the 7 days' strength obtained in cubes with same quantity of distilled water. The water quality for construction shall be tested or monitored regularly, as it affects the overall strength of concrete. For plain and reinforced cement concrete permissible limits for solids shall be as follows:

Types of Solid in Water	Permissible Limits for Construction
Organic matter	200 mg/l
Inorganic matter	3000 mg/l
Sulphate	500 mg/l
Chlorides	a)1000 mg/l for RCC work and b) 2000 mg/l PCC work
Suspended matter	2000 mg/l

### **Limits of Alkalinity :**

To neutralize 200 ml of sample should not require more than 10 ml of 0.1 normal HCl using methyl orange as an indicator.

Limits of Acidity: To neutralize 200 ml sample of water should not require more than 2 ml of 0.1 normal NaOH (Caustic soda). The pH value of water shall generally be not less than 6. IS 456:2000 standards lays certain parameters for which quality of water must be tested. In the same lines, we have introduced a water testing packages exclusively for the said purpose.

### **3.2 Procedure for Preparation of Bricks**

According to research, up to now, there is no hard and fast rule for formal mix design in that respect no hard procedure for casting the bricks. Thus, in this research, some laboratory tests were performed to obtain some mechanical properties. In this study four different mix ratios of cement with filler will prepare.

#### **a. Mould Preparation**

Brick mould made of metal sheets are used. The sheet is extend up to outside for holding the mould while preparation of brick. The dimensions of the mould 190 mm x 90 mm x 90mm. Joints will made without any hole or gap to avoid any leakage.

#### **b. Mixing**

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Mixing are done after all the ingredients were ready. In this project, mixing are done manually. A tried combination of cement: sand: fly ash (1:1:3) and other waste are used in this project. After the mixing, it should be put in the mould within 30 minutes and tamped with wooden tamper and the surface of the brick should be finished by shovel or wooden tamper. The casted bricks should be allowed for sun drying for 14 days. There is no such special care needed for curing of bricks because the material use in bricks itself hold water for a long time. This method is repeated with different other ratio of varied sludge content, fly ash, cement, sludge & demolition waste.

### C. Casting of specimen

The mould of size 19 x 9 x 9 cm are use to prepare the specimen. After 24 hrs of casting the moulds remove and the specimens are curing in water for 28 days in room temperature.

d. Curing - The test specimens are stored on the site at a place free from vibration, under damp matting, sacks or other similar material for 24 hours  $\pm$  1 hour from the time of adding the water to the other ingredients. The temperature of the place of storage is within the range of 22<sup>o</sup> to 32<sup>o</sup>C. After the period of 24 hours. they were marked for later identification, removed from the moulds and. unless required for testing within 24 hours, stored in clean water at a temperature of 24<sup>o</sup> to 30<sup>o</sup>C until they are transported to the testing laboratory. They shall be sent to the testing laboratory well packed in damp sand, damp sacks, or other suitable material so as to arrive there in a damp condition not less than 24 hours before the time of test. On arrival at the testing laboratory, the specimens shall be stored in water at a temperature of 27<sup>o</sup>  $\pm$  2<sup>o</sup>C until the time of test. Records of the daily maximum and minimum temperature shall be kept both during the period of the specimens remain on the site and in the laboratory.

### 3.2.1. Preparation of bricks by orange peels and paper miss waste:

Right off the bat, blocks of orange strips are attempting to plan yet orange strips are not getting fortified as expected with mud and when the example get dries, it disintegrates. In this way orange strips are reinforced with paper factory waste with mud and fly debris (10%) and different creations are set up with one another. Four examples of every structure are made and afterward they are left for sun drying for 10-12 days and further they are scorched in the heater at 9000C for 2 hours and later they are tried in compressive testing machine to track down the compressive strength of the blocks. In any case, the outcomes

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are gotten true to form along these lines, applying a similar strategy the blocks are presently singed for the span of 4 hours at 9000C. It has been seen that there is an augmentation in compressive strength of almost 14.00%.

### 3.2.2.Preparation of bricks by coconut waste

Presently, it is the turn for the coconut waste to show its latent capacity and for utilizing it for making lighter blocks by subbing the dirt substance. The coconut waste is initially gathered from the different sanctuaries of Nagpur city as the Hindu fans of India utilize the coconut to offer supplication. Later by utilizing its natural product the coconut is tossed the administration of sanctuaries to the unloading yard or sent the waste to the strong waste administration authority of the Nagpur city. By gathering coconut waste, right off the bat its husk (coir) is taken out from the shell and shell was physically squashed to estimate of bits of 2cm to 3cm and coir was chopped somewhere near the shaper of a normal fiber length of 6 cm to 7cm, at that point it has been absorbed water for 24 hours in the water with the end goal that it ought not drenched water of the wet of dirt and fly debris. It has been concentrated by the different written works that the width of coconut fiber is 0.60 mm. At that point the viewpoint proportion becomes 116.67 for example (70mm/0.60mm). The fiber is laid in the layers of 3.0 cm thick wet blend. Subsequent to setting up the blocks it has been laid for sun drying for 10 to 12 days after the fact it the blocks are sent for stove drying for 24 hours and further it is singed at 9000C for 4hours in light of the fact that it has been seen before on account of orange blocks that term of 4 hours gives great outcomes when contrasted with 2 hours consuming. Additionally, the more limited strands are likewise utilized on the grounds that while cutting a considerable lot of the filaments are come out as waste and subsequently, the blocks of more limited filaments are likewise utilized and the size of fiber 3.0cm to 4.0cm are utilized and some of them are additionally cut by shaper and consequently the angle proportion of those fiber becomes 83.33 for example (50mm/0.60mm) and later a similar treatment has been given to these blocks as it was recently given to different sorts of blocks particularly which is referenced in the coconut waste blocks

### 3.3.Test on bricks:

**Test to be conducted:**



### 1.COMPRESSION TEST:

This test is held out by Compression Testing Machine after the 14th day from the date of casting brick. The bricks never fail catastrophically, it just compressed like squeezing rubber. Therefore great care must be considered while testing the brick because on the load should be applied up to half compression only. In a compression test a material experiences opposing forces that push inward upon the specimen from opposite sides or is otherwise compressed, squashed, crushed, or flattened. The test sample is generally placed in between two plates that distribute the applied load across the entire surface area of two opposite faces of the test sample and then the plates are pushed together by a universal test machine causing the sample to flatten. A compressed sample is usually shortened in the direction of the applied forces and expands in the direction perpendicular to the force. A compression test is essentially the opposite of the more common tension test. The bricks are having elastic behavior and less brittleness, due to this the structure will not fully collapsed, when the brick fails at higher load. Only the outer faces cracked and peeled out

#### **Steps for compressive test (as per IS 516:1959)**

**1. Testing Machine** - The testing machine may be of any reliable type, of sufficient capacity for the tests and capable of applying the load at the rate specified in 5.5. The permissible error shall be not greater than  $\pm 2$  percent of the maximum load. The testing machine shall be equipped with two steel bearing platens with hardened faces. One of the platens (preferably the one that normally will bear on the upper surface of the specimen) shall be fitted with a ball seating in the form of a portion of a sphere, the Centre of which coincides with the central point of the face of the platen. The other compression platen shall be plain rigid bearing block. The bearing faces of both platens shall be at least as large as, and preferably larger than the nominal size of the specimen to which the load is applied. The bearing surface of the platens, when new, shall not depart from a plane by more than 0.01 mm at any point, and they shall be maintained with a permissible variation limit of 0.02 mm. The movable portion of the spherically seated compression platen shall be held on the spherical seat, but the design shall be such that the bearing face can be rotated freely and tilted through small angles in any direction.



Fig(4). Compression Testing Machine

**2. Age of Test** - Tests shall be made at recognized ages of the test specimens, the most usual being 7 and 28 days. Ages of 13 weeks and one year are recommended if tests at greater ages are required. Where it may be necessary to obtain the early strengths. tests may be made at the ages of 24 hours  $\pm$  1 hour and 72 hours  $\pm$  2 hours. The ages shall be calculated from the time of the addition of water to the dry ingredients.

**3.Number of Specimens:-** there are 5 % , 7.5% , 10%, 12.5 % specimens, preferably from different batches, shall be made for testing at each selected age.

## Utilization of Waste Material to Produce Eco-friendly Brick

**4. Frog Filling :-** for the test frog of brick is fill by mortar and place for curing 24 hour

**5 .Placing specimens into the Testing machine :-** The bearing surfaces of the testing machine shall be wiped clean and any loose sand or other material removed from the surfaces of the specimen which are to be In contact with the compression platens. In the case of cubes, the specimen shall be placed In the machine In such a manner that the load shall be applied to opposite sides of the cubes as cast, that IS. not to the top and bottom I he aXIS of the specimen shall be carefully ahgned with the centre of thrust of the spherically seated platen No packing shall be used between the faces of the test specimen and the steel platen of the testing machine As the sphencally seated block is brought to bear on the specimen. the movable portion shall be rotated gently by hand so that uniform seating may be obtained. The load shall be applied without shock and Increased continuously at a rate of approximately 140 kg/sqem/min until the resistance of the specimen to the Increasing load breaks down and no greater load can be sustained. The maximum load applied to the specimen shall then be recorded and the appearance of the concrete and any unusual features In the type of fallure shall be noted.

**6. Notes the Reading :-** reading of 7 day , 14 day , 24 day reading are noted into reading book for the fature calculation,

Specimen	Days	Size	Load(KN)
5% Brick	7	190 x 90 x 90	117
7.5% Brick	7	190 x 90 x 90	97
10 %	7	190 x 90 x 90	87
12.5%	7	190 x 90 x 90	134
5%	14	190 x 90 x 90	120
7.5%	14	190 x 90 x 90	110
10%	14	190 x 90 x 90	98
12.5%	14	190 x 90 x 90	166
5%	21	190 x 90 x 90	126
7.5%	21	190 x 90 x 90	118
10%	21	190 x 90 x 90	105
12.5%	21	190 x 90 x 90	186

### 3. Water absorption test

Water absorption test is required to check whether the bricks are suitable for water logged areas or not. As per standards the bricks should not absorb water more than 20% of its Original weight.

Procedure for water absorption test:-

- a. Take every specimen of 5% , 7.5 % , 10 % , 12 % of brick
- b. Weight the every dry brick and note their weight as( W1)
- c. After taking of the same bricks take into water for 24 hour.
- d. Remove the all bricks specimens from water .
- e. Weight the wet bricks specimen on weighting machine.
- f. Note down the weight as (W2) for future calculation

Formula for percentage of water absorption

$$\text{Water absorption, kg/m}^3 = (A - B) / (A - C) \times 1000$$

$$\text{Water absorption, (\%)} = (A - B) / B \times 100$$

Where, A = Wet mass of units, in kg; B= Dry mass of units, in kg; and C= Suspended immersed mass of units, in kg.

Calculation:- A= 2.63, B = 2.11

$$\text{Water absorption (\%)} = ((2.63 - 2.11) / (2.11)) \times 100 = 24.64\%$$

Conclusion of water absorption :- as IS 2185.1.2005 Standard result of water absorption of brick is 18 to 30 % therefore our result of water absorption brick is satisfied.

### 4. Soundness Test (IS.3495.1-4.1992):-

- Two bricks are taken, one in each hand, and they are struck with each other lightly.
- A brick of good quality should not break and a clear ringing sound should be produced.
- The conventional brick tested was sound and has passed soundness test successfully.
- Our brick is strong and did not broke up during striking each other and taking better

ringing sound during struck.



Fig(4). Soundness Test

### 3.4. Brick analysis

Basic examination by X-Ray Fluorescence (XRF)

beneath in Table 1 shows that silica content in PMW is 22.36% and silica takes an interest in response to frame cementitious material. Substantial metals copper (Cu), strontium (Sr), zirconium (Zr) and manganese (Mn) were available in follows (under 0.1%). Along these lines, the chance of draining substantial metals is inconsequential. The diffraction examples of virgin and PMW. The examples present shapeless examples dependent on little reflection points and  $2\theta$  top somewhere in the range of 20 and 30. SEM monograph (Fig.2) for PMW obviously demonstrate the presence of unpredictable pores and sinewy nature of PMW. The PMW holds the dampness in the pores and the stringy design of PMW gives the hindrances to dampness there by making an obstruction for dampness to move towards the surface. Stringy nature gives exceptionally high engrossing capacity and great compressive strength.

#### **BRICK ANALYSIS:**

At first, the different designing tests are led on the material for example earth, for example, dampness content, fluid cutoff, plastic breaking point, versatility file, shrinkage limit, shrinkage proportion and volumetric shrinkage proportion. Essentially, the dampness substance of paper plant waste is likewise completed and it is discovered to be around 60%. The subtleties of test outcomes are appeared in the. The examples of block each from orange strips and coconut waste of shifting arrangements were utilized for directing the compressive strength tests. The test outcomes show that the bricks affirm to the base compressive strength necessities specified in IS 1077:1992 however the bricks arranged

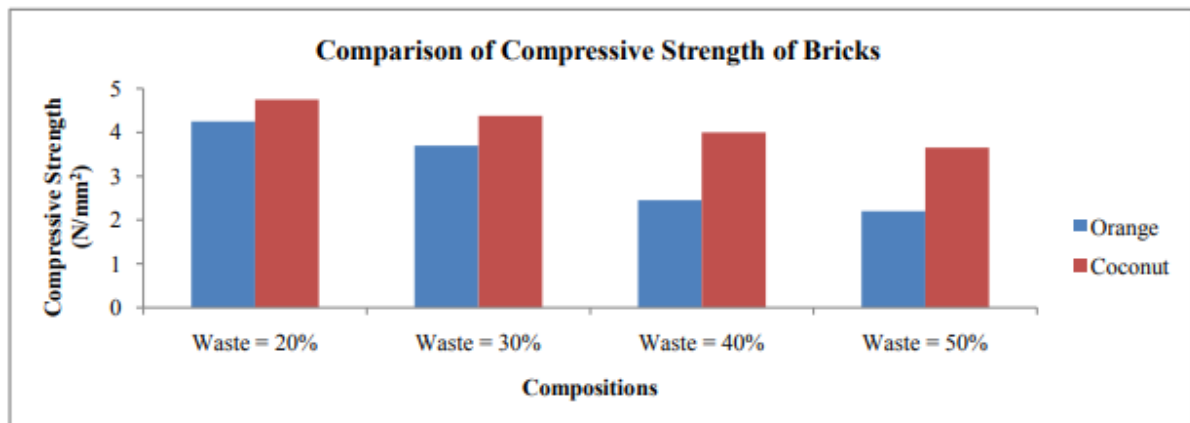
## Utilization of Waste Material to Produce Eco-friendly Brick

from the coconut waste are more proficient than orange strips.

### Details of Prepared Bricks by Natural Waste Material

Sr. No.	Clay + Fly Ash (%)	Waste (%)	Avg. Value of Compressive Strength of Bricks Prepared By (N/mm <sup>2</sup> )		Avg. Value of Weight of Bricks (Kg)	
			Orange Peels	Coconut Waste (AR=83.33)	Orange Peels	Coconut Waste (AR=83.33)
1.	80%	20%	4.25	4.65	2.80	3.52
2.	70%	30%	3.70	4.31	2.62	3.38
3.	60%	40%	2.45	4.00	2.42	3.13
4.	50%	50%	2.20	3.65	2.30	2.80
5.	40%	60%	-	3.50	-	2.39

Comparison of compressive strength of bricks when it is prepared by Orange peels and coconut waste.



### CHAPTER NO 4

### COST ANALYSIS

**Estimation:** Estimation (or estimating) is the process of finding an estimate, or approximation, which is a value that is usable for some purpose even if input data may be incomplete, uncertain, or unstable. The value is nonetheless usable because it is derived from the best information available. Typically, estimation involves "using the value of a statistic derived from a sample to estimate the value of a corresponding population parameter". The sample provides information that can be projected, through various formal or informal processes, to determine a range most likely to describe the missing information. An estimate that turns out to be incorrect will be an overestimate if the estimate exceeded the actual result, and an underestimate if the estimate fell short of the actual result

In mathematics, approximation describes the process of finding estimates in the form of upper or lower bounds for a quantity that cannot readily be evaluated precisely, and approximation theory deals with finding simpler functions that are close to some complicated function and that can provide useful estimates. In statistics, an estimator is the formal name for the rule by which an estimate is calculated from data, and estimation theory deals with finding estimates with good properties.. A Fermi problem, in physics, is one concerning estimation in problems which typically involve making justified guesses about quantities that seem impossible to compute given limited available information.

## Utilization of Waste Material to Produce Eco-friendly Brick

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Estimation is important in business and economics, because too many variables exist to figure out how large-scale activities will develop. Estimation in project planning can be particularly significant, because plans for the distribution of labor and for purchases of raw materials must be made, despite the inability to know every possible problem that may come up. A certain amount of resources will be available for carrying out a particular project, making it important to obtain or generate a cost estimate as one of the vital elements of entering into the project.

### Cost analysis case:-

Case 1 : cost required for 1 bricks

Case 2 : cost requires for 1 brass of bricks

### Case 1 :- Cost required for 1 bricks

Cost required for 20 bricks

For preparing mortar

Proportion :- 1:4

Take cement = 3 kg for 20 bricks

$3 \text{ kg} \times 0.001 \text{ m}^3 = 0.003 \text{ m}^3$

Quantity of cement = 0.003 m<sup>3</sup>

Take sand ,

For 1:4 =  $3 \times 4 = 12 \text{ kg}$

$12 \text{ kg} \times 0.001 \text{ m}^3 = 0.012 \text{ m}^3$

Quantity of sand = 0.012 m<sup>3</sup>

Total quantity =  $0.012 + 0.003$

$= 0.015 = 0.017 \text{ m}^3$

For adding quantity of Fly ash

$= 0.002 \text{ m}^3$



## Utilization of Waste Material to Produce Eco-friendly Brick

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Total quantity = 0.017 m<sup>3</sup> for 20 bricks

Cost of Material

For cement ,

1 bag = 50 kg

Cost of 1 bag = 350 Rs.

For 1kg =  $350/50 = 7$  Rs.

For 3 kg =  $7 \times 3 = 21$  Rs.

For sand ,

For 1 m<sup>3</sup> = 1600 Rs.

Quantity = 0.012 m<sup>3</sup>

Total cost of sand =  $0.012 \times 1600 = 19$  Rs.

Total cost required for cement and sand

=  $19 + 21$

= 40 Rs. for 20 bricks

Fly ash is freely available in nearly sugar factory or coal factory

Therefore no cost of fly ash , coconut waste, orange peels, paper mill waste

Charges of head mason = for 1 day work they take 500 Rs.

1 days = 7 hours

But they take only 2 hours for manufacturing of 20 bricks

$500/7 = 70$  Rs. = 140 Rs.

Total cost =  $140 + 40 = 180$

Cost of one brick =  $180/20 = 9$  Rs.

## Utilization of Waste Material to Produce Eco-friendly Brick

Subtract 4 Rs. Cost for wastage

Therefore ,

$$\text{Total cost} = 9 - 4$$

$$= 5 \text{ Rs.}$$

But ,cost of ordinary clay brick is 12 Rs.

Therefore, cost of our 1 brick is Rs. 5

Hence result is satisfy

### Case 2 :- Project cost required for manufacture of 1 brass bricks

i.e 1 brass = 1417 no. of bricks

but in that cost of labours will be included that include three types of labours

Labours	Numbers	Rate	Per	Amount
Head mason	2	300	day	600
Mazdoor	4	200	day	400

**Table(4) Cost Of Labour for manufacturing Bricks**

Labour cost = 1000 Rs.

1 Iron Mould cost = 1650 Rs.

Therefore ,material cost = 5 x 1417 =7000 Rs.

Total cost required manufacture for 1 brass

$$= 7000 + 1000 + 1650$$

$$= 10650 = 10000 \text{ Rs.}$$

Cost of our bricks for market selling = 7000 per brass

## Utilization of Waste Material to Produce Eco-friendly Brick

### 5.2 Economical Comparison-

Cost required for 1 brass clay bricks = Labours cost +mould +material cost

Material cost = 1417 x 12 = 18500 Rs.

i.e total cost

$$=1650 + 1000+18500$$

$$= 21500 \text{ Rs.}$$

But cost required for 1 brass of our selected project bricks

$$=10000 \text{ Rs.}$$

Net profit = 21500 – 10000

$$=11000 \text{ Rs. Can save for 1 brass of bricks}$$

We are focusing ordinary poor people that can construct the houses and their dream home that project can be beneficial for such people and save their money near about 11000Rs. In 1 brass of bricks.

Therefore it effect to improve economy

Type of bricks	Cement :sand	No. of bricks in 1 brass	Qty. of cement in bags	Total cost of brick for 1 brass
Conventional bricks	1:4	1400	-----	19000
Fly ash bricks 5%	1:4	1400	14	7000
Fly ash bricks 7.5 %	1:4	1400	11	6500
Fly ash bricks 10%	1:4	1400	9	6000
Fly ash bricks 12.5 %	1:4	1400	8	5000

### CHAPTER NO 5

### CONCLUSION

In view of the current examination which is directed on creation of bricks from common waste materials, the accompanying ends can be drawn: By the portrayal of paper factory waste by Scanning Electron Microscope (SEM) it has been exceptionally certain that it is permeable and stringy and it holds the dampness by giving a boundary to dampness to move towards the surface. Stringy nature gives high engrossing capacity and great compressive strength. Essential investigation of paper plant waste by X-Ray Fluorescence (XRF) shows that silica content is most elevated in PMW is 22.36% and silica takes an interest in response to frame cementitious material. Hefty metals copper (Cu), strontium (Sr), zirconium (Zr) and manganese (Mn) were available in follows (under 0.1%). In this way, the chance of draining weighty metals is unimportant. It is seen that as the temperature builds the compressive strength of bricks is likewise increments and as the level of the dirt lessens the strength of the block diminishes. It is noticed that as the mud content is lessens the bricks gotten lighter in weight. At the synthesis where the dirt substance is just 30%, at that point the waste material includes paper plant waste and orange strip doesn't make a decent bond with one another and it disintegrates just when it is completely dried. Orange strip doesn't make bond with paper plant waste and soil and in this manner, it's anything but a decent restricting specialist and it can't be utilized as an element for development reason.

## Utilization of Waste Material to Produce Eco-friendly Brick

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- Coconut waste is more proficient than orange strips and paper factory waste.
- Coconut waste can be effortlessly taken care of and used for making light weight bricks.
- In the event of coconut waste, the more limited fiber gives great outcomes when contrasted with longer fiber.
- The planning of making bricks with coconut waste is not difficult to the point that even the incompetent works can be locked in. It is find by this current examination that upto 60% of the mud can be diminishing by regular waste material for making bricks.

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## Utilization of Waste Material to Produce Eco-friendly Brick

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**Punyashlok Ahilyadevi Holkar Solapur University, Solapur**  
**Faculty of Science & Technology**  
**T. Y. B.Tech. (Electrical Engineering)**

Choice Based Credit System Structure of T.Y.B .Tech. Electrical Engineering W.E.F. 2020-21

*Semester II*

Course Code	Theory Course Name	Hrs./week			Credits	Examination Scheme			
		L	T	P		ISE	ESE	ICA	Total
EL 321	Electrical Machine Design	4	-	-	4	30	70	-	100
EL 322	Electrical Utilisation	3	1	-	4	30	70	25	125
EL 323	Power Electronics	4	-	-	4	30	70	-	100
EL 324	Signals & Systems	4	1	-	5	30	70	25	125
EL 325	Open Elective-II	3	-	-	3	30	70	-	100
EL 326	Self-Learning Module-II	-	-	-	2	--	50	-	50
<b>Sub Total</b>		<b>18</b>	<b>2</b>	<b>-</b>	<b>22</b>	<b>150</b>	<b>400</b>	<b>50</b>	<b>600</b>
<b>Laboratory Course Name</b>									
						ESE			
						POE	OE		
EL 321	Electrical Machine Design	-	-	2	1	-	25	25	50
EL 323	Power Electronics	-	-	2	1	-	50	-	75
EL 325	Open Elective-II	-	-	2	1	-	-	25	25
EL 327	Mini Hardware Project	-	-	2	1	-	-	25	50
<b>Sub Total</b>		<b>-</b>	<b>-</b>	<b>8</b>	<b>4</b>	<b>-</b>	<b>100</b>	<b>100</b>	<b>200</b>
<b>Grand Total</b>		<b>18</b>	<b>2</b>	<b>8</b>	<b>26</b>	<b>150</b>	<b>500</b>	<b>150</b>	<b>800</b>

Abbreviations: L- Lectures, P –Practical, T- Tutorial, ISE- In Semester Exam, ESE - End Semester Exam, ICA- Internal Continuous Assessment, ESE - University Examination (Theory &/ POE &/Oral examination)

**Self-Learning Module-II:**

1. Special Purpose Machines
2. Electrical Safety
3. Solar Photovoltaic System Design & Installation
4. NPTEL Courses



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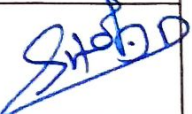







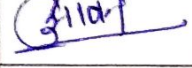
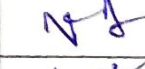

Date: 9/3/2021


### Department of Electrical Engineering


#### Mini Hardware Project Groups and Guide allocation:

It is hereby informed to all T.Y. Electrical Semester – II students that, Mini Project topics are finalized as follows. All are informed to submit the Synopsis on or before 15-3-2021.

Group No.	Roll No.	Name of students	Title	Name of Guide	Signature of Guide
01	40	Swapnil Ramdas Gund	Automatic MSEB Load Shedding	Prof. M.S. Yadrami	
	61	Shivam Sunil Salunkhe			
	37	Chetan Suresh Gavhane			
02	35	Shubham Tarkeshwar Doshi	Soil Moisture Testing	/Dr. D. A. Tamboli	
	59	Shantanu Ranganath Patil			
	52	Kiran Ekanath Lamkane			
03	10	Gayatri Rajendra Ekatpure	Clap Switching	Prof. A.A. Tekale	
	9	Vaishnavi Rameshwar Dhole			
	21	Amruta Suresh Nanavare			
04	2	Snehal Narayan bhondave	Power Generation using Footstep	/Dr. D. A. Tamboli	
	3	Neha Sukhdev bhosale			
	18	Sanskriti Sainath mane			
05	55	Saurabh Dattatraya Mule	Smart Irrigation System	Prof. V.A. Sawant	
	32	Sagar Haridas Bhanvase			
	60	Omkar Tukaram Raut			
06	58	Shrishail Ravsaheb Nikam	Non Contact Voltage Tester	Prof. C .Veeresh	
	42	Dipak Jambuvant Humbe			
	67	Harshavardhan Mahesh Yadav			
07	19	Sonal Lahu Metakari	Fingerprint Door lock System using Arduinio	Prof. A.R. Masal	
	22	Pratidnya Raju Navale			
	28	Payal Raosaheb Salgare			
08	43	Vishal Annaso Ingale	Automatic Lighting Control using Arduinio & IPR Sensor	Prof. M.S. Yadrami	
	64	Shivaji Bhivaji Survase			
	36	Kundansing Kiransing Gahirwar			
09	17	Ashwini Darling Mane	Bidirectional DC Motor Speed Controller	Prof. D.D. Daphale	
	26	Anushka Machindra Rupnar			
	25	Kiran Sopan Rokade			
10	11	Poonam Hanumant Homkar	Rain Detector	Prof. A.A. Tekale	
	13	Kate Revati gorakhnath			
	14	Ankita Narendra Kathare			

11	1	Shraddha Arjun Ambule	Security Alarm system	Prof. C .Veeresh	
	24	Sangita Narayan Pujari			
	20	Dipali Balkrushna Metkari			
12	44	Rushikesh Rajendra jadhav	LPG Leakage Detector	Prof. S.D. Kolekar	
	49	Sameer Sambhaji Kokane			
	41	Chaitanya Dayanand Howal			
13	5	Pooja Samadhan Chavan	Automatic Hand Dryer	Prof. D. D. Daphale	
	8	Pooja Dilip Dharme			
	30	Swapnali Vikas Shendage			
14	39	Niranjan Balasaheb Ghatule	Power Quality improvement using UPFC	Prof. P. B. Vyavahare	
	46	Abhijit Aravind kamble			
	50	Suresh Kumar Krishan			
15	62	Arbaaz Samad Shaikh	Wireless Power Transfer	/Dr. D. A. Tamboli	
	48	Gorakhnath Madhukar Kharat			
	66	Vinay Balu Waghmare			
16	53	Jayaram Prakash Londhe	Laser Light Security Alarm System	Prof. V.A. Sawant	
	45	Vedant Sanju Jadhav			
	65	Arbaj Alamgir Tamboli			
17	6	Snehal Popat Dalve	Cell phone based Water pump controller	Prof. M.S. Yadrami	
	7	Suvarna Dhanaraj Dasme			
	23	Bijali Shahaji Patil			
18	29	kishori Santosh sawant	Automatic Irrigation System using Soil Moisture Sensor	Prof. A.A. Tekale	
	12	Sakshi Dhananjay Kale			
	16	Shivani Balaso Maharnavar			
19	33	Aditya Dhanaji Borate	Vertex Bladeless Wind Turbine	Prof. D.D. Daphale	
	56	Vaibhav Popat Munguskar			
	54	Shantanu Yashvant Londhe			
20	63	Akash Dattatray Shinde	Automatic Sanitation	Prof. C .Veeresh	
	51	Tushar Haridas Lade			
	68	Kaivalya Kakasaheb Mane			
21	34	Mahesh Dilip dongre	Underground Fault Detection	Prof. V.A. Sawant	
	47	Akshay Bhagvat Keche			
22	57	Mangesh Haribhau Narkar	Solar Power bank Charger	Prof. C .Veeresh	
	38	Narayan Indrajit Ghadge			
23	4	Chavan Amruta Arun	Transient Elevator Bus System	Prof. V.A. Sawant	
	31	Surve Sakshi Balasaheb			

  
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DEPARTMENT OF ELECTRICAL  
ENGINEERING SVERI's COLLEGE OF  
ENGINEERING, PANDHARPUR

2020-2021



SVERI's COLLEGE OF ENGINEERING, PANDHARPUR.

## CERTIFICATE

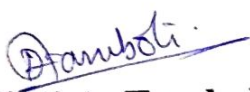
This is to certify that the Mini Project Report entitled

**“Soil Monitoring System using NodeMCU”**

Has been submitted by


- 1) Doshi Shubham Tarkeshwar(Roll No.-35)
- 2) Lamkane Kiran Ekanath(Roll No.-52)
- 3) Patil Shantanu Ranganath(Roll No.-59)

For partial fulfillment of the requirement for third-year Semester II in Electrical Engineering as per curriculum laid by the Solapur University, Solapur during the academic year 2020-2021.

  
(Dr. Dipti A. Tamboli)  
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