

Department of Mechanical Engineering



1.3.2

Project Documents



"Shri Gajanan Maharaj Prasanna"

**P. R. Pote Patil Edu. & Welf. Trust's, Group of Institutions,
College of Engineering & Management, Amravati**

Institute Code : 1107

(Recognized by AICTE, New Delhi, Approved by Govt. of Maharashtra & Affiliated to SGBAU, Amravati)



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Department of Mechanical Engineering

List of Project with Project Title

Class: BE Final Year

Session: 2021-22

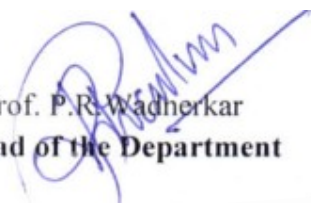
Sr. No.	Name of Student	Project Title	Name of Guide	Name of PRC Member	
				PRC Member 1	PRC Member 2
1	Swaraj Rajendra Dhote Sumit Madanarao Taywade Ayush Sanjiv Madhapure Ankush Vilas Nikalje Prajwal Sanjay Deshmukh Rishikesh Shamkant Deshmukh	Design and analysis of multipurpose relief vehicle	Prof. S. P. Yeole	Prof. A. S. Shaikh	Dr. P. R. Wadnerkar
2	Aniket Sunilrao Uke Shriwesh Raju Bhakare Faizan Ahmad Khan Kalpesh Rajabhau Thakare Swapnil Vilasrao Harne Venugopal Ramdev Joshi	Design, modification and analysis of ic engine cooling fins by cfd	Prof. G. S. Mahalle	Dr. P. R. Wadnerkar	Prof. A. S. Shaikh
3	Yash Dnyaneshwar Gangane Aditya Vijaysing Gothwad Dhara Pramod Gaikwad Manoj Pralhad Kedar Prajwal Shivshankarrao Yeole Om Ashok Dongare	Smart Anti-theft System For Vehicle Security.	Prof. A. S. Shaikh	Prof. G. S. Mahalle	Prof. S. P. Yeole
4	Pranav Pradiprao Takarkhede Rajat Chandrakant Modi Nikhil Gajanan Gawande Aniket Anil Hawa Mitlesh Dinesh Dharpawar Someshwar Ninaji Damare	Electricity Generation by Vertical Axis wind Turbine	Dr. P. R. Wadnerkar	Prof. S. P. Yeole	Prof. G. S. Mahalle
5	Rijwan Rauf Mansuri Sarang Ramuji Khandal Shivnandan Sanjay Surve Sayed Aatif Sohel Shubham Bajrangsingh Tomar Shubham Prabhakar Puri	Design and experimental analysis of bladeless air cooler	Prof. P. B. Ingle	Prof. V. G. Gore	Prof. A. R. Sonekar

6	Mohit Sunil Dhawale Shantanu Vijay Mohod Tanmay Nishikant Joshi Rohan S. Bedarkar Raj Nandu Warudkar Devanshu Narayan Dhewale	Design and fabrication of rocker bogie	Prof. Y. D. Bansod	Prof. A. R. Sonekar	Prof. V. G. Gore
7	Pavan Diliprao Bramhanwade Siddhant Vinodrao Adsod Karan Yogendra Kohale Aayush Ashish Deshmukh Rutvik Vinodrao Bhojane Pratik Sanjay Shrivastava	Cost effective extraction of oil from food waste using physical process	Prof. A. R. Sonekar	Prof. Y. D. Bansod	Prof. P. B. Ingle
8	Sumit Himmat Bamane Dipak Dinkar Umale Shailesh Vilas Nalkande Tushar Gajanan Rekhate Shreyas Sudhirrao Patil Prajwal Vilas Ingole	Stair case trolley for goods transportation	Prof. V. G. Gore	Prof. P. B. Ingle	Prof. Y. D. Bansod
9	Jaykumar Madangopal Sharma Prajwal Vinodrao Kadu Rushikesh Ashokrao Kalbande Lakhan Anil Dahake Rushikesh Dharmendra Bagade Bandu S.Aynar	Microcontroller based automatic bottle filling plant	Prof. P. B. Ingle	Prof. M. G. Walecha	Prof. R. S. Pokale
10	Pratik Hanvantrao Khandekar Ganesh Gopal Kajale Harshal Balwant Shahakar Pooja Chandrashekhar Dhanvijay Ku. Chaitali Vaidya Anil Yash Taradas Chaudhari	Cooling of PV panel using water spray technique	Prof. S. P. Yeole	Prof. R. S. Pokale	Prof. M. G. Walecha
11	Yash Jagan Jadhao Sudarshan Ramrao Rathod Sachin Kundlikrao Zade Mayuresh Dhananjay Kulkarni Kunal Rajesh Gudadhe Akshay Awadhut Ingale	Smart wireless water level controller	Prof. M. G. Walecha	Prof. P. B. Ingle	Prof. S. P. Yeole
12	Gaurav Manoharrao Dharme Nehal Kamalakar Yede Ram Girish Patharkar Rishikesh Potdukhe Shrivesh Vinayakrao Charjan Sushant Bhabutkar	Automatic spraying mechanism	Prof. R. S. Pokale	Prof. S. P. Yeole	Prof. P. B. Ingle

13	Swapnil Nighot Suyash Sanjay Bhonde Harshal Bhaskarrao Chavhan Muzammil Baig Muzaffar Baig Abhijeet Narayanrao Wajire Sameerkha Rajikkha Pathan	Fabrication, analysis & modification on electric pole climbing shoes/slippers	Prof. S. S. Mendhe	Prof. G. S. Mahalle	Prof. P. K. Shivankar
14	Yash Ramdas Raut Yogesh Shankar Junghare Akash Vilasrao Ladukar Prasad Shivdas Mokalkar Prajwal Dnyaneshwar Kalpande Ajay Suresh Kawale	Air cooling system by using convergent nozzle	Prof. S. V. Mishra	Prof. P. K. Shivankar	Prof. G. S. Mahalle
15	Rushikesh Kailas Lanjewar Rushikesh Damodhar Thakare Ketan Himmat Damodar Saurabh D. Sardar Ashish Sham Uphade Anant Indrajit Nitnwar	Solar dryer	Prof. G. S. Mahalle	Prof. S. S. Mendhe	Prof. S. V. Mishra
16	Ashish Shukla Abhishek Udaykumar Mohod Samay Dattatraya Bhagwat Aditya Rajesh Tambat Hrushikesh Shrikant Nikhade Utkarsh Ashok Bhagat	Fabrication of Wifi controlled grass cutting robot	Prof. P. K. Shivankar	Prof. S. V. Mishra	Prof. S. S. Mendhe
17	Ved Vitthalrao Kulat Tushar Bhauraoji Uike Kshitij Jivanrao Umankar Samiksha Sudhakarao Dugane Dushyant Tupkar Gauri Vijay Gawande	Shaft driven bicycle	Dr. P. R. Wadnerkar	Prof. P. K. Shivankar	Prof. A. W. Mahore
18	Pratik Dinkarrao Deshmukh Yash Vilasrao Gudadhe Suraj Dipak Parse Pratik Ajayrao Thorat Manthan Devidas Kamdi Adesh Avinash Jalit	Parametric Optimization Of Alluminium Alloy milling using taguchi method For Surface Roughness.	Dr. S. M. Tondre	Prof. A. W. Mahore	Prof. P. K. Shivankar

19	Kedar Sitaram Nibrad Suraj Sanjay Mahure Pranay Ashokrao Parate Shivam Kale Mayur Sarode Amol Prabhakar Burukle	Composite material hook	Prof. A. W. Mahore	Dr. P. R. Wadnerkar	Dr. S. M. Tondre
20	Ankush Vasudeo Mopari Devesh Babalu Jaiswal Shubham Gajanan Mahakal Sani Surendra Wankhade Rutwik Ruprao Jawale Prayag Pramodrao Patne	Design and fabrication of stair case trolley	Prof. P. K. Shivankar	Dr. S. M. Tondre	Dr. P. R. Wadnerkar
21	Aman Gajananrao Dhansande Anup Sudhirrao Pochchhi Sanket Sanjay Mohare Sanket Santosh Nayak Shubham Vilas Chahakar Vikrant Dinesh Shende	Smart solar shade for agriculture purpose	Dr. S. M. Tondre	Prof. R. S. Pokale	Prof. S. V. Mishra
22	Shoeb Ahmed Ab Sayeed Akshay Shailendra Awale Pranit Sanjayrao Wankhade Purushottam Chandrashekhar Jaiswal Rahul Pravin Metange Sohail Azhar M Arif	Fabrication of Intelligent braking system	Prof. A. S. Shaikh	Prof. S. V. Mishra	Prof. R. S. Pokale
23	Atul Vinod Adhau Roshan Dnyaneshwar Kukade Kushal Vijay Rakh Swapnil Krushnarao Dhage Vedant Dharmendra Nakil Roshan Santoshrao Dhanke	Multi nozzle wheel base spray pump	Prof. S. V. Mishra	Prof. A. S. Shaikh	Dr. S. M. Tondre
24	Abhijit Chafekar Abhishek Arun Linkhankar Gaurav Sanjayrao Umale Digvijay B. Kulkarni Atish Gopal Jadhav Manisha Anantrao Thosar	Arduino controlled smart bike starter	Prof. R. S. Pokale	Dr. S. M. Tondre	Prof. A. S. Shaikh
25	Mihir Bhaskar Wankhade Kunal P Ninghot Dhananjay Vinodrao Ranotkar Prathmesh Satishrao Bhojane Shubham Avadhut Khade Shivam Shivdas Bhande	Automatic car parking system	Prof. A. W. Mahore	Prof. V. G. Gore	Prof. S. S.Mendhe


26	Rohit Gajanan Bijwe Rohit Vikas Bhamburkar Shubham Eknath Bansod Sumit Gulab Dawale Sumit Gajananrao Yeul Vishal Devidas Pethe	Solar tracking system	Prof. A. R. Sonekar	Prof. S. S.Mendhe	Prof. V. G. Gore
27	Prathamesh Surendra Tinkhede Pratik Ashok Aharwar Swapnil Hanumantrao Patil Aniket Rajendra Mohare Aquib Javed Akshay Dhananjay Mankar	Fabrication of wifi controlled grass cutter	Prof. S. S.Mendhe	Prof. Y. D. Bansod	Prof. V. G. Gore
28	Fuzail Khan Nishat Rana Abdul Saleem Sumedh Prakash Chavhan Prasanna Shivcharan Satange Rupesh Vijay Sapkal Dnyanesh Jayant Mohod	Material sorting Using Conveyor Belt	Prof. V. G. Gore	Prof. M. G. Walecha	Prof. Y. D. Bansod
29	Tushar Babulal Kogekar Rupesh Ramdas Padghan Rushikesh Vinodpant Rahate Kabir Pradip Dande Vaibhav Diliprao Wankhade Lata Suradkar Mahesh Rajendra Nikam	Solar powered heat exchanger evaporative air cooler	Prof. Y. D. Bansod	Prof. V. G. Gore	Prof. M. G. Walecha
30	Meghali Lalit Chaudhari Ganesh Shrikrushna Dhumale Dipika Gajanan Tarhale Milind Baban Pandit Pavan Gajanan Kamble Rohan Kamlakar Itankar	Solar based grass cutter	Prof. M. G. Walecha	Prof. Y. D. Bansod	Prof. S. S.Mendhe


Prof. P. R. Wadherkar
Head of the Department

Copy to:

- Dean (R&D) for kind information.
- Project Guide- requested to inform their candidates.




Principal
P. R. Patil (Prin)
College of Engineering & Management
Amravati

Project Report
On

Smart Solar Shed For Agricultural Purpose

Submitted For the Bachelor of Engineering
In
Mechanical Engineering

Submitted by

**Aman Gajananrao Dhansande
Anup Sudhirrao Pochchhi
Sanket Sanjay Mohare
Sanket Santosh Nayak
Shubham Vilas Chahakar
Vikrant Dinesh Shende**

Under the Guidance of
Dr.S.M. Tondre



DEPARTMENT OF MECHANICAL ENGINEERING

**P. R. Pote (Patil) Education & Welfare Trust's Group of Institutions College of
Engineering & Management, Amravati.**

**SANT GADGE BABA AMRAVATI UNIVERSITY AMRAVATI
2021-2022**

P. R. Pote (Patil) Education & Welfare Trust's Group of Institutions College Of
Engineering & Management, Amravati.

Department Of Mechanical Engineering



CERTIFICATE


This Is Certify That the Report Entitled “**Smart Solar Shed For Agricultural Purpose**” Is Confided Work and It Is Submitted to Sant Gadge Baba Amravati University, Amravati.


Submitted By

**Aman Gajananrao Dhansande
Anup Sudhirrao Pochchhi
Sanket Sanjay Mohare
Sanket Santosh Nayak
Shubham Vilas Chahakar
Vikrant Dinesh Shende**

In Partial Fulfilment of The Requirement for The Award of Degree of Bachelor of Engineering in Mechanical Engineering During the Academic Year Of 2021-2022 Under the Guidance of Dr.S.M. Tondre.


Dr. S.M. Tondre
(Guide)


Dr. P. R. Wadnerkar
(HOD)


Dr. D. T. Ingole
(Principal)

ABSTRACT

An environmental protective power generating system is the need of the generation these projects relate to an innovative for generating electrical power utilizing the solar panels. we developed prototype of smart solar tracking panel system. This system consists of DC motor to control the operation of panel system the panel are sensitive to heavy wind, water. If there is rain or wind, the panel will automatically close itself. During night it will also remain in close state. The panel system automatically tracks the sun throughout day and it will also automatically open when sun rays fall on the system. This smart solar tracking panel system consists of Node mcu32s controller, LDR (Light dependent resistor), DC motors, L298 motor controller or driver, 7805 voltage regulators.

The solar energy is converted into to the mechanical energy by absorbing the solar radiation from the sunlight. In this paper, we have introduced a solar photo voltaic cell for collecting the sun rays through the solar array and transforming this sun rays in to electricity. In this system, the supply electricity is supplied through the sun rays and it is used for the purpose of irrigation in the rural areas where the electricity scare is expected. In this solar kit, we have introduced an automatic solar tracker which stimulates and increases the efficiency of the solar panel by tracking the solar panel which moves according to the direction of movement of sun rays. A solar photovoltaic (PV) cell is an electrical device that converts the energy of light directly to electricity by the photovoltaic effect. A photoelectric cell is defined as a device whose electrical characteristics like current, voltage, resistance, vary when exposed to light. Solar cells are the component for any photovoltaic module's panels. Solar cells are used as a photo detector for detecting light near the visible range, or measuring light intensity.

Key Words: Solar panels, Moisture Sensor, Wind sensor, Light Dependent Resistor Sensor, Battery, Pump, etc.




Principal
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College of Engineering & Management
Amravati

**“COST EFFECTIVE EXTRACTION OF OIL FROM
FOODWASTE USING PHYSICAL PROCESS”**

Submitted for the degree of Bachelor of Engineering in
MECHANICAL ENGINEERING

Submitted by

Rutvik Bhojane

Siddhant Adsod

Pavan Bramhanwade

Ayush Deshmukh

Pratik Shrivastava

Karan Kohale

Under the Guidance of

Prof. A. R. Sonekar



DEPARTMENT OF MECHANICAL ENGINEERING

**P. R. Pote (Patil) Education & Welfare Trust's Group of Institutions
College of Engineering & Management, Amravati.**

2021-2022

Abstract

Food waste (FW) is a biodegradable waste discharged from various sources including food processing industries, households, and hospitality sector. According to FAO, nearly 1.3 billion tonnes of food including fresh vegetables, fruits, meat, bakery, and dairy products are lost along the food supply chain. Food waste is one of the main components of municipal solid waste which comprises the oil, grease etc. The probable impacts of introducing food waste to sewer lines are increased in sewer clogging, odor problems and overflow. Oil deposition is main reason of pipe clogging. Oil can solidify and reduce the pipe diameter which further causes clogging. FOG blockage is a worldwide concern. Also, the oil content in food waste affects the biogas production, performance and balance of biogas plant. Hence, a need was felt to carry out an experiment for the extraction of oil from food waste. There are other techniques available in market but with some limitation and economical constraints. Thus, this experiment aim to provide physical and economical process of oil extraction from food waste. We carried out number of trials on food waste generated by hostel mess. We estimated various parameter like settling time, requirement of water content and effective oil extraction. We performed this trials with 1 kg food waste sample. An approach of this experiment is to provide a prototype for economical oil extraction through physical means. We used screening vessel for removal of larger food particles. Settling principle is used for settlement of fine particles. An optimum water content is used to form a distinct oil layer. A capacitive sensor technology was used to detect oil layer. Hence, this physical and economical oil extraction help to reduce blockage problem in sewer line also the problems related to biogas plant. This removed oil is also used as an energy source. It is use in biodiesel formation, soap industries etc.

Keywords: Food waste, economical, physical, oil extraction.

A PROJECT REPORT
ON
**"SMART SOLAR WIRELESS WATER TANK
LEVEL CONTROLLER"**

A project report is Submitted in partial fulfillment of the requirement
for BE of

DEPT. OF MECHANICAL ENGINEERING

Submitted by

Mr. Akshay .A. Ingale

Mr. Kunal .R. Gudadhe

Mr. Sachin .K. Zade

Mr. Mayuresh. D. Kulkarni

Mr. Yash. J. Jadhao

Mr. Sudarshan. R. Rathod

Guided By

Prof. M. G. Walecha



**Department of Mechanical Engineering
P.R.Pote (Patil) Education & Welfare Trust's Group of
Institution College of Engineering And Management**

Amravati. 444605

2021-2022

Certificate



This is certify that seminar report entitled,

**"SMART SOLAR WIRELESS WATER TANK
LEVEL CONTROLLER"**

Has Successfully Completed By

Mr. Akshay .A. Ingale

Mr. Kunal . R. Gudadhe

Mr. Sachin. K. Zade

Mr. Mayuresh. D. Kulkarni

Mr. Yash J. Jadhao

Mr. Sudarshan. R. Rathod

In the partial fulfillment for the award of the BE in

Mechanical Engineering

Sant Gadge Baba Amravati University,

During the Academic year 2021-2022

Under the guidance


Prof. M. G. Walecha


Dr. D.T. Ingole


Dr. P.R. Wadnerkar

(Guide)

(Principal)

(HOD)

Abstract

The drinking water crisis in India is reaching alarming proportions. It might very soon attain the nature of global crisis. Hence, it is of utmost importance to preserve water. In many houses the unnecessary wastage of water due to over flow in Over head Tanks.

Smart solar wireless water tank level controller can provide a solution to this problem. The operation of Smart solar wireless water tank level controller works upon the fact that water conducts electricity. So water can be used to open or closed a circuit. As the water level rises or falls, different circuits in the controller send different signals. These signals are used to switch ON or switch OFF the motor pump as per our requirements. So, the main objective of this paper is to design and develop an Smart solar wireless water tank level controller to maintain the outlet process of the water level at its desired level. The paper also focuses on the need of the people to install Smart solar wireless water tank level controller to avoid wastage of water.

“COOLING OF PHOTOVOLTAIC PANEL WITH WATER SPRAY TECHNIQUE”

Submitted for the Degree of Bachelor of Engineering In

MECHANICAL ENGINEERING

Submitted By

Ms. Pooja C. Dhanvijay

Mr. Ganesh G. Kajale

Mr. Pratik H. Khandekar

Mr. Harshal B. Sahakar

Ms. Chaitali A. Vaidya

Mr. Yash T. Chaudhari

Under the Guidance of

S. P. Yeole



Department of Mechanical Engineering

P. R. Pote (Patil) College of Engineering And Management, Amravati

Sant Gadge Baba Amravati University, Amravati

2021-22

P. R. Pote (Patil) College of Engineering And Management, Amravati

DEPARTMENT OF MECHANICAL ENGINEERING



CERTIFICATE

This is to certify that the project report entitled “**Cooling of photovoltaic panel with water spray technique**” is confided work and it is submitted to Sant Gadge Baba University, Amravati.

Submitted by

Ms. Pooja C. Dhanvijay

Mr. Ganesh G. kajale


Mr. Pratik H. Khandekar

Mr. Harshal B. Sahakar


Ms. Chaitali A. Vaidya

Mr. Yash T. Chaudhari

In partial fulfillment of the requirement for the award of degree of bachelor of engineering in mechanical engineering during the academic year of 2021-22 under the guidance of **S. P. Yeole**


S. P. Yeole
(Guide)


Examiner


Dr. P. R. Wadnerkar
(HOD)

ABSTRACT

The main aim of this report is to show that the use of water spray technique for the cooling of Photo-voltaic Panel to improve its performance parameters. There are many other cooling methods for cooling of Photo-voltaic Panel which were describe in short.

Initially the brief description of the working principle of photo-voltaic panel and detailed description of the performance parameter for the Photo-voltaic panel is given. The increase in temperature of Photo-voltaic panel due to accumulation of heat affects the performance parameters of it negatively. It also focuses on the why adaption of water spray technique cooling method over the other conventional cooling methods is effective.

The effective design of the cooling system for Photo-voltaic panel was made and the procedure to carry out the experiment is describe. Experiment was carried out to check the performance of Photo-voltaic panel. The data was collected and is mentioned accordingly, analysis of experimental data and the calculations were done to show the improvement in performance parameter. Improvement in the efficiency by using water spray technique cooling system is found to be 2.14%. At last the results are shown in accordance with performance of Photovoltaic panel and discussions is made. It can be concluded that cooling of Photovoltaic panel using water spray technique can be one of the effective methods to improve its performance




Principal
P. R. Pote (P) (P) (P)
College of Engineering & Management
Amravati

A
PROJECT REPORT
ON
“ELECTRICITY GENERATION BY VERTICAL AXIS TURBINE”

Submitted for the fulfillment for the degree of engineering

(MECHANICAL ENGINEERING)

Submitted by

Mr. Rajat Chandrakant Modi

Mr. Nikhil Gajanan Gawande

Mr. Someshwar Ninaji Damare

Mr. Pranav Pradip Takarkhede

Mr. Aniket Anil Hawa

Mr. Mitlesh Dinesh Dharpawar

Under the Guidance of

Dr. P. R. Wadnerkar



DEPARTMENT OF MECHANICAL ENGINEERING

P.R. Pote (Patil) College of Engineering & Management, Amravati.

Sant Gadge Baba Amravati University, Amravati.

2021-22

P.R. Pote (Patil) College of Engineering & Management, Amravati.

DEPARTMENT OF MECHANICAL ENGINEERING



CERTIFICATE

This is to certify that project entitled “**Electricity Generation by Vertical Axis Turbine**” is confided work and it is submitted to Sant Gadge Baba Amravati University, Amravati.

Submitted By

Mr. Rajat Chandrakant Modi

Mr. Nikhil Gajanan Gawande

Mr. Someshwar Ninaji Damare

Mr. Pranav Pradip Takarkhede

Mr. Aniket Anil Hawa

Mr. Mitlesh Dinesh Dharpawar

In the fulfilment of the degree of engineering in mechanical engineering during the academic year of 2021-22 under the guidance of


Dr. P. R. Wadnerkar


(Guide)


Dr. P. R. Wadnerkar

(H.O.D)


External




Principal
P. R. Pote (Patil)
College of Engineering & Management
Amravati

ABSTRACT

The project focuses on Design, Fabrication and Testing of a VAWT (vertical Axis Wind Turbine) with Wind deflectors. The project is an ongoing research project and the phase we carried out was concerned in shifting the design from Darrieus type to Savonius type, which created the necessity of freshly designing all the parts, increasing the torque and rpm of the VAWT by implementing a deflector/guide vane system, make the whole structure portable meanwhile maintaining the project within a very low cost range. The said objectives can be achieved by manipulating the knowledge of Design of Machine element, fluid dynamics, Energy Technology and CFD analyzing.

A major concern was fashioning the design to enable the VAWT to operate with a maximum efficiency. Several parameters were analyzed with respect to wind speed to determine the best value for each parameter which would give the highest efficiency, thus ensuring the maximum ultimate performance of the VAWT. The parameters that were considered for analyzing are the number of blades the rotor should have, positioning of the blade (i.e. the distance from the shaft to blade and the angle the blade creates with the shaft), the shape of the deflector, and the angle of the deflector so as to generate the highest efficiency. Above parameters were analyzed using ANSYS/Fluent software package and the ultimate design was produced in accordance with the obtained results. The final design came out with four rotor blades, one rudder and two wind deflectors. Four rotor blades proved to be the optimum design for typical wind speeds available island wide. The rudder would adjust the whole wind vane unit so that the deflectors would face the wind. The two deflectors would capture more wind, converge and direct the wind into the rotor. Results of every analysis are appended in this report.

The final design was virtually created in 1:1 scale in SolidWorks environment and tested for its strength and durability.

DESIGN, MODIFICATION AND ANALYSIS OF IC ENGINE COOLING FINS BY CFD

A PROJECT REPORT

Submitted for the fulfillment for the degree of engineering

(MECHANICAL ENGINEERING)

Submitted by

Mr. Aniket S. Uke

Mr. Shriwesh R. Bhakare

Mr. Faizan Ahmad Khan

Mr. Venugopal R. Joshi

Mr. Kalpesh R. Thakare

Mr. Swapnil V. Harne

Under the

Guidance of

Prof. G. S. MAHALLE



DEPARTMENT OF MECHANICAL ENGINEERING

P.R. Pote (Patil) College of Engineering & Management, Amravati.

SANT GADGE BABA AMRAVATI UNIVERSITY, AMRAVATI

2021-22

P. R. Pote (Patil) Education & Welfare Trust's Group of Institutions

College of Engineering and Management.

DEPARTMENT OF MECHANICAL ENGINEERING



CERTIFICATE

This is to certify that project report entitled, "DESIGN, MODIFICATION AND ANALYSIS OF IC ENGINE COOLING FINS BY CFD" is confided work and it is submitted to Sant Gadge Baba Amravati University, Amravati.

Submitted By

Mr. Aniket S. Uke

Mr. Venugopal R. Joshi

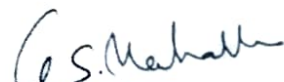
Mr. Shriwesh R. Bhakare

Mr. Kalpesh R. Thakare

Mr. Faizan Ahmad Khan

Mr. Swapnil V. Harne

In the partial fulfillment for the award of the Bachelor of Engineering in Mechanical Engineering Sant Gadge Baba Amravati University During the academic year 2021-22 under the guidance of


Prof. G. S. Mahalle


(Guide)


EXAMINER

Dr. Parag Wadnerker

(HOD)




Principal
P. R. Pote (Patil)
College of Engineering & Management
Amravati

ABSTRACT

Today our world runs in this condition only because of invention of internal combustion engine. In internal combustion engine chemical energy of fuel is converted to thermal energy to give a mechanical work output. There is large amount of heat liberated during the combustion of fuel, In which only few amount of energy is converted in to useful work (60 to 80%) and the remaining heat energy is wasted. This heat is first conducted to engine cylinder and convected to air through surface called fins. In an air cooled engine low rate of heat transfer is the main problem. Excess temperature developed in the engine causes thermal stresses on the engine parts and piston sizing. In order to avoid this effect, the heat should be sufficiently removed, for this issue in this paper we discussing the heat transfer of different fin geometry under different forced convection conditions. The efficiency of heat transfer can increase by increasing the heat transfer coefficient. Motorcycle engine releases heat to the atmosphere through the mode of force convection. To solve this, fins are provided on the outer of the cylinder. The heat transfer rate is defined depending on the velocity of vehicle, fin geometry and the ambient temperature. Many experimental methods are available in literature to analyse the effect of these factors on the heat transfer rate. However, different fin geometries are modelled in CATIA V5 software and CFD analysis will be used to simulate the heat transfer of the engine block. The result from the software is compared with the existing geometries. The material used for the manufacturing of fin is aluminium alloy

A Project Report on
“FABRICATION OF INTELIGENT BRAKING SYSTEM”

Submitted for the degree of Bachelor of Engineering in
MECHANICAL ENGINEERING

Submitted by

Mr. Akshay .Awale	Mr. Purushottam Jaiswal
Mr. Pranit Wankhade	Mr. Shoeb Ahmed
Mr. Sohail Azhar	Mr. Rahul Metange

Under the Guidance of
Prof. A.S. Shaikh



DEPARTMENT OF MECHANICAL ENGINEERING
P. R. Pote (Patil) Education & Welfare Trust's Group of Institutions
Institute of Engineering & Research , Amravati.

2021-22

P. R. Pote (Patil) Education & Welfare Trust's Group of Institutions
Institute of Engineering & Research, Amravati.
DEPARTMENT OF MECHANICAL ENGINEERING




CERTIFICATE


This is to certify that the project review seminar report entitled
“FABRICATION OF INTELIGENT BRAKING SYSTEM”
is confided work and it is submitted to Sant Gadge Baba Amravati University,
Amravati

Submitted by

Mr. Akshay Awale	Mr. Purushottam Jaiswal
Mr. Pranit Wankhade	Mr. Shoeb Ahmed
Mr. Sohail Azhar	Mr. Rahul Metange

In partial fulfillment of the requirements for the award of degree of
Bachelor of engineering in Mechanical Engineering during the academic
year of 2021-22 under the guidance of Prof. A.S. Shaikh


Prof. A.S. Shaikh
[Guide]


Dr. P.R. Wadnerkar
[HoD]

ABSTRACT


The braking system was designed and applied on a car to make the driving process safe using embedded system design. Most of the accidents occur due to the delay of the driver to hit the brake, so in this project work braking system is developed such that when it is active it can apply brakes depending upon the object sensed by the ultrasonic sensor and speed of vehicle. Currently, vehicles are often equipped with active safety systems to reduce the risk of accidents, many of which occur in urban environments.

The most popular include Anti Lock Braking Systems (ABS), Traction Control and Stability Control. All these systems employ different types of sensors to constantly monitor the conditions of the vehicle, and respond in an emergency situation. An intelligent mechatronic system includes an ultrasonic wave emitter provided on the front portion of a car producing and emitting ultrasonic waves frontward in a predetermined distance.

An ultrasonic receiver is also placed on the front portion of the car operatively receiving a reflective ultrasonic wave signal. The reflected wave (detected pulse) gives the distance between the obstacle and the vehicle and the RPM counter gives the speed of the vehicle. The microcontroller is used to control the braking of the vehicle based on the detection pulse information to push the brake pedal and apply brakes to the car stupendously for safety purposes.

Keywords :- Ultrasonic sensor, Arduino nano, Emitter, Microcontroller.




Principal
P. R. Pote (Patil)
College of Engineering & Management
Amravati

Air Cooling System by using Convergent Nozzles

Submitted for the Degree of Bachelor of Engineering in

MECHANICAL ENGINEERING

Submitted by

- 1) Prasad S. Mokalkar
- 2) Yogesh S. Junghare
- 3) Prajwal D. Kalpande
- 4) Akash V.Ladukar
- 5) Ajay S. Kawale
- 6) Yash R. Raut

Under the Guidance of

Prof. S.V.MISHRA



DEPARTMENT OF MECHANICAL ENGINEERING
P.R. Pote (Patil) Education and Welfare Trust's Group of Institutions
College of Engineering & Management, Amravati.
2021-22

Air Cooling System by using Convergent Nozzles

**P.R. Pote (Patil) Education and Welfare Trust's Group of
Institutions College of Engineering & Management, Amravati.
DEPARTMENT OF MECHANICAL ENGINEERING**



CERTIFICATE

This is to certify that project report entitled “**Air Cooling System by using Convergent Nozzles**” is confided work and it is submitted to Sant Gadge Baba Amravati University, Amravati.

Submitted By

- | | |
|------------------------|-----------------------|
| 1) Prasad S. Mokalkar | 2) Yogesh S. Junghare |
| 3) Prajwal D. Kalpande | 4) Akash V. Ladukar |
| 5) Ajay S. Kawale | 6) Yash R. Raut |

In partial fulfillment of the requirements for the award of degree of Bachelor of engineering in Mechanical Engineering during the academic year of 2021-22 under the guidance of


Prof. S. V. MISHRA

(Guide)


Dr. P. R. WADNERKAR

(H.O.D)


Examiner

Air Cooling System by using Convergent Nozzles

ABSTRACT

In India lots of peoples using AC & Evaporating Cooling System in Summer. These are highly cost effective & using lots of Energy which not only affects the environment but also increases our electricity bill. The climate of India consists of a wide range of weather conditions across a vast geographic scale and varied topography, making generalizations difficult. Also, based on the Köppen system, India hosts six major climatic sub types, ranging from arid deserts in the west, alpine tundra and glaciers in the north, and humid tropical regions supporting rain forests in the southwest and the island territories. Many regions have starkly different microclimates, making it one of the most climatically diverse countries in the world. India's geography and geology are climatically pivotal: the Thar Desert in the northwest and the Himalayas in the north work in tandem to create a culturally and economically important monsoonal regime. As Earth's highest and most massive mountain range, the Himalayas bar the influx of frigid katabatic winds from the icy Tibetan Plateau and northerly Central Asia. Most of North India is thus kept warm or is only mildly chilly or cold during winter; the same thermal dam keeps most regions in India hot in summer.

Climate in South India is generally hotter and more humid due to its coasts. India's geography and geology are climatically pivotal: the Thar Desert in the northwest and the Himalayas in the north work in tandem to create a culturally and economically important monsoonal regime. As Earth's highest and most massive mountain range, the Himalayas bar the influx of frigid katabatic winds from the icy Tibetan Plateau and northerly Central Asia. Most of North India is thus kept warm or is only mildly chilly or cold during winter; the same thermal dam keeps most regions in India hot in summer. Climate in South India is generally hotter and more humid due to its coasts.

Though the Tropic of Cancer—the boundary that is between the tropics and subtropics—passes through the middle of India, the bulk of the country can be regarded as climatically tropical. As in much of the tropics, monsoonal and other weather patterns in India can be strongly variable: epochal droughts, heat waves, floods, cyclones, and other natural disasters are sporadic, but have displaced or ended millions of human lives. Such climatic events are likely to change in frequency and severity as a consequence of human-induced climate change.




Principal
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College of Engineering & Management
Amravati

A PROJECT REPORT ON,
"FABRICATION OF Wi-Fi Controlled Grass Cutting Robot"

Submitted for the fulfillment for the degree of engineering
(MECHANICAL ENGINEERING)

Submitted by-

MR. UTKARSH A. BHAGAT
MR. ADITYA R. TAMBAT
MR. HRUSHIKESH S. NIKHADE

MR. ABHISHEK U. MOHOD
MR. ASHISH L. SHUKLA
MR. SAMAY D. BHAGWAT

Under the guidance of-
PROF. P. K. SHIVANKAR
PROF. S. S. MENDHE



DEPARTMENT OF MECHANICAL ENGINEERING

**P.R. Pote (Patil) College of Engineering &
Management, Amravati.**

Sant Gadge Baba Amravati University, Amravati.

2021-22

P.R. Pote (Patil) College of Engineering & Management, Amravati.

DEPARTMENT OF MECHANICAL ENGINEERING



CERTIFICATE

This is to certify that seminar entitled "Fabrication of Wi-Fi Controlled Grass Cutting Robot" is completed work and it is submitted to Sant Gadge Baba Amravati University, Amravati.

Submitted By -

MR. UTKARSH A. BHAGAT

MR. ABHISHEK U. MOHOD

MR. ADITYA R. TAMBAT

MR. ASHISH L. SHUKLA

MR. HRUSHIKESH S. NIKHADE

MR. SAMAY D. BHAGWAT

In the fulfillment of the degree of engineering in mechanical engineering during the academic year of 2021-22 under the guidance of


PROF. S. S. MENDHE

(GUIDE)



DR. D. T. INGOLE.

(PRINCIPAL)


DR. P. R. WADNERKAR.

(HOD)

ABSTRACT

In today's world **ROBOTICS** is a fast growing and interesting field. This project is an autonomous grass cutter that will allow the user to the ability to cut their grass with minimal effort. Unlike other robotic grass cutter on the market, this design requires no perimeter wires to maintain the robot within the grass. In this project we have designed remote control grass cutter that eliminated the need of physical power. Throughout this paper you will learn more on how we were going to complete this project and what various parts were used that replaced the physical power needed in moving the grass cutter. Documentation includes all major design aspects. This project will continue in hopes to market the design.

Air Cooling System by using Convergent Nozzles

Submitted for the Degree of Bachelor of Engineering in

MECHANICAL ENGINEERING

Submitted by

- 1) Prasad S. Mokalkar
- 2) Yogesh S. Junghare
- 3) Prajwal D. Kalpande
- 4) Akash V.Ladukar
- 5) Ajay S. Kawale
- 6) Yash R. Raut

Under the Guidance of

Prof. S.V.MISHRA



DEPARTMENT OF MECHANICAL ENGINEERING
P.R. Pote (Patil) Education and Welfare Trust's Group of Institutions
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2021-22

Air Cooling System by using Convergent Nozzles

**P.R. Pote (Patil) Education and Welfare Trust's Group of
Institutions College of Engineering & Management, Amravati.
DEPARTMENT OF MECHANICAL ENGINEERING**



CERTIFICATE

This is to certify that project report entitled "**Air Cooling System by using Convergent Nozzles**" is confided work and it is submitted to Sant Gadge Baba Amravati University, Amravati.

Submitted By

- | | |
|------------------------|-----------------------|
| 1) Prasad S. Mokalkar | 2) Yogesh S. Junghare |
| 3) Prajwal D. Kalpande | 4) Akash V. Ladukar |
| 5) Ajay S. Kawale | 6) Yash R. Raut |

In partial fulfillment of the requirements for the award of degree of Bachelor of engineering in Mechanical Engineering during the academic year of 2021-22 under the guidance of


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(Guide)


Dr. P. R. WADNERKAR

(H.O.D)


Examiner




Principal
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College of Engineering & Management
Amravati

**"FABRICATION, ANALYSIS & MODIFICATION ON ELECTRIC POLE
CLIMBING SHOES/SLIPPERS"**

Submitted for the degree of Bachelor of Engineering in
MECHANICAL ENGINEERING

Submitted by

- | | |
|----------------------|------------------------|
| 1. Swapnil S. Nighot | 2. Abhijeet N. Wajire |
| 3. Suyash S. Bhonde | 4. Harshal B.Chavhan |
| 5. Muzammil M. Baig | 6. Sameerkha R. Pathan |

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DEPARTMENT OF MECHANICAL ENGINEERING

**P. R. Pote(Patil) Education & Welfare Trust's Group Of Institutions College
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2021-2022

P. R. Pote (Patil) Education & Welfare Trust's Group of Institution College of
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DEPARTMENT OF MECHANICAL ENGINEERING



CERTIFICATE


This is to certify that project report entitled "**Manufacturing, Analysis and Modification On Electric Pole Climbing Shoes/Slippers**" is confided work and it is submitted to Sant Gadge Baba Amravati University, Amravati.

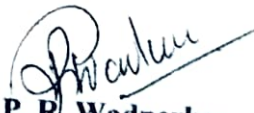
Submitted By

1. Swapnil Nighot
2. Abhijeet Wajire
3. Suyash Bhonde
4. Harshal Chavhan
5. Muzammil Baig
6. Sameerkha Pathan

In partial fulfilment of the requirement for the award of degree of Bachelor of engineering in Mechanical Engineering during the academic year of 2021-22 under the guidance of


Prof. S. S. Mendhe


Prof. S. S. Mendhe
(Guide)


Dr. P. R. Wadnerkar
(HoD)


Examiner




Principal
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ABSTRACT

Temporary surveillance with an easily deploy-able surveillance unit can give a tactical advantage for police in situations when big crowds suddenly gather. It can also be used by fire department during fires or in the private security sector on construction sites and other such temporary areas requiring surveillance. This report describes the process of developing the climbing system for such a surveillance unit. Firstly a pre-study is made to determine what is required of the climbing system. Poles are studied online and by walking around in different cities. Also researched in the pre-study is possible competition.

Following the pre-study is research on possible customer needs. Concept generation follows where concepts compete against each other in concept screening and concept scoring based on the initial research. The final winner is developed to a working prototype. The prototype uses belts to tighten itself to a pole in two different places. By holding the pole with one belt the other belt can be lifted which allows the robot to climb. The final prototype works but needs improvements before it is market ready.

The final aim of the project is to manufacture a pole climbing unit that is easy to install and use. For a successful project, research has to be made on challenges for such a product. Therefore a number of aims for the project include: - Investigate functions needed. - Investigate different types of poles to solve the problem for. - Investigate possible solutions for a pole climbing unit.

A PROJECT REPORT ON

**“Parametric Optimization Of Aluminium Alloy
Milling Using Taguchi Method For Surface
Roughness”**

Submitted for the degree of Bachelor of Engineering in
MECHANICAL ENGINEERING

Submitted by

Pratik D. Deshmukh
Yash V. Gudadhe
Suraj D. Parse

Adesh A. Jalit
Manthan D. Kamdi
Pratik A. Thorat

Under the Guidance of

Dr. S. M. Tondre



DEPARTMENT OF MECHANICAL ENGINEERING
P. R. Pote (Patil) Education & Welfare Trust's Group of
Institutions College of Engineering & Management, Amravati

2021-2022

**P. R. Pote (Patil) Education & Welfare Trust's Group of
Institution College of Engineering & Management, Amravati.
DEPARTMENT OF MECHANICAL ENGINEERING**



CERTIFICATE


This is to certify that project report entitled **“Parametric Optimization Of Aluminium Alloy Milling Using Taguchi Method For Surface Roughness”** is confided work and it is submitted to Sant Gadge Baba Amravati University, Amravati.

Submitted By


**Pratik D. Deshmukh
Yash V. Gudadhe
Suraj D. Parse**

**Adesh A. Jalit
Manthan D. Kamdi
Pratik A. Thorat**

In partial fulfillment of the requirements for the award of degree of Bachelor of engineering in Mechanical Engineering during the academic year of 2021-22 under the guidance of Dr. S. M. Tondre.


Dr. S. M. Tondre
(Guide)


Dr. P. R. Wadherkar
(HoD)


Dr. D. T. Ingole
(Principal)

ABSTRACT

Manufacturing technology has been a driving force behind modern economies since the Industrial Revolution. Although manufacturing techniques have become more sophisticated in the improvement of industrial products and processes. The Quality is designed, not manufactured in to the product. The key element for achieving high quality and low cost is parameter design. Through parameter design, levels of process factors are determined, product's functional characteristics are optimized and the effect of noise is minimized.

The objective of the present work is to apply Taguchi method to investigate the effects of milling parameters such as cutting speed, depth of cut and feed rate on surface roughness. The present work carrying on vertical milling machine

A
Project Review Seminar Report
on
"SOLAR DRYER"

Submitted for the degree of Bachelor of Engineering in
MECHANICAL ENGINEERING

Submitted by

Mr. Saurabh D. Sardar

Mr. Rushikesh K. Lanjewar

Mr. Ketan H. Damodar

Mr. Ashish S. Uphade

Mr. Rushikesh D. Thakare

Mr. Aanat I. Nitnwar

Under the Guidance of

Prof. G.S.Mahalle



DEPARTMENT OF MECHANICAL ENGINEERING
P. R. Pote (Patil) Education & Welfare Trust's Group of Institutions
College of Engineering & Management, Amravati.

2021-22

**P. R. Pote (Patil) Education & Welfare Trust's Group of Institutions College
of Engineering & Management, Amravati.**

DEPARTMENT OF MECHANICAL ENGINEERING



CERTIFICATE

This is to certify that the project review seminar report entitled "Solar
Dryer" is confided work and it is submitted to Sant Gadge Baba Amravati
University, Amravati.

Submitted By

Mr. Saurabh D. Sardar

Mr. Rushikesh K. Lanjewar

Mr. Ketan H. Damodar

Mr. Ashish S. Uphade

Mr. Rushikesh D. Thakre

Mr. Anant I. Nitnwar

In partial fulfillment of the requirements for the award of degree of Bachelor
of engineering in Mechanical Engineering during the academic year of 2021-22
under the guidance of Prof. G. S. Mahalle



Prof. G. S. Mahalle

(GUIDE)


Dr. P. R. Wadnerkar

(HOD)




Principal
P. R. Pote (Patil)
College of Engineering & Management
Amravati

ABSTRACT

Drying is used in the rural parts of the country without much technical knowhow. The necessity for research work in this field was felt because of the limitations such as slow drying rate, long drying time, contamination of product, degradation in the quality. The challenge is to develop a dryer utilizing the abundant solar radiation, provided the efficiency of the dryer is not compromised. Also it should have better temperature regulation and extended operational hours. With this intent, we are proposing an comparative study of the performance of Tray Dryer with and without Latent Heat Storage by drying Black Pepper. The prime motivation behind using the dryer with latent heat storage is its huge potentiality to store energy and to regulate the temperature. The excess energy during the peak daylight is absorbed and stored. Thus, by regulating the temperature, the product quality can be controlled. This work includes fabrication of two tray dryers.

A

Project Report

On

“Rocker Bogie”

A project report submitted in fulfillment for the requirement of

**BACHLOR OF ENGINEERING
(MECHANICAL ENGINEERING)**

Submitted By

Mr. Raj N. Warudkar

Mr. Devanshu N. Dhawale

Mr. Tanmay Joshi

Mr. Rohan S. Bedarkar

Mr. Shantanu V. Mohod

Mr. Mohit S. Dhawale

Guided By

Prof. Y. D. Bansod



Department of Mechanical Engineering

P. R. Pote (Patil) College of Engineering & Management, Amravati

Sant Gadge Baba Amravati University, Amravati

Academic Year (2021-22)

P. R. Pote (Patil) College of Engineering & Management, Amravati
Department of Mechanical Engineering

CERTIFICATE

This is to certify that project titled
“Rocker Bogie”
is submitted in the fulfillment of the degree in
BACHELOR OF ENGINEERING
(MECHANICAL ENGINEERING)

Submitted By

Mr. Raj N. Warudkar

Mr. Devanshu N. Dhawale


Mr. Tanmay Joshi


Mr. Rohan S. Bedarkar

Mr. Shantanu V. Mohod

Mr. Mohit S. Dhawale


Prof. Y. D. Bansod
(Guide)


Dr. P.R. Wadnerkar
(H.O.D)


Dr. D. T. Ingole
(Principal)

Department of Mechanical Engineering
P. R. Pote (Patil) College of Engineering & Management, Amravati

ABSTRACT

The Rocker-Bogie Mobility System was design to be used at slow speeds. It is capable of overcoming obstacles that are on the order of the size of the wheels. However, when surmounting a sizable obstacle, the vehicle motion effectively stops while the front wheel climbs the obstacle. When operating at slow speed, dynamic shocks are minimized when this happens. For many future planetary missions, rovers will have to operate at human level of speeds. Shocks resulting from the impact of the front wheel against an obstacle could damage the payload or the vehicle. This paper describes a method of driving a Rocker-Bogie vehicle so that it can effectively step over most obstacle rather than impacting over them. Most of the benefits of this method can be achieved without any modification to existing design only a change in control strategy. Some mechanical modification changes are suggested to gather the maximum benefits and to greatly increase the effective operational speed of future rovers.

One of the major shortcomings of current planetary rover is that they are slow. In order to be able to overcome significantly rough terrain (i.e., obstacles more than a few percent of wheel radius) without significant risk of flipping the vehicle or damaging the suspension over the obstacles by having wheels list each piece of the favoured design, the Rocker-Bogie, uses a two wheeled rocker arm on a passive pivot attached to a main Bogie that is connected differentially to the main bogie in the other side.

**“DESIGN & EXPERIMENTAL ANALYSIS OF
BLADELESS AIR COOLER”**

Submitted for the degree of Bachelor of Engineering in

MECHANICAL ENGINEERING

Submitted by

Shubham B. Tomar

Syed Aatif Sohel

Sarang R. Khandal

Shubham P. Puri

Rijwan Rauf Mansuri

Shivnandan S. Surve

Under the Guidance of

Prof. P. B. Ingle



DEPARTMENT OF MECHANICAL ENGINEERING

P.R. Pote (Patil) Education & Welfare Trust's Group of Institutions

College of Engineering & Management, Amravati.

2021-2022

P.R. Pote (Patil) Education & Welfare Trust's Group of Institutions
College of Engineering & Management, Amravati.

DEPARTMENT OF MECHANICAL ENGINEERING



CERTIFICATE

This is to certify that seminar entitled “**Design & Experimental Analysis of Bladeless Air Cooler**” is confided work and it is submitted to Sant Gadge Baba Amravati University, Amravati.

Submitted by

Shubham B. Tomar

Syed Aatif Sohel

Sarang R. Khandal

Shubham P. Puri

Rijwan Rauf Mansuri

Shivnandan S. Surve

In partial fulfillment of the requirements for the award of degree of Bachelor of Engineering in Mechanical Engineering during the academic year of 2021-22 under the guidance of Prof. P. B. Ingle

Prof. P. B. Ingle
(Guide)

Dr. D. T. Ingole
(Principal)

Dr. P. R. Wadnerkar
(H.O.D)

Abstract

Due to the increase in global warming levels day by day leading to the increase in average temperature throughout the year which makes people living in areas infested with load shedding more hectic and troublesome. As the contemporary cooling method including Coolers and Air-conditioners do not work on the inverter for backup electricity purposes which make them useless as such during the peak heat hours. So, as to combat the problem with portability, economy and cost-effectiveness in mind the concept of alternative air conditioning using TEC while being used of the grid and rechargeable. While it is a common knowledge that co-efficient of performance of TEC is sub-par when compared to vapor compression air refrigeration used today but with optimized manufacturing techniques and forced convection of cold liquid increasing the effective cooling for the device and humidity controlling using moisture absorbent along with auxiliary tubing as thermal siphoning for heat reduction at the hot sink instead of air fan to reduce ambient heat radiation. Basically, in this research we tried to increase the coefficient of performance of the Peltier Module using various techniques. The Module is also not power efficient, so in long run we can't use plenty of them either two or three also we need to create the cooling effect. So, keeping everything in mind we use the module accordingly to achieve the goal and make it a model for mass production. Commercially Fans are machines that are used for producing airflow, it forces air with a very high velocity and eventually causes the sensation of cooling. However traditional fans use visible blades that do not cool the air being released at the observer and air coming out is of the same temperature. In the present study, a bladeless cooler with TEC which reduces the temperature of the air is constructed and studied for a single person. The manufacturing of each component which is done using sheet metal and sheet metal processes are explained along with its assembly of all the electronic connection.

A
PROJECT REPORT
ON

"SMART ANTI-THEFT SYSTEM FOR VEHICLE SECURITY"

Submitted for the fulfilment for the degree of engineering
(MECHANICAL ENGINEERING)

Submitted by

Mr. Yash D. Gangane

Mr. Prajwal S. Yeole

Mr. Manoj P. Kedar

Mr. Om A. Dongare

Mr. Aditya V. Gothwad

Mrs. Dhara P. Gaikwad

Under the Guidance of
Prof. A.S. Shaikh



DEPARTMENT OF MECHANICAL ENGINEERING

P. R. Pote (Patil) College of Engineering & Management, Amravati.

2021-22.

P. R. Pote (Patil) College of Engineering & Management, Amravati.

DEPARTMENT OF MECHANICAL ENGINEERING



CERTIFICATE

This is to certify that the project report entitled “**Smart Anti-Theft System for Vehicle Security**” is confided work and it is submitted to Sant Gadge Baba Amravati University, Amravati.

Submitted By

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Mr. Manoj P. Kedar

Mr. Om A. Dongare

Mr. Aditya V. Gothwad

Mrs. Dhara P. Gaikwad

In the fulfilment of degree of engineering in Mechanical Engineering during the academic year of 2021-22 under the guidance of **Prof. A.S. Shaikh.**

Prof. A.S. Shaikh

(Guide)

(External Examiner)

Dr. P. R. Wadnerkar

(HOD)

ABSTRACT

In today's world vehicles form an important asset to us, without which our life would be incomplete. But, when it comes to the security of our vehicles, we are very helpless. It is of a great concern, especially in metropolitan cities, where these incidents occur each and every day. So, in this project, we have focused on the security of vehicles. The setup consists of a mix of software and hardware. In software, we will be using an android application, and in hardware, Arduino, GSM-GPS module, Wi-Fi module, relay and other hardware devices. This whole system will allow you to connect with your vehicle from anytime, anywhere and confirm its security. A vehicle is usually the most expensive and important asset next to a home, so this system enables you to keep the asset at your fingertips using wireless technology.

Keywords: Global System for Mobile (GSM), Global Packet Radio Service (GPRS), Internet Protocol (IP), Short Messaging Service (SMS).




Principal
P. R. Patil (Prof.)
College of Engineering & Management
Amravati

**A PROJECT REPORT ON
MICRO – CONTROLLER BASED AUTOMATIC BOTTLE
FILLING PLANT**

Submitted for the fulfillment for the degree of engineering

(MECHANICAL ENGINEERING)

Submitted by

**PRAJWAL V. KADU
RUSHIKESH A. KALBANDE
JAYKUMAR M. SHARMA
LAKHAN A. DAHAKE
BANDU S. AYNAR
RUSHIKESH D. BAGADE**

Under the
Guidance of
Prof. P. B Ingle



DEPARTMENT OF MECHANICAL ENGINEERING

P.R. Pote (Patil) College of Engineering & Management, Amravati.

SANT GADGE BABA AMRAVATI UNIVERSITY, AMRAVATI.

2021-22

**P.R. Pote (Patil) College of Engineering & Management,
Amravati.**

DEPARTMENT OF MECHANICAL ENGINEERING



CERTIFICATE

This is to certify that Project Report entitled “**MICRO –
CONTROLLER BASED AUTOMATIC BOTTLE FILLING
PLANT**” is confided work and it is submitted to Sant Gadge Baba
Amravati University, Amravati.

Submitted By

**PRAJWAL V. KADU
RUSHIKESH A. KALBANDE
JAYKUMAR M. SHARMA
LAKHAN A. DAHAKE
BANDU S. AYNAR
RUSHIKESH D. BAGADE**

In the fulfillment of the degree of engineering in mechanical engineering
during the academic year of 2021-22 under the guidance of Prof. P.B. Ingle



Prof. P. B. Ingle Sir

(Guide)



EXAMINER



Prof. P. Wadnerkar Sir

(HOD)

ABSTRACT

Nowadays, the application of Micro-Controller is widely known and used in this digital world. Micro-Controller application is obviously applied at the industrial sector. Normally, the Micro-Controller's that have been used at the industrial field is usually used to control a mechanical movement either of the machine or heavy machine in order to create an efficient production and accurate signal processing. In this project, a discussion about Micro-Controller application will be explained in more details and are specified.

Sensor usually plays its vital role as an input signal transmitter for the Micro-Controller in this system. During this project sensor has been used to detect the bottle position that move along the Acrylic Sheet at the low speed while the machine operates. The input signal that has been sent from the sensor to The Micro-Controller are being made as a reference. Signal in order to determine the output signal that exactly a same with the Micro-Controller programming language based on the user requirement. Besides that, the electronics and electric devices that usually been controlled by the Micro-Controller are like motor, pump, sensor, buzzer and the other devices.




Principal
P. R. Patil (Genl)
College of Engineering & Management
Amravati

“AUTOMATED SPRAYING MECHANISM”

Submitted for the fulfillment for the degree of Engineering lab
(MECHANICAL ENGINEERING)

Submitted by

Nehal Yede

Gaurav Dharme

Sushant Bhabutkar

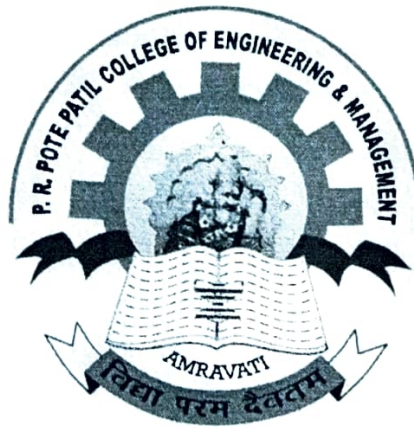
Rishikesh Potdukhe

Ram Patharkar

Shrivesh Charjan

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Prof. R. S. Pokale



DEPARTMENT OF MECHANICAL ENGINEERING

P.R. Pote (Patil) College of Engineering & Management, Amravati.

Sant Gadge Baba Amravati University, Amravati.

2021-22

P. R. Pote (Patil) College of Engineering & Management, Amravati.

DEPARTMENT OF MECHANICAL ENGINEERING



CERTIFICATE

This is to certify that seminar entitled “**Automated Spraying Mechanism**” is confided work and it is submitted to Sant Gadge Baba Amravati University, Amravati.

Submitted By

Submitted by

Nehal Yede

Gaurav Dharme


Sushant Bhabutkar

Rishikesh Potdukhe

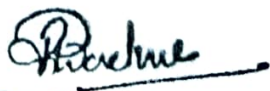
Ram Patharkar

Shrivesh Charjan

In the fulfillment of the degree of engineering in mechanical engineering during the academic year of 2021-22 under the guidance of


Prof. R. S. Pokale
(Guide)


Examiner


Dr. P. R. Wadnerkar
(H.O.D)

ABSTRACT

Now a days robots are widely used in many applications such as military, medical application, factories, entertainment, automobile industries etc. However, the application of robot is still not widely implemented in construction industry. In construction industry, robots are designed to increase speed and improve the accuracy of construction field operations. It can also be used to do hazardous and dangerous jobs in construction. The painting chemicals are found very much harmful to human painters which were causes the problem to eyes and respiratory system of human being. Also the nature of painting process that requires habitual work and hand rising makes it dull, time and effort irresistible. When construction workers and robots are correctly included in building tasks, the whole construction process can be improved run and reserves in human labor and timing are obtained as a outcome.

The primary aim of the project is to design, develop and implement Automatic Wall Painting Robot which helps to achieve low cost painting equipment. Despite the advances in robotics and its wide spreading applications, interior wall painting has shared little in research activities. Also, the nature of painting procedure that requires repeated work and hand rising makes it boring, time and effort consuming. When construction workers and robots are properly integrated in building tasks, the whole construction process can be better managed and savings in human labor and timing are obtained consequently. Wall painting is a repetitive, exhausting and hazardous process which makes it an ideal case for automation. Painting had been automated in automotive industry but not yet for the construction industry. There is a strong need for a mobile robot that can move to paint interior walls of residential buildings.

For example, currently house painting is done manually. This process can be simplified using a special dedicated robot. It is very difficult and troublesome for human being to work in an upright position, especially for painting, cleaning and screwing in the ceiling for a long time. Painting in an upright position is also very dangerous for the eyes. To overcome this difficulty, a wall painting robot system is proposed, designed and developed. The testing results indicate that the performance of the painter robot is better compared with that of using manual painting technique.

**A PROJECT REPORT ON
ARDUINO CONTROLLED SMART BIKE STARTER**

Submitted for the degree of Bachelor of Engineering in

MECHANICAL ENGINEERING

Submitted by

ABHISHEK A. LIKHANKAR

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Under the Guidance of Prof.

R. S. POKALE



DEPARTMENT OF MECHANICAL ENGINEERING

P.R. Pote (Patil) Education and Welfare Trust's Group of Institutions

College of Engineering & Management, Amravati.

2021-22

P.R. Pote (Patil) Education and Welfare Trust's Group of Institutions

College of Engineering & Management, Amravati.

DEPARTMENT OF MECHANICAL ENGINEERING




CERTIFICATE

This is to certify that Project Report entitled "**ARDUINO CONTROLLED SMART BIKE STARTER**" is confided work and it is submitted to Sant Gadge Baba Amravati University, Amravati.


Submitted By

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In partial fulfillment of the requirements for the award of degree of Bachelor Engineering in Mechanical Engineering during the academic year of 2021-22 under the guidance of Prof. R.S. Pokale.


Prof. R. S. POKALE
(Guide)


EXAMINER


Dr. P.R. Wadnerkar
(HOD)

ABSTRACT

In this project, we will be Interfacing Fingerprint Sensor with Arduino to design Fingerprint Sensor Based Self Bike Starter using Arduino. The type of fingerprint module we are using is the R305 Fingerprint Scanner Module. Security is a major concern in our day-to-day life, and digital locks have become an important part of these security systems. Fingerprint sensor-based is one of the safest bikes starting systems as it has the ability to identify and distinguish every person individually without making any error. Also, the module is very small that it can be kept anywhere, and with the portability feature and less power consumption, you can carry it to any place as well. While biometrics and fingerprint identification has been existing for well over 100 years in some basic form, it is the growth of maker community that made the R305 Fingerprint Module so popular. R305 is a common module used fingerprint scanners, with the aid of a powerful DSP in its core. We can communicate with it using a packet of hex codes in a specific format.

Our project is about fingerprint-based ignition in bikes which includes all two wheelers. Normally available locks in the bikes do not provide enough security to the bike owners. Traditional locks available in the bikes are well known to thieves and they can be easily broken by them. Thus, there is need for more security options to be available for the motorcycle which is unique and must be different from the traditional key locks. Biometrics system can be used as a good and effective security option. An important and very reliable human identification method is fingerprint identification. As fingerprint of every person is unique thus it can be used in various security options. In this paper we are focusing on the use of finger print recognition to start or ignite the motorcycle against the use of conventional methods of key locks. Because of the effortless communication between IoT devices, IoT is prevalently used in Security Systems. Two-Wheelers are the preferred vehicle to steal due to the ease with which they are dismantled and Two-wheeler thefts are at a rapid rise in India, whereas the rate of recovery remains horribly low, leading to a huge loss that can be considered unrecoverable. A survey of the presently available security measures and systems was carried out. The objective of the investigation was to understand the security measures that are needed to be taken, as well as the current availability of the same in the market. Following this, a system was designed and developed using IoT components to create a smart security system that is effective, as well as affordable.

“Shaft Driven Bicycle”

Project Report

Submitted to

Sant Gadge Baba Amravati University

In partial fulfillment of the Requirement for the award of

Degree of

Bachelor of Engineering

By

**Miss. Gauri V. Gawande
Mr. Ved V. Kulat
Mr. Tushar B. Uike**

**Miss. Samiksha S. Dugane
Mr. Dushyant V. Tupkar
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2021-2022

**P. R. Pote (Patil) College of Engineering & Management,
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Department of Mechanical Engineering**

CERTIFICATE





This is to certify that the project report entitled, "Shaft Driven Bicycle" which is being submitted here with for the award of BE in Mechanical Engineering is the result of the work completed by following student under my supervision and guidance.

Submitted by

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Dr. P. R. Wadnerkar
(Guide)


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ABSTRACT

A shaft driven bicycle is a bicycle that uses a shaft drive instead of a chain which contain two set of bevel gear at both the ends to make a new kind of transmission system for bicycle for getting high reliability system, and more safe system. This project is developed for the users to rotate the back wheel of a two-wheeler using propeller shaft. Usually in two wheelers, chain and sprocket method is used to drive the back wheel. Shaft-driven bikes have a large bevel gear where a conventional bike would have its chainring. This meshes with another bevel gear mounted on the drive shaft. The use of bevel gears allows the axis of the drive torque from the pedals to be turned through 90 degrees. The drive shaft then has another bevel gear near the rear wheel hub which meshes with a bevel gear on the hub where the rear sprocket would be on a conventional bike, and cancelling out the first drive torque change of axis.




Principal
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