



## VASAVI COLLEGE OF ENGINEERING

AFFILIATED TO OSMANIA UNIVERSITY HYDERABAD

DEPARTMENT OF MECHANICAL ENGINEERING

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This is to certify that the work in this dissertation entitled "Investigation on the Effect of Core Thickness on the Vibration Frequency of Rubber Cored Metal Sandwich Beams" is submitted by MOHAMMAD ISMAIL bearing Roll number 1602-23-745-001 has been read and approved for meeting the requirements and regulations governing the award of the degree in Master of Engineering in Advanced Design and Manufacturing as specialization, to Vasavi College of Engineering during the academic year 2023-2025.

*The work done in this dissertation has not been submitted to any other University/Institute for the award of any degree.*

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## ABSTRACT

Sandwich structures are widely utilized in various engineering applications due to their superior stiffness-to-weight ratio, enhanced damping capability, and improved vibration attenuation characteristics. These structures consist of two stiff face sheets bonded to a lightweight viscoelastic core, which collectively contribute to high structural efficiency and vibration control. The present work aims to investigate the damping and frequency response characteristics of metal–rubber–metal sandwich beams incorporating Ethylene Propylene Diene Monomer (EPDM) rubber as the viscoelastic core material.

In this study, sandwich beam specimens are fabricated by varying the thickness of the EPDM rubber core while using different metallic face sheets such as steel, aluminum, and copper. The purpose of this variation is to determine the optimal combination of face sheet material and core thickness that provides maximum damping performance and desirable frequency response. The experiments are conducted using Experimental Modal Analysis (EMA) to identify the natural frequencies and mode shapes, while Dynamic Mechanical Analysis (DMA) is employed to characterize the viscoelastic properties of EPDM rubber over a range of frequencies.

During the investigation, the hyperplastic behavior of the rubber layer is considered, whereas the face sheets are assumed to behave linearly elastic. Comparative analysis of different material combinations reveals the influence of substrate stiffness and core thickness on the dynamic response of the sandwich beam. From the results obtained, the most effective configuration in terms of damping efficiency and frequency stability is identified.

This study provides valuable insight into the selection of materials and geometric configurations for constrained layer damping applications, with potential relevance to automotive body panels, aerospace components, and vibration-sensitive structural systems.

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This is to certify that the work in this dissertation entitled "**Stress & Strain Analysis of Advanced High Strength Steels (AHSS) Using Split-Hopkinson Pressure Bar for Automotive Applications**" submitted by Mr. Saimanideep Mamindla (Roll No. 1602-23-745-002) has been read and approved for meeting during part of the requirements and regulations governing the award the degree of **Master of Engineering** in Mechanical Engineering with specialization in **Advanced Design and Manufacturing** during academic year 2024–25 in the Department of Mechanical Engineering, Vasavi College of Engineering.

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## ABSTRACT

This dissertation presents an in-depth study on the dynamic mechanical behavior of Advanced High-Strength Steels (AHSS) when subjected to high strain-rate loading using the Split-Hopkinson Pressure Bar (SHPB) technique. The research primarily focuses on understanding how AHSS responds to impact conditions that simulate real-world automotive crash scenarios.

Experimental investigations were performed on AHSS specimens with varying dimensions of 6 mm, 7 mm, and 8 mm thickness, enabling an Analysis of the effect of specimen geometry on stress-strain behavior. The results obtained from SHPB experiments were further validated using finite element simulations carried out in Analysis Explicit Dynamics.

The study comprehensively evaluates strain-rate sensitivity, deformation characteristics, and energy absorption capacity of AHSS under high strain-rate conditions. Findings indicate that AHSS exhibits significant strain-rate hardening and excellent energy absorption capability, confirming its suitability for lightweight automotive safety components such as bumpers and crash beams.

By correlating experimental outcomes with simulation results, this work bridges the gap between laboratory testing and computational modeling, offering valuable insights for the development and optimization of impact-resistant automotive structures made from AHSS.

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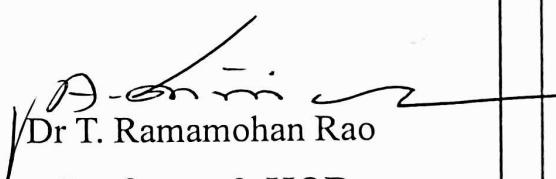
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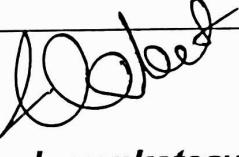
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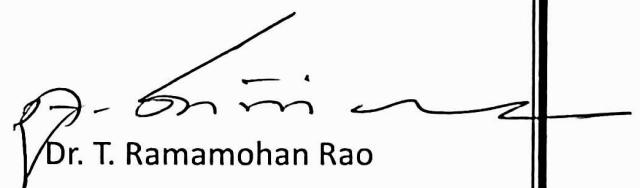
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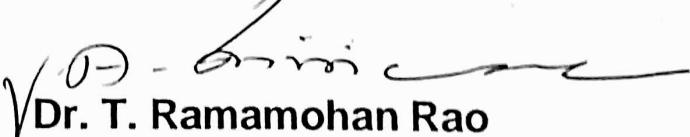
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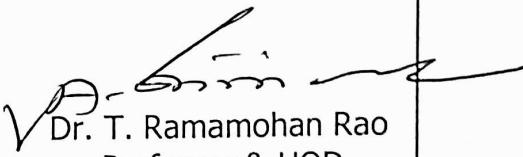
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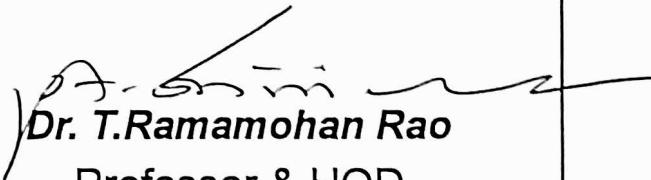
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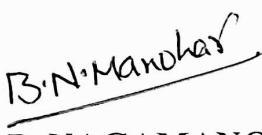
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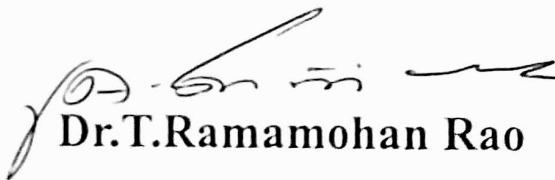
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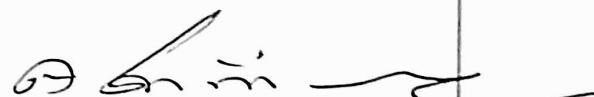


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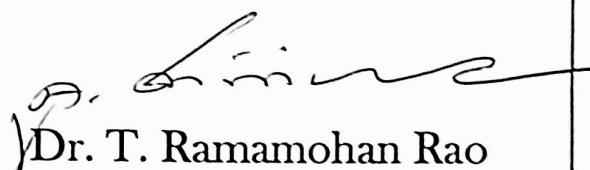
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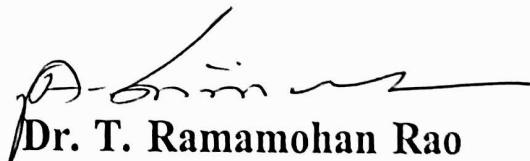
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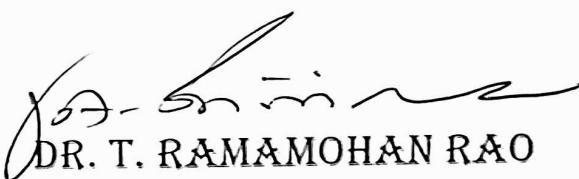
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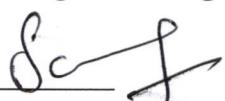
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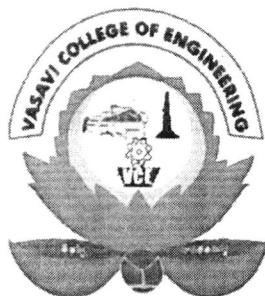
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This is to certify that the work in this dissertation entitled "**Fabrication of Hybrid Power Generation System Through Vertical Axis Wind Turbine and Solar Photovoltaic Panels**" submitted by **Gurujala Shashank** bearing Roll no 1602-21-736-051, **Kalal Srikanth Goud** bearing Roll no 1602-21-736-311, and **Pillanagrovi Sai Vignesh** bearing Roll no 1602-21-736-312 has been read and approved for meeting during part of the requirements and regulations governing the award the degree of **Bachelor of Engineering Mechanical Engineering** during academic year 2023-24 in the Department of Mechanical Engineering, Vasavi College of Engineering.

The work done in this dissertation has not been submitted to any other University/Institute for the award of any degree or diploma.

Date: 29/04/23

.....  
Dr. T. RAMAMOHAN RAO  
Signature of the Head of the Dept,  
Dr. T. RAMAMOHAN RAO 99  
Professor & HOD,  
Vasavi College of Engg  
Hyderabad-31  
Department of Mechanical Engineering

Date: 29/04/23

.....  
Signature of the Supervisor,  
**Mr. M. VENUGOPAL REDDY**  
Assistant Professor,  
Department of Mechanical Engineering

**VASAVI COLLEGE OF ENGINEERING(AUTONOMOUS)  
AFFILIATED TO OSMANIA UNIVERSITY IBRAHIMBAGH,  
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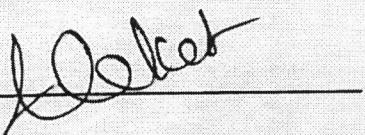
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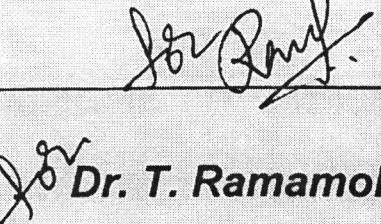
Nethi Saraschandra 1602-21-736-047

Saikumar Banoth 1602-21-736-043

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**Dr. T. Ramamohan Rao**  
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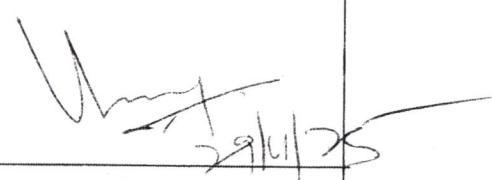
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P.AVINASH REDDY ----1602-21-736-007

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**Sr.Assistant Professor**

  
**DR. T. RAMAMOHAN RAO**

**Professor & HOD**

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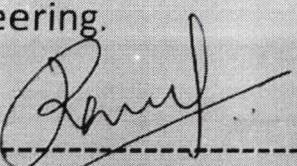
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Using Waste Plastic Oil and Diesel Blends  
Using Artificial Neural Networks”** is a Bonafide  
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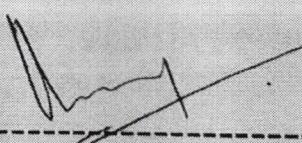
RAJAPETA ROHITH CHARY	1602-21-736-301
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fulfillment for the award of Degree in Bachelor of Mechanical  
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-----

**Dr. P. Venkateswara Rao**  
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-----

**Dr. T. Ramamohan Rao**  
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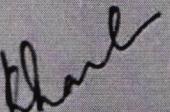
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J. SHARATH KALYAN---1602-21-736-050

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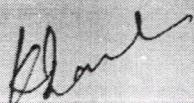
This is to certify that the project report entitled "**FABRICATION OF MULTIPURPOSE AGROBOT**" is a Bonafide record of a project seminar carried out by:

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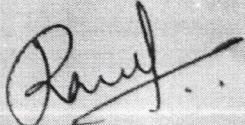


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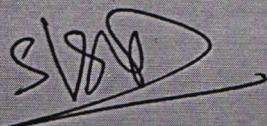
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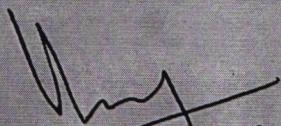
This is to certify that the project report entitled "DESIGN, FABRICATION AND ANALYSIS OF INTELLIGENT BRAKING SYSTEM BY PNEUMATIC BRAKE" is a Bonafide record of project work carried out by

S.HARSHA SREENATH	1602-21-736-018
M.KARTHIK	1602-21-736-021
D.SAI SANTHOSH RITHWIK	1602-21-736-040

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## **CERTIFICATE**

This is to certify that the project report entitled "Fabrication of Solar-Based Air Compressor for Tyre Inflation" is a bonafide record of a project carried out by

Adil Ahmed - - - 1602-21-736-003

Mohammed Aiman - - - 1602-21-736-024  
Hussain

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Dr. VBS Rajendra Prasad  
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A12

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This is to certify that the project report entitled "Design and Development of a Multi-Purpose Drone for Elderly Assistance and Defence Applications" is a Bonafide record of a project carried out by

Shyam Jagadeesh D                    --- 1602-21-736-304

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Dr. S.V. RAMANA  
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A-13

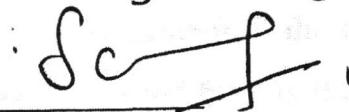
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**IBRAHIMBAGH, HYDERABAD**

## **CERTIFICATE**

This is to certify that the project report entitled ***“Fabrication and wear analysis of Al8011 alloy with Si<sub>3</sub>N<sub>4</sub> nano reinforcement”*** is a bonafide record of a project carried out by

MANICHARLA MOHANA GANESH	1602-20-736-313
SYED HABEEB UR REHMAN	1602-21-736-055
KADAVATH VIJAY KUMAR	1602-21-736-061

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.



**Mr. B. Sandeep**

**Project Guide**

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This is to certify that the project report entitled "**DESIGN AND FABRICATION OF CAM-LESS VALVE MECHANISM FOR INTERNAL COMBUSTION ENGINES**" is a bonafide record of a project carried out by

D.B. Raj Reddy	1602-21-736-008
V. Hari Krishna Sai	1602-21-736-014
B. Sai	1602-21-736-038

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad, during the academic year 2024-25, in partial fulfillment of the Degree in Bachelor of Mechanical Engineering award.

**Dr. P. Venkateswara Rao**  
Professor and Project Guide  
Department of  
Mechanical Engineering

**Dr. T. Ramamohan Rao**  
HOD  
Department of  
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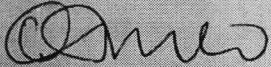
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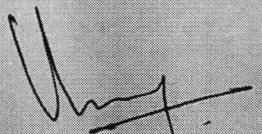
This is to certify that the project report entitled "**DESIGN AND ANALYSIS OF PROGRESSIVE DIE**" is a bonafide record of a project carried out by

A. Bhargava	1602-21-736-009
C. Jithendar	1602-21-736-019
O.V. Jyothiradithya Nag	1602-21-736-057

In the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.



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 Associate Professor  
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This is to certify that the project report entitled "**Design and Fabrication of a Modified SCARA Manipulator using 3D printing**" is a bonafide record of a project work carried out by

**Samreeddhi Pani** **1602-21-736-030**

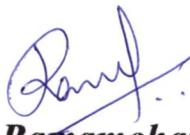
**Sri Karan Thati** **1602-21-736-053**

**Vinjamuri Jyothi Prateek** **1602-21-736-313**

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**IBRAHIMBAGH, HYDERABAD**

## **CERTIFICATE**

This is to certify that the project report entitled "***Design and Analysis of Sandwich Panels with Different Types of Core Structures for unmanned aerial vehicles***" is a bonafide record of a project carried out by

**Pranavi Nyalapogula** **1602-21-736-305**

**Munigela Pranay Chandra** **1602-21-736-309**

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2023-24 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.

  
**Dr. CH V K N S N Moorthy**  
Professor  
Associate Director R & D  
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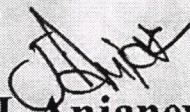
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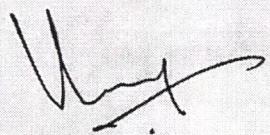
Archana Vuppula	1602-21-736-006
Goli Daniel Mark	1602-21-736-011
Ramavath Harika	1602-21-736-016

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Tel: 040 - 24306124/24307000  
Fax: 040 - 24306626

RCI/DNS/PROJ/VCE/2025

23 April 2025

## CERTIFICATE

This is to certify that **Mr. KHAJA MUBASHIR UDDIN** (Roll No. **1602-21-736-022**) B.E. VIII Semester in Mechanical Engineering student from **Vasavi College of Engineering, Hyderabad** has successfully completed his Internship Training on "**Design & Analysis of Nose Cone Profiles for Aerospace Applications**" from January 2025 to April 2025 at **Directorate of Navigation System, Research Centre Imarat, DRDO, Ministry of Defence**. under the guidance of **Mr. Amit Kumar Chaurasiya, Scientist 'C'**. His performance was good and we wish him success for future endeavors.



  
**(PASALAPUDI NVN RAO)**  
**Sc 'G'**  
**Head-PED, DNS/RCI**

नि वि एन राव पसलपुडी / NVN RAO PASALAPUDI  
वैज्ञानिक विद्या / Scientist 'G'  
प्रधान पी ई डी / Head PED  
Directorate of Navigation Systems (DNS)  
अनुसंधान केन्द्र इमारत / Research Centre Imarat  
रक्षा मंत्रालय, हैदराबाद / Min. of Defence, Hyderabad-69.

DEPARTMENT OF MECHANICAL ENGINEERING  
 VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)  
 (Affiliated to Osmania University, approved by AICTE and accredited by NBA)

## CERTIFICATE

This is to certify that the project report entitled "**EFFECT OF CO-FLOWING AIR STREAM ON SPRAY DRYING PROCESS**" is a Bonafide record of a project work carried out by

**Bharadwaj Aditya Singh ----- 1602-21-736-004**

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2021 – 2025 in partial fulfilment for the award of Degree in Bachelor of Mechanical Engineering.



Signature of the Project Guide (Internal),

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Department of Mechanical Engineering

Assistant Professor  
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Signature of the Head of the Dept.

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Professor & HOD

Department of Mechanical Engineering

**Dr. T RAMAMOHAN RAO**

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 Ibrahimbagh Hyderabad-31



राष्ट्रीय प्रौद्योगिकी संस्थान कालिकट  
National Institute of Technology Calicut

[न.आई.टी. कॉम्प्यूस (पी.ओ.) , कालिकट, केरल 673601 भारत] + NIT Campus (P.O.), Kozhikode, Kerala 673601, India

Phone  
0495 2286100, 2286101  
website  
www.nitc.ac.in

08/04/2025

**TO WHOMSOEVER IT MAY CONCERN**

This is to certify that Mr. Om Kadem has completed his internship in the Department of Materials Science and Engineering at the National Institute of Technology Calicut from February 1, 2025 to April 8, 2025 under the guidance of Dr. Aparna Zagabathuni.

He worked on a project titled 'Fabrication and Mechanical Characterization of High Surface Area Structures Using SLA 3D printer'. During his internship, he demonstrated good design skills and a self-motivated attitude. His enthusiasm for the project was evident in his willingness to learn and experiment with different approaches. He showed commendable dedication to his assigned project during the internship period.

We wish him all the best in his future endeavors.



*DR. HANAS J*  
(Head of the Department)  
Dr. Hanas J

Head  
Dept. of Materials Science and Engineering  
National Institute of Technology Calicut  
Calicut, Kerala - 673601

**VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)**  
**AFFILIATED TO OSMANIA UNIVERSITY**  
**IBRAHIMBAGH, HYDERABAD**

**C E R T I F I C A T E**

This is to certify that the project report entitled **CFD Analysis of Effect of ambient air temperature on spray drying process** is a Bonafide record of a project carried out by

**V. SAI VYBHAV - - - 1602-21-736-042**

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfilment for the award of Degree in Bachelor of Mechanical Engineering.



**Dr. S. Venkataiah,**  
Associate Professor  
Project Guide  
(Internal)



**Dr. T. Ramamohan Rao**  
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Vasavi College of Engineering

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**IBRAHIMBAGH, HYDERABAD**

# CERTIFICATE

This is to certify that the project report entitled "**Analysis of Various Greases by Performing Wear and Penetration Tests**" is a bonafide record of a project carried out by

Satvik Gorti 1602-21-736-048

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2021-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.

**Dr. J. Anjaneyulu**  
Project Guide

**Dr. T. Ramamohan Rao**  
**Dr T RAMAMOHAN RAO**  
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**Professor & HOD**  
**Dept. Of Mechanical Engg**  
**Vasavi College of Engg**  
**Ibrahimbagh, Hyderabad-31**

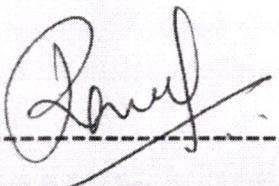
**VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)**  
**AFFILIATED TO OSMANIA UNIVERSITY**  
**IBRAHIMBAGH, HYDERABAD**

## **CERTIFICATE**

This is to certify that the project report entitled "**Thermal Management for Cockpit Lighting Optimization**" is a Bonafide record of a project carried out by

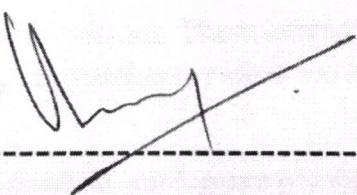
**PITTALA MANOHARR 1602-21-736-301**

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**Dr. P. Venkateswara Rao**

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**Dr. T. Ramamohan Rao**

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VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)  
AFFILIATED TO OSMANIA UNIVERSITY  
IBRAHIMBAGH, HYDERABAD

## CERTIFICATE

This is to certify that the project report entitled "**Root Cause Analysis of Centrifugal Pump Vibrations**" is a Bonafide record of Major project work carried out by

Mullapudi Rahul Chakravarthy --- 1602-21-736-303

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (Affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfilment for the award of degree in Bachelor of Mechanical Engineering.

B.N. Manohar

Mr. B. Naga Manohar,

Assistant Professor,

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Assistant Professor

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IBRAHIMBAGH, HYDERABAD-500031**

## CERTIFICATE

This is to certify that the project report entitled "**PRELIMINARY STUDY OF ABRASIVE WATER JET MILLING FOR AEROSPACE MATERIAL**" is a bonafide record of a project carried out by

C SAM JOEL 1602-21-736-044

R SANDEEP NAYAK 1602-21-736-046

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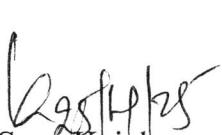
VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)  
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## CERTIFICATE

This is to certify that the project report entitled **Design of Piping and Instrumentation Diagram (P&ID) Development for a Single Room in a Gas Pipeline Facility using SmartPlant P&ID (SPPID)** is a Bonafide record of a project carried out by

A. Varunn	1602-21-736-056
N. Yashwanth Sai	1602-21-736-062

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfilment for the award of Degree in Bachelor of Mechanical Engineering.

  
Mr. S. Sree Krishna  
Internal Project Guide

  
Dr. T. Ramamohan Rao  
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**AFFILIATED TO OSMANIA UNIVERSITY**  
**IBRAHIMBAGH, HYDERABAD**

**CERTIFICATE**

This is to certify that the project report entitled "**DESIGN, KINEMATIC ANALYSIS AND FABRICATION OF A LINEAR DELTA ROBOT**" is a Bonafide record of a project carried out by

K. ABHINAV YADAV --- 1602-21-736-063

S.Harshini --- 1602-21-736-075

K.Meghana --- 1602-21-736-085

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.

  
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B-2

Batch - 2

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**IBRAHIMBAGH, HYDERABAD**

## **CERTIFICATE**

This is to certify that the project report entitled “Fabrication and experimental study of an earth pipe air heat exchanger using plain and baffled aluminum pipes” is a bonafide record of a project carried out by

VVS AKASH 1602-21-736-064

B. Anil Kumar 1602-21-736-068

Abhilash A wood 1602-21-736-069

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**Mr. S. Venkateswarulu**  
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Batch - 083

Mech - B

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**IBRAHIMBAGH, HYDERABAD**

## **CERTIFICATE**

This is to certify that the project report entitled "**Design and Fabrication of a 3 DOF Robot**" is a bonafide record of a project carried out by

I. ROHAN AARON --- 1602-24-736-096

S. AKHIL --- 1602-21-736-066

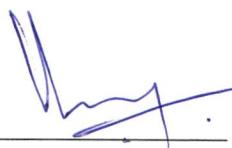
G. JEEVAN KUMAR --- 1602-21-736-078

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.



**Mr. K. Veladri**

Project Guide



**Dr. T. Ramamohan Rao**

Professor & HOD

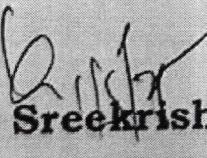
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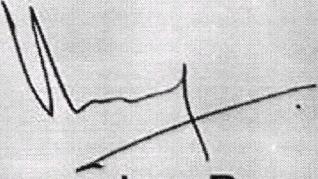
This is to certify that the project report entitled "**Design, Analysis and Fabrication of 360° Virtual Reality Chair**" is a bonafide record of a project carried out by

Chinthakunta Akshay Kumar --- 1602-21-736-067  
 Kallem Lokesh Reddy --- 1602-21-736-080  
 Boddupally Harsha Vardhan --- 1602-21-736-322

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 Ibrahimbagh Hyderabad-31

Batch-5 B-5

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This is to certify that the project report entitled  
**"FABRICATION OF PIPE INSPECTION ROBOT"** is a  
bonafide record of a project carried out by

M. BHANU KUMAR	1602-21-736-00
V. PAVAN KUMAR	1602-21-736-090
K. RANADEEP	1602-21-736-094

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.

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opt. Of Mechanical Engg.  
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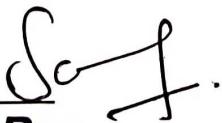
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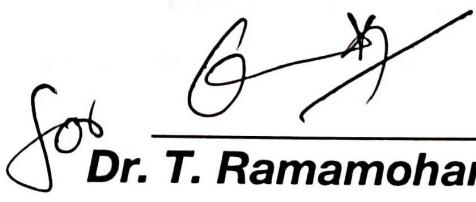
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V. Dayanand	--- 1602-21-736-072
P.V.R. Swaroop Thrushna	--- 1602-21-736-089
P. Sathwik	--- 1602-21-736-108

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.

  
**Mr. J. Kantha Rao**

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**Dr. T. Ramamohan Rao**

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**IBRAHIMBAGH, HYDERABAD**

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This is to certify that the project report entitled "***Comparison between a commercial 3D printer and a custom assembled 3D printer***" is a bonafide record of a project carried out by

Jarapala Ganesh                    --- 1602-21-736-073  
P Sai Surya Krishna Teja        --- 1602-21-736-102  
Mohammad Sameer                --- 1602-21-736-316

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2021-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.



---

**Dr. T Ramamohan Rao**

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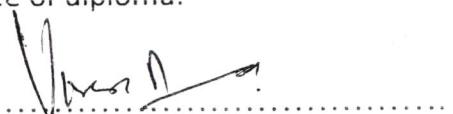


**CERTIFICATE**

This is to certify that the work in this dissertation entitled "**High Strain Rate Impact Loading Analysis on Various Materials using SHPB**" submitted by **P. HARISHWAR REDDY** bearing Roll no **1602-21-736-074**, **MANAV AGARWAL** bearing Roll no **1602-21-736-083** and **K. DEEKSHITH VARMA** bearing Roll no **1602-21-736-320** have been read and approved for meeting during part of the requirements and regulations governing the award the degree of **Bachelors of Engineering** in Mechanical Engineering during academic year 2024–25 in the Department of Mechanical Engineering, Vasavi College of Engineering.

The work done in this dissertation has not been submitted to any other University/Institute for the award of any degree or diploma.

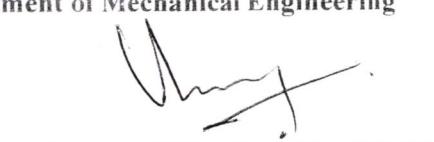
Date: 1/5/25.....



Signature of the Supervisor,  
**Dr. V.B.S. RAJENDRA PRASAD**  
Associate Professor,

Department of Mechanical Engineering

Date: 1/5/25.....



Signature of the Head of the Dept.  
**Dr. T. RAMAMOHAN RAO**  
Professor & HOD,  
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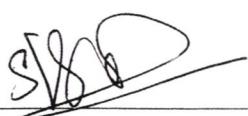
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This is to certify that the project report entitled “ANALYSIS OF AUTOMOBILE RADIATOR USING WATER, WATER-ETHYLENE GLYCOL MIXTURE AND NANOFLUIDS” is a bonafide record of a project carried out by

BANOTH JAISINGH	--- 1602-21-736-077
BANOTHU RAJESH	--- 1602-21-736-093
MITTAPALLI SAI RADEEP	--- 1602-21-736-100

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A-Kirthan 1602-21-736-079  
T Rohan 1602-21-736-097 | Batch B-10  
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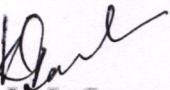
## **CERTIFICATE**

This is to certify that the project report entitled "**Design and Development of an Immersive Virtual Reality Chair**" is a Bonafide record of a project carried out by

**Kirthan Ashtekar** **1602-21-736-079**

**Tadem Rohan** **1602-21-736-097**

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Assistant Professor



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**IBRAHIMBAGH, HYDERABAD**

## **CERTIFICATE**

This is to certify that the project report entitled "**DEVELOPMENT OF PCM AND STF BASED STRUCTURES FOR BALLISTIC APPLICATIONS**" is a bonafide record of a project carried out by

Vedika Takalkar- - 1602-21-736-098

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 3 Dept. Of Mechanical Engg.  
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B-12 - MECHE-B  
K. Tushar - 103  
B. Sandeep - 104  
G. Deepika - 319

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HYDERABAD  
MAY - 2025**

**VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)  
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## **CERTIFICATE**

This is to certify that the project report entitled "**FABRICATION AND IDENTIFICATION OF MECHANICAL PROPERTIES OF ALUMINIUM 8011 METAL MATRIX COMPOSITE REINFORCED WITH SILICON NITRIDE**" is a bonafide record of a project carried out by

K. SAI VENKAT TUSHAR

--- 1602-21-736-103

B. SANDEEP

--- 1602-21-736-104

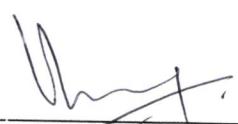
G. DEEPIKA

--- 1602-21-736-319

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**Mr. B. Sandeep**  
Project Guide



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**CERTIFICATE**

This is to certify that the project report entitled "**STRENGTHENING OF EPOXY COATINGS USING GRAPHENE NANOPlatelets**" is a Bonafide record of a project carried out by

SANKALPA.G                    --- 1602-21-736-105

K. SASHANK                    --- 1602-21-736-107

B. SHYAM SUNDAR            --- 1602-21-736-110

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.

Date: 02/05/25

.....  


Signature of the Supervisor  
Dr. Gayatri Vineela Marrivada  
Assistant Professor,  
Department of Mechanical Engineering

Date: .....

.....

Signature of the Head of the Dept.  
Dr. T. Ramamohan Rao  
Professor & HOD,  
Department of Mechanical Engineering

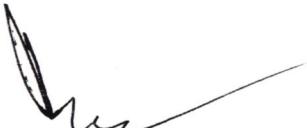
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**IBRAHIMBAGH, HYDERABAD**

## **CERTIFICATE**

This is to certify that the project report entitled  
**“Fabrication of Pedal Operated Forklift”** is a bonafide  
record of a project carried out by

Chepuri Sindhuja --- 1602-21-736-111  
Bolgam Suryagoud --- 1602-21-736-112  
Akula Tharun --- 1602-21-736-314

in the Department of Mechanical Engineering, Vasavi  
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Degree in Bachelor of Mechanical Engineering.

  
**Mr. D. Govinda Rao**

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**IBRAHIMBAGH, HYDERABAD**

## **CERTIFICATE**

This is to certify that the project report entitled "Hand Gesture and Voice-Controlled Wheelchair" is a bonafide record of a project carried out by

Malagam Tanuj	--- 1602-21-736-113
Lalappa Shivanand	--- 1602-21-736-315
Mangi Tharun	--- 1602-21-736-323

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.

---



**Dr. CH V K N S N Moorthy**

Professor  
Associate Director R & D  
Project Guide

---



**Dr. T. Ramamohan Rao**

Professor & HOD  
Dept. of Mech Engg  
Vasavi college of Engineering

**VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)**  
**AFFILIATED TO OSMANIA UNIVERSITY**  
**IBRAHIMBAGH, HYDERABAD**

## **CERTIFICATE**

This is to certify that the project report entitled "**DESIGN, KINEMATIC ANALYSIS AND FABRICATION OF A TRIPTERON ROBOT**" is a Bonafide record of a project carried out by

Y. VARUN --- 1602-20-736-115

K. VINEET KUMAR --- 1602-21-736-116

B.S.S.D ABHISHEK --- 1602-21-736-117

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.

  
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Project Guide

  
**Dr. T. Ramamohan Rao**  
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**IBRAHIMBAGH, HYDERABAD**

**CERTIFICATE**

This is to certify that the project report entitled  
**“ Power generation using speed breaker and solar ”**  
is a bonafide record of a project carried out by

D.Rajashekhar	--- 1602-20-736-092
S.M.Rohan	--- 1602-21-736-317
Ch.Aravind	--- 1602-21-736-318

in the Department of Mechanical Engineering,  
Vasavi College of Engineering (Autonomous)  
(affiliated to Osmania University), Hyderabad during  
the academic year 2018-19 in partial fulfillment for  
the award of Degree in Bachelor of Mechanical  
Engineering.



**Dr. J. Anjaneyulu**

Sr Assistant professor  
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Assistant Professor  
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**Dr. T. Ramamohan Rao**

Professor & HOD  
Dept. of Mechanical Engg.

Professor & Head  
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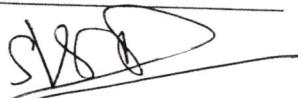
**VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)  
AFFILIATED TO OSMANIA UNIVERSITY  
IBRAHIMBAGH, HYDERABAD**

## **CERTIFICATE**

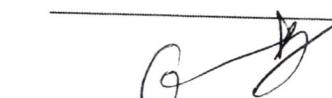
This is to certify that the project report entitled "**Design and analysis of impeller and volute casing of a centrifugal pump**" is a bonafide record of a project carried out by

Mangali Dharanidhar --- 1602-21-736-321

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2021-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.



**Dr. S. Venkataiah**  
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Project Guide  
Professor & Head  
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VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS) AFFILIATED  
TO OSMANIA UNIVERSITY IBRAHIMBAGH, HYDERABAD

**CERTIFICATE**

This is to certify that the Theme Based project report entitled "**ORTHOGONAL PROJECTION KIT USING ROBOTIC ARM – A TEACHING AID**" is a Bonafide record of a Theme Based project carried out by

**Paladi Aravind Kumar      1602-22-736-003**

**V. Durga Vilas Goud      1602-22-736-008**

**Mote Karnaji      1602-22-736-014**

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.

Dr. M. V. Gayatri

Asst. Professor

Theme based Project Guide

Dr. T. Ramamohan Rao

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28/05/2025  
External Examiner

**VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)**  
**AFFILIATED TO OSMANIA UNIVERSITY**  
**IBRAHIMBAGH, HYDERABAD**

## **CERTIFICATE**

This is to certify that the Theme based project report entitled "**An IoT-Based Intelligent Helmet for Enhanced Rider Protection**" is a bonafide record of a Theme based project work carried out by

Anhik Arya Prakash --- 1602-22-736-005

Ronny Jose --- 1602-22-736-010

Mohammad Junaid --- 1602-22-736-019

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**Dr. S. Anjaneyulu**

Project Guide



**Dr. T. Ramamohan Rao**

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01/05/2025

External Examiner

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

AFFILIATED TO OSMANIA UNIVERSITY

HYDERABAD

April 2025

This is to certify that the Theme based project report entitled  
"DESIGN AND FABRICATION OF AN AUTOMATED MINI HACKSAW"  
is a bona fide record of a Theme based project work carried  
out by

N Hanmanthu 1602-22-736-011

M Bhanu prasad 1602-22-736-006

M Ganesh 1602-22-736-009

In the department of mechanical engineering, Vasavi  
College Engineering (Autonomous) Affiliated to  
Osmania University, Hyderabad during the Academic  
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Mr. K VELADRI

Associate Professor

Project Guide

  
Dr. T. Ramamohan Rao

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Dept. of Mech Engg

EXTERNAL EXAMINER

02/05/2025

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AFFILIATED TO OSMANIA UNIVERSITY  
IBRAHIMBAGH, HYDERABAD

## CERTIFICATE

This is to certify that the Theme based project report entitled "**MULTITASKING ROBOT FOR AGRICULTURE PURPOSE**" is a Bonafide record of a Theme based project work carried out by

K. Karthik Yadav	1602-22-736-015
J. Pranav Sai	1602-22-736-021
K. Arun Kumar	1602-22-736-004

in the Department of Mechanical Engineering,  
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Mr. K. Srinivasa Rao  
( Associate Professor )  
Project Guide

Dr. T. Ramamohan Rao  
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Dept. of Mechanical Engg.



## CERTIFICATE

This is to certify that the Theme based project report entitled  
**"SELF-BALANCING ROBOT USING MEMS"** is a Bonafide record  
of a Theme based project work carried out by

Bake Anish Kumar --- 1602-22-736-002  
Durgam Prashanth --- 1602-22-736-022  
Bheemankar Harish --- 1602-22-736-012

in the Department of Mechanical Engineering, Vasavi College  
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Mr. K. I. Spurgeon  
Project Guide



Dr. T. Ramamohan Rao  
Professor & HOD  
Dept. of Mechanical Engg.



VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

AFFILIATED TO OSMANIA UNIVERSITY  
BRAHIMBAGH, HYDERABAD

## CERTIFICATE

This is to certify that the Theme based project report entitled "***Fabrication of mini cooler using thermoelectric cell***" is a bonafide record of a Theme based project work carried out by

C Srikar ----- 1602-22-736-001

A Harshavardhan reddy ----- 1602-22-736-013

R Naveen ----- 1602-22-736-020

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (Affiliated to Osmania University), Hyderabad during the academic year 2024-25.



M. Venugopal Reddy

Dr./Mr. M. Venugopal Reddy  
Project Guide

Dr. T. Ramamohan Rao

Professor & HOD

Dept. of Mechanical Engg.





VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)  
Affiliated to Osmania University  
Ibrahimbagh, Hyderabad, Telangana-5000031

# *Certificate*

of Appreciation

This is to certify that Theme based project report  
entitled "**IoT Based Food Monitoring System**" is a bonofied  
copy of Theme based project work carried ou by

T. Sahithya (1602-22-736-026)  
K. Rushik (1602-22-736-025)  
J. Shirisha (1602-22-736-028)  
G. Deevena (1602-21-736-012)

in the department of Mechanical Engineering, Vasavi  
College of Engineering (A) , Affiliated to Osmania University  
, Hyderabad, During Academic year 2024-2025

*Reddy*  
Mr. Sreekrishna

Project Guide,  
Assistant Professor, MED

*Reddy*

Dr. T. Ramamohan Rao  
Professor & HOD, MED

*Reddy*  
2025

## CERTIFICATE

This is to certify that the Theme based project report entitled "**Arduino-Powered Gas Leak Detection with Automatic Regulator Control and SMS Notification**" is a bonafide record of a Theme based project work carried out by

Roushan	1602-22-736-027
Nitesh Reddy	1602-21-736-029
Yashaswi Karthikeyan	1602-22-736-036
Yeshwanth Verma	1602-22-736-037

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**Mr. B. Sandeep**  
Project Guide

  
**Dr. T. Ramamohan Rao**  
Professor & HOD  
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**Mr. H. Molos**

## THEME BASED PROJECT REPORT ON

### Smart Hydration System for Urban Green Spaces

Submitted by \_\_\_\_\_

A. Someshwara Kartheek

S. Sushmitha Chouhan

B. Reethika Varma

1602-22-736-029

1602-22-736-031

1602-22-736-033

IN PARTIAL FULFILLMENT FOR THE AWARD OF THE DEGREE  
OF BACHELOR OF ENGINEERING IN  
MECHANICAL ENGINEERING

Under Guidance Of

**Dr. P. V. S. Subhashini**

Assistant Professor



**DEPARTMENT OF MECHANICAL ENGINEERING**

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

**AFFILIATED TO OSMANIA UNIVERSITY  
HYDERABAD**

April 2025

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)  
AFFILIATED TO OSMANIA UNIVERSITY  
IBRAHIMBAGH, HYDERABAD

## CERTIFICATE

This is to certify that the Theme based project report entitled "FIRE FIGHTING ROBOT" is a Bonafide record of a Theme based project work carried out by

CH. VARUN SAI ---- 1602-22-736-034  
A. RAMAKRISHNA ---- 1602-22-736-301  
N. SRIRAM ---- 1602-22-736-302

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (Affiliated to Osmania University), Hyderabad during the academic year 2024-25.

  
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Associate Professor  
Project Guide

  
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AFFILIATED TO OSMANIA UNIVERSITY IBRAHIMBAGH,  
HYDERABAD

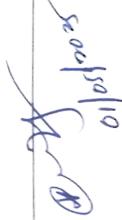
## CERTIFICATE

This is to certify that the project report entitled “WIRELESS ROUGH TERRAIN ROCKER-BOGIE VEHICLE” is a bonafide record of a project carried out by

MANDULA VISHWESHWAR ADITHYA      1602-22-736-303  
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**Dr. K. KISHORE**  
Theme-based project  
guide

  
**Dr. T. Ramamohan Rao**  
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01/06/2025

## CERTIFICATE

This is to certify that the Theme based project report entitled  
"METAL DETECTING ROBOT" is a bonafide record of a  
Theme based project work carried out by

K.SOWMYA --- 1602-22-736-312  
C.RISHITHA --- 1602-22-736-306  
S.ROHAN --- 1602-22-736-305

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*Dr.J.Anjaneyulu*  
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This is to certify that the Theme based project report entitled  
"Automatic Fertilizer Spraying Robot" is a bonafide record of a  
Theme based project work carried out by

K Vidya	-	1602-22-736-307
G Subhash Reddy	-	1602-22-736-311
V Sumanth	-	1602-22-736-313

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**Dr. VBS Rajendra Prasad**  
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This is to certify that the Theme based project report  
entitled "**Android Bluetooth Smart phone controlled  
wheel chair**" is a bonafide record of a Theme based  
project work carried out by

**B. Harshavardhan** 1602-22-736-317  
**T. Krishna Prasad** 1602-22-736-315  
**R. Sai Karthik** 1602-22-736-308

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**Dr. J. Anjaneyulu**  
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Dr. H. H. H. 05/05/2025

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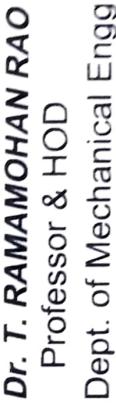
This is to certify that the Theme based project report entitled "Automatic Water filler with sensor through Geneva mechanism" is a bonafide record of a Theme based project work carried out by

B.KIRAN KUMAR 1602-22-736-309  
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RITESH JADAV 1602-22-736-320

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Vijay

**Dr. K. KISHORE PROFESSOR**  
**& DIRECTOR (T&P)**  
Project guide

  
**Dr. T. RAMAMOHAN RAO**  
Professor & HOD  
Dept. of Mechanical Engg

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IBRAHIMBAGH, HYDERABAD

## CERTIFICATE

This is to certify that the Theme based project report entitled  
**REMOTE CONTROLLED ENVIRONMENT**  
**TRACKING ROBOT**” is a Bonafide record of a Theme  
based project work carried out by

**CH. SWATHI** - - - 1602-22-736-304  
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**B. HARSHINI** - - - 1602-22-736-316

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T.S. N. Manohar  
Mr. B. Naga Manohar  
Project Guide

Dr. T. Ramamohan Rao  
Professor & HOD  
Dept. of Mechanical Engg.



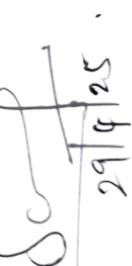
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IBRAHIMBAGH, HYDERABAD

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This is to certify that the Theme based project report entitled "Solar Powered Automated Grass Cutter" is a bonafide record of a Theme based project work carried out by

Uzair Ahmed --- 1602-22-736-035  
Sai Pavan --- 1602-22-736-024  
Raghavendra --- 1602-22-736-023

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29/4/25



**Mr.B .Sandeep**  
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**Dr. T. Ramamohan Rao**  
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**IBRAHIMBAGH, HYDERABAD.**

**CERTIFICATE**

This is to certify that the theme-based project report entitled "**Designing and Development of Automatic Whiteboard Cleaning System**" is a Bonafide record of a mini project work carried out by,

RAMAVATH THARUN	1602-22-736-325
J MATTHEW RAJ	1602-22-736-332
K ANSHIKA YADAV	1602-22-736-338

in the Department of Mechanical Engineering, Vasavi college of engineering (Autonomous) (Affiliated to Osmania university), Hyderabad during the academic year 2024-25.



Mr. K Srinivasa Rao  
(Associate professor)

Project Guide

External Examiner



Dr. T. Ram Mohan Rao  
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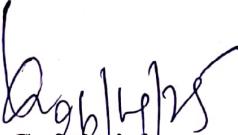
**CERTIFICATE**

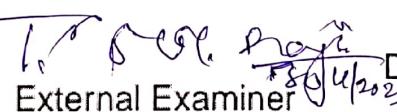
This is to certify that the report entitled "**Design and Fabrication of HydroBot**" is a bonafide record of a Theme based project work carried out by

P ASHISH	-1602-22-736-322
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During the academic year

2025.

  
Mr. S. Sreekrishna  
Assistant Professor  
Project Guide

  
T. Ramamohan Rao  
External Examiner  
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IBRAHIMBAGH, HYDERABAD

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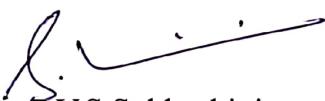
This is to certify that the Theme based project report entitled “Fabrication of Collision Avoiding Self Navigating Robot” is a bonafide record of a Theme based project work carried out by

MD. Wasif (1602-22-736-324)

B. Manaswitha (1602-22-736-326)

K. Varun Kumar (1602-22-736-329)

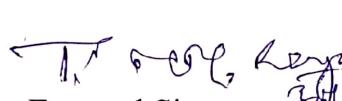
in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (Affiliated to Osmania University), Hyderabad during the academic year 2024-25.



Dr. P.V.S. Subhashini

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Dept. of Mechanical Engg.



External Signature. *2024-25* Dr. T. Ramamohan Rao

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**AFFILIATED TO OSMANIA UNIVERSITY**

**IBRAHIMBAGH, HYDERABAD**

**CERTIFICATE**

This is to certify that the Theme based project report entitled  
**“FABRICATON OF BALL MIXER FOR POWDER BLENDING”** is a  
bonafide record of a Theme based project work carried out by

K. Sathyasheela Reddy (1602-22-736-337)

T. Tharun (1602-22-736-341)

S. Ranesh Goud (1602-22-736-336)

Department of Mechanical Engineering

Vasavi College of Engineering (Autonomous)

(Affiliated to Osmania University), Hyderabad during the academic year  
2024-25

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Assistant Professor

MED

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Page

## CERTIFICATE

This is to certify that the theme-based project report entitled "**Design and Fabrication of Wi-Fi Controlled Car**" is a Bona fide record of a mini project work carried out by,

CH DIVYA TEJA	1602-22-736-327
C DINESH	1602-22-736-331
V KARTHIK REDDY	1602-22-736-334

in the Department of Mechanical Engineering, Vasavi college of engineering (Autonomous) (Affiliated to Osmania university), Hyderabad during the academic year 2024-25.

  
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(Associate Professor)  
Project Guide

  
External Examiner

  
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(AUTONOMOUS)**

**AFFILIATED TO OSMANIA UNIVERSITY**

**IBRAHIMBAGH, HYDERABAD**

**CERTIFICATE**

This is to certify that the Theme based project report entitled "SOLAR WATER PURIFIER INTEGRATED WITH EMBEDDED C AND MACHINE LEARNING" is a bonafide record of a Theme based project work carried out by

P. Aravind Goud (1602-22-736-321)

K. Dhanush (1602-22-736-330)

V. Sanjay (1602-22-736-339)

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (Affiliated to Osmania University), Hyderabad during the academic year 2024-25.

Mr. S. Sreekrishna

Asst. professor

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External Examiner

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**AFFILIATED TO OSMANIA UNIVERSITY**  
**IBRAHIMBAGH, HYDERABAD.**

**CERTIFICATE**

This is to certify that the Theme-based project report entitled "**Design and Fabrication of Driver Nap Detection System**" is carried out by,

**M KARTHIK - 1602-22-736-051**  
**KRISHNA PATEL - 1602-22-736-054**  
**V MAHENDRA NADH - 1602-22-736-057**

in the Department of Mechanical Engineering, Vasavi college of engineering (Autonomous) (Affiliated to Osmania university), Hyderabad during the academic year 2024-25.

  
**Mr. Venu Gopal Reddy**  
(Assistant professor)

**Project Guide**

  
**External Examiner**

  
**Dr. T. Ram Mohan Rao**  
Professor & HOD

**Dept. Of Mechanical Eng**

**VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)**  
**AFFILIATED TO OSMANIA UNIVERSITY**  
**IBRAHIMBAGH, HYDERABAD**

## **CERTIFICATE**

This is to certify that the Theme based project report entitled "**FABRICATION OF PELTIER REFRIGERATION UNIT**" is a bonafide record of a Theme based project work carried out by

BHERI GIRIDHAR KARTIKEYA ----1602-22-736-046

G BHAVANI CHAUHAN ----1602-22-736-044

A KIRANMAYEE----1602-22-736-040

Y MADHURI ----1602-22-736-056

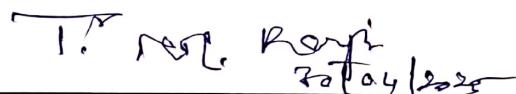
in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (Affiliated to Osmania University), Hyderabad during the academic year 2024-25.



**Mr. SUDA VENKATESWARULU   Dr. T. Ramamohan Rao**

Project Guide

Professor & HOD  
Dept. of Mechanical Engg.



T. Ramamohan Rao  
30/04/2024

**VASAVI COLLEGE OF  
ENGINEERING(AUTONOMOUS) AFFILIATED TO  
OSMANIA UNIVERSITY IBRAHIMBAGH,  
HYDERABAD.**

**CERTIFICATE**

This is to certify that the mini project report entitled  
**“Fabrication of solar powered air cooler”** is a Bonafide  
record of a mini project work carried out by,

**1. Mohammad Anas Ahmed-1602-22-736-059**

**2. B. Jagadesh-1602-22-73-6-048**

**3. R. Anji-1602-22-736-041**

in the Department of Mechanical Engineering, Vasavi college  
of engineering (Autonomous) (Affiliated to Osmania  
university), Hyderabad during the academic year 2024-25.

  
**Mr. Venu Gopal Reddy**  
(Assistant professor)

**Project Guide**

  
**External Examiner**  
*30/04/24*

  
**Dr. T. Ram Mohan Rao**  
Professor & HOD

**Dept. Of Mechanical Eng.**



**VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)**  
Affiliated to Osmania University  
Ibrahimbagh, Hyderabad, Telangana-500031

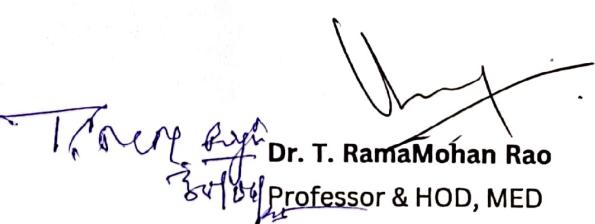
# *Certificate*

This is to certify that Theme based project report entitled "**2-D Mini plotter Machine**" is a bonofied copy of Theme based project work carried ou by

Hemanth Gupta(1602-22-736-047)  
Naveen kasoju (1602-22-736-061)  
Kennith Akkiligunta(1602-22-736-052)  
Aravind Banothu(1602-22-736-042)

in the department of Mechanical Engineering, Vasavi College of Engineering (A) , Affiliated to Osmania University , Hyderabad, During Academic year 2024-2025

  
Dr. P.V.S. Subhashini  
Project Guide,  
Assistant Professor, MED

  
Dr. T. Ramamohan Rao  
Professor & HOD, MED

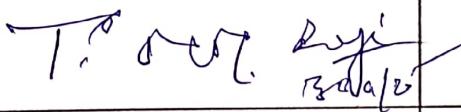
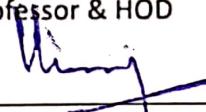
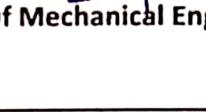
## CERTIFICATE

This is to certify that the theme-based project report titled "Design & fabrication of hydraulic jack" is a Bonafide record of a mini project work

carried out by,

AKSA KEESARI	1602-22-736-039
KOTESHWAR RAO	1602-22-736-053
LAKSHMI NARAYANA	1602-22-736-055
PRAVEEN	1602-22-736-063

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Mr. J. Kantha rao  (Assistant Professor)	External Examiner 	Dr. T. Ram Mohan Rao  Professor & HOD
Project Guide		Dept. Of Mechanical Eng. 

It gives us immense pleasure to express our heartfelt gratitude and appreciation to all those who have contributed to the successful completion of our theme based project titled "design & fabrication of mini hydraulic jack".

## ACKNOWLEDGEMENT CERTIFICATE

This is to certify that the Mini project report entitled "Fabrication of an FDM Based 3d Printer Prototype" is a bonafide record of a Theme Based project work carried out by

We are thankful to Dr. S. P. Jyothi Bindu (1602-22-736-050) for permitting us to work on this project. We are highly grateful to Dr. T. Ramamohan Rao for his kind support and for permitting us to work on this project.

M. Pavan (1602-22-736-062)

K. Mani Pavan Teja (1602-22-736-058)

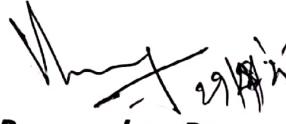
in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (Affiliated to Osmania University), Hyderabad during the academic year 2024-25.

and guiding us by providing constructive criticism for the successful completion of the project.

Finally, we would like to thank our families and friends for supporting, understanding and encouraging us throughout this project. Their unswerving belief in us, has been a source of inspiration and motivation.

  
Mr. M. Venu Gopal Reddy  
Associate Professor

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**AFFILIATED TO OSMANIA UNIVERSITY**  
**IBRAHIMBAGH, HYDERABAD**

**CERTIFICATE**

This is to certify that the Theme Based Project report entitled  
**“Design And Fabrication Of A Working Prototype Of  
Bi-Axial Mechanism For Steering Systems”**  
is a bonafide record of a Mini project work carried out by

VIJAY KUMAR JOGULA [1602-22-736-080]

SUHAAS CHAKRAVARTHY AKULA [1602-22-736-078]

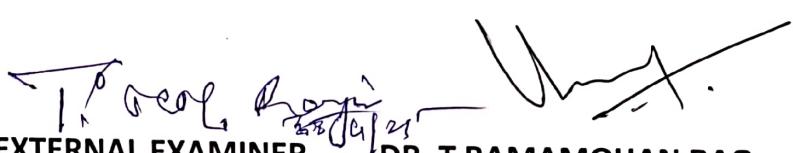
ARHAAN SHAIK [1602-22-736-072]

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This is to certify that the mini project report entitled "**Integrated Power Steering and Anti-Collision System**" is a Bonafide record of a mini project work carried out by,

**1.S.Md. Iftekharuddin Ahmed – 1602-22-736-079**

**2.Shaik Muhammad Ashfaq-1602-22-736-073**

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## **CERTIFICATE**

This is to certify that the Theme based project report entitled "**Fabrication of Fall Detection Helmet**" is a bonafide record of a Theme based project work carried out by

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K Ritesh --- 1602-22-736-067  
M Roshan --- 1602-22-736-068  
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Mr.K.Srinivas Rao



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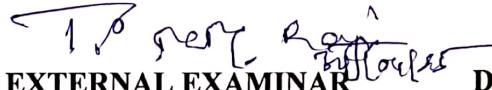
## **CERTIFICATE**

This is to certify that the Theme based project report entitled "**RADAR**" is a bonafide record of a Theme based project work carried out by

SAI PAJJURI	--- 1602-22-736-070 ✓
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**AFFILIATED TO OSMANIA UNIVERSITY IBRAHIMBAGH,  
HYDERABAD**

**VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)  
AFFILIATED TO OSMANIA UNIVERSITY IBRAHIMBAGH,  
HYDERABAD**

**CERTIFICATE**

This is to certify that the theme based project report entitled “DESIGN AND FABRICATION OF 2 WHEEL SELF BALANCING ROBOT ” is a bonafide record of a theme based project work carried out by

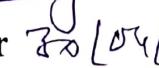
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VASAVI COLLEGE OF ENGINEERING(AUTONOMOUS)  
AFFILIATED TO OSMANIA UNIVERSITY  
IBRAHIMBAGH, HYDERABAD

**CERTIFICATE**

This is to certify that the Theme based project report entitled  
“DESIGN AND FABRICATION OF AGRICULTURE  
PESTICIDE SPRAYING ROBOT” is a Bonafide record of a  
Theme based project work carried out by

Dr. T. Ramamohan Rao, HOD of the Mechanical Department,  
to the Project student and for permitting us to conclude our  
subject. Your Project Guide Mr. K. I. Spurgeon, Project  
Guide Mr. V. Shiva Sai (1602-22-736-076)

M. Yashwanth (1602-22-736-082)

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Project Guide

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**VASAVI COLLEGE OF  
ENGINEERING(AUTONOMOUS) AFFILIATED TO  
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IBRAHIMBAGH, HYDERABAD.**

**CERTIFICATE**

This is to certify that the theme-based project report entitled "**FABRICATION OF FOOT STEP POWER GENERATION BY USING RACK AND PINION MECHANISM**" is a Bonafide record of a mini project work carried out by,

<b>P. JAYA CHANDRA</b>	<b>1602-22-736-335</b>
<b>V. HARI TEJA</b>	<b>1602-22-736-333</b>
<b>G. SRUJAN GOUD</b>	<b>1602-22-736-328</b>

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**Mr. K. I. SPURGOEN**

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**Project Guide**

  
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Professor & HOD

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