MADHUSIVASANKARI MUTHUKUMAR

9944542271

https://www.linkedin.com/in/madhusivasankari-m-053a7a270/

madhusankari1082002@gmail.com

COIMBATORE

PROFESSIONAL SUMMARY

Hlo!

This is Madhusivasankari Muthukumar, A **Mechanical Engineering Aspirant**. Buckle up, and know that it's gonna be a tremendous amount of work from my side, but embrace it. **Adaptive to a differentrealm**. **Team worker and Front Runner**.

HARDWARE BUNCH:

Interests and aspirations include **Thermodynamic engineering, product design & ergonomics, and management**. A solid foundation with the basics including **IOT**, **Entrepreneurship development**, **Cloud-Computing**, **PLM**, **product development and management**, **TQM** etc. Basic understanding of Gas Turbine Engines design process. Basic using **3-D CAD modeling software to design (Inventor preferred)**. Primary Experience in using simulation, digital design tools & analysis tools **ANSYS, SOLIDWORKS, MATLAB,** etc. Some familiarity with **FEA.**

Basic knowledge about the **Non-destructive Testing methods** and previously had the opportunity to work with the **ultrasonic testing** method. Hands on practice in **Welding process** and **Torch Handing**. Basic knowledge about the **Casting and Welding** Processes.

SOFTWARE BUNCH:

Objective-driven and results-oriented **AR & VR development** with a passion for creating immersive and interactive experiences. Beginning Skill in **Unity, C#, and 3D modeling, Vuforia, Blender** with an understanding of **AR and VR frameworks and technologies**. Seeking a challenging position to expand my knowledge, contribute to innovative projects, and drive the future of AR development. **SOS Alert System** and **Sensors and Networking** concepts.

Inventory Management

Familiar with **procurement processes**, **vendor relations**, and **cost analysis**.
Working knowledge of **Microsoft Office products**.
Verbal and written communications.

Problem-solving and analytical skills

Ability to **manage multiple tasks** Kept up to date with the latest industry trends, technologies, and best practices in mechanical engineering through self-directed learning and professional development opportunities. Ensuring Technical and analytical skills, problem-solving ability. Experience in literature studies and **research and development**, having undertaken numerous projects.

NOTABLE ENGINEERING PROJECT:

DIRT BIKE:

Project Link:
https://drive.google.com/drive/folders/11sCS_Rppn8Qk3AuO_xIrTe3r8-BeOi6D?usp=drive_link

Led a team of 10 in the design and fabrication of a DIRT BIKE.

- Conducted research and development studies, analyzed technical specifications, and preparedproject schedules
- Utilized SolidWorks to create 3D models of the vehicle and its components
- Conducted tests and experiments to evaluate the vehicle's performance and made designmodifications accordingly
- Presented the project to a panel of industry professionals and participated in various competitions bagging many awards for the best innovation and design, received positive feedback.

SMART TOILET:

Project Link: https://youtu.be/6CHmNUW-4nc?si=HQh4aJGJCI-kY17Z

Led a team of 4 and proposed and created an MVP with the application of Cutting-EdgeTechnology under Industry 4.0.

- Included numerous Sensor worlds into the project
- Conducted and worked on the Embedded C language
- Participated in a stretch of events in and around the country

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PORTABLE DECOCTION OF (KASHAYA) MAKING MACHINE:

Project Link:
https://drive.google.com/drive/folders/1JFqCoSK3fmnGxSdiHONmMWMl_XLbCCND?usp=drive_link

- An indigenous idea makes process effortless and gives an explicit remedy for user's ailment, giving the user a quality healthy drink.
- The added biometric sensors to detect blood pressure, temperature, and Spo2 level
- The touch display-user interface, he MedXpert Android Application, RFID tags included and moreover with a cost-effective way makes it striving project.

TECHNOLOGICAL SOLUTIONS FOR DISPOSAL OF MENSTRUAL WASTE (Smart Menstrual Hygiene Management System)

Project Link:
https://drive.google.com/drive/folders/1snjzmrvssi76MgAXSvSxPEY-aWimApaU?usp=drive_link

Competence Broadened

ANSYS

Team Leadership

Value chain

Welding

GMAW

Manufacturing

VCQS analysis

TPD

Presentation

Soft Skills

Data Research & Development

Video Processing

Optimization & Productivity

Procurement

PowerPivot

Microsoft Office

SAP BASICS

Vendor Management

Business Model Canvas

Sensors and Networking

Cloud Computing

Auditing

SOS Alert System

SOLIDWORKS

Our product FEMFLARE,' Sanitary Pad Disposal Incinerator cum Vending Machine'–a two-in-one system that burns the used pads and converts the ash to reusable material. Disposal through sliding contact and the system can carry 15 pads, and it operates 8 times each day for 3 hours each time. **UV (Ultraviolet) sterilization** with UV light is maintained to ensure the cleanliness and sterilization of the waste before it is disposed of as ash**. Heating coils** serve as the primary heat source to elevate the temperature within the incineration chamber to levels sufficient for complete combustion of the sanitary pads. The **ceramic chamber** is specifically designed to withstand high temperatures even up to 1200°C and ensure complete combustion. To minimize the release of harmful pollutants and particulate matter into the atmosphere **catalytic converters** (Pt and Pd) are integrated into the incineration machine. The ashes resulting from the incineration process accumulate at the bottom of the **combustion chamber** in a collecting tray where these are then converted into useful byproducts such as Construction Materials, turf flooring, brick, etc. A software application that includes clear and concise instructions on how to use the incinerator, emphasizing safety and proper disposal practices

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PLUG-IN CHARGE KIT

Project Link:
https://drive.google.com/drive/folders/1iYlABtivUO8TLgVY4_0Ykt_fyRojS7se?usp=drive_link

The Plug-in kit designed on basis of Charging Kit activation Mechanism together with **Power electronics** through rotating and rectifier mechanism. The build-in unit with the Neodymium magnets mounted and also the **Piezoelectric crystals** (Quartz material) attached to the suspension and inside the tyre targeted for the power generation. The kit also incorporated vibration sensor to track the lubrication level along with a live location tracker, voice assistance and **a RFID Authentication.** The **Low charge indication technology** carried by the ECU (consisting of Arduino UNO and Node MCU) and voltage sensor. The user-friendly **software suite** (using Wi-Fi module) created helps to monitor the overall performance of the vehicle.

FOREFRONT PROJECT

VR (VIRTUAL LAB FOR SCIENCE SUBJECTS AT SCHOOL LEVEL) /AR/ HOLOGRAM

Project Link:
https://drive.google.com/drive/folders/1EMG0OJee5c2Yu6LMeHHd7MgiismarXBB?usp=drive_link

The product aims to move the laboratory to online world experience. **VR/AR with Controller/ controllerless interaction**, customized lens with eye-protective filter, Deep Learning concept, user- friendly (all OS supported), **precise HD optics**, inbuilt speakers and **high-end graphics**, gyroscopic walk, and gaze interaction, Audio assistance and Closed captioning furnishes better sort experience to the user. The **Krenoviantz AR/VR Lab App** and discover cutting edge digital lab experiments at the comfort of your school/home.
Collaborated with cross-functional teams to design and implement AR features andfunctionalities, ensuring alignment with project goals and objectives.

ACHIEVEMENTS AND RESPONSIBLE ROLES:

With a diverse and extensive
PROJECT PORTFOLIO under the SAR Engg Club (SOCIETY OF AUTOMATION AND ROBOTICS),
As an Active member of the club Coordinate and oversee the planning and execution of club projects.
Won many accolades at national and state Hackathons and competitions.
Involved in numerous projects.
Academic Best Performance

CO-CURRICULAR ACTIVITIES:

- Co-ordinated various Teams and engaged in Lead Presentation Trainings
- Society of Automation and Robotics (SAR) LEAD
- Editor or Writer for Campus Publications
- Environmental or Sustainability Coordinator
- Club and Organization activities
- Workshops, seminars
- Field Analysis

EXTRA CURRICULAR ACTIVITIES:

- State basketball player

PERSONAL INTERESTS / HOBBIES:

- Drawing and painting
- Listening Music

EDUCATION

Bachelor's Engineering in Mechanical
Sri Krishna College of Engineering and Technology*2020 – 2024Current CGPA* ***9.16***

Chavara Vidya Bhavan, Coimbatore
Pre-University Education
10th **97.5%**
12th **79.9%**

SEMINARS / TRAININGS / WORKSHOPS:

- Industrial Practices Institute Name:
  Hyundai motor Pvt Ltd
- Sixth National Conference on Trends in Automotive parts System and application
  Institute Name:
  SAE INDIA
- Indo Australian Seminar on Composite Material for Ballistic protection Institute Name: UNSW
- TAPSA 2023 Institute Name:
  SAE INDIA
- FEA Techniques in new product development Institute Name:
  L&T

RELEVANT EXPERIENCE:

SUPPLY CHAIN MANAGEMENT (SCM)

Caterpillar Inc., Machines DIVISION, Melnallathur Post, Thiruvallur, Chennai- 602004

PROJECT INTERN
Jun 2023 – Jun 2023 (1 months)

Optimizing the supply chain of a simulated manufacturing company
As carried out valuable hands-on experience in the field of **logistics, procurement**, and operations within a company's supply chain. Gained exposure to various aspects of the supply chain, including procurement, inventory management, demand forecasting, logistics, and distribution. Involved in and analyzed tracking inventory levels, monitoring supplier performance, analyzing transportation costs, optimizing inventory levels to minimize carrying costs while ensuring product availability, Supplier Relationship Management, Logistics and Transportation, Demand Forecasting (**demand forecasting** activities, **analyzing historical sales** data to predict future demand and optimize inventory levels), Documentation and Reporting & Learning and Development

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STRUCTURED FABRICATION OPERATION UNIT

Caterpillar Inc., Machines DIVISION, Melnallathur Post, Thiruvallur, Chennai- 602004

PROJECT INTERN
Jun 2023 – Aug 2023 (3 months)

Carried out various analyses under the STRUCTURED FACTORY OPERATION department. The ultimate goal of the principles is to eliminate the CPS 8 wastes, improve quality, and reduce process time and cost.

1. **"SECURE-LIFT: EMPOWERING SFO WORKERS WITH ENHANCED LIFTING TACKLE SAFETY ANALYSIS AND OPTIMIZATION"**
2. **"ANALYSIS OF PREWORK AND POSTWORK AND ROBO WELD PROCESS FACTORS IMPACTING WELDING CYCLE TIMES FOR PROCESS OPTIMIZATION"**
3. **"PRE-WORK REQUIREMENTS FOR ROBO WELDING"**
4. **"STRATEGIC EVALUATION OF VALUE CHAIN OPTIMIZATION THROUGH SFO CRITERIA MATRIX"**
5. **KAIZEN AND CONTINUOUS IMPROVEMENT FINAL VELOCITY RATE ANALYSIS (BOTTLE-NECKED REGIONS) etc.…**

SAP Basis
KAAR TECH

2023 – Jun 2023 (less than a year) INTERN

Licenses & Certifications

Developing Soft Skills and Personality - NPTEL
NPTEL21HS57S43362239

Fundamentals of Automotive System - NPTEL

Effective Writing - NPTEL
NPTEL22HS05S23324913

3D Printing - HP

Computer Vision Essentials - Great Learning

Effective Business Websites - Great Learning

Image Processing Onramp - MathWorks

Mechanical Design - Dassault Systèmes

Indo-Australian Online Seminar on Composite Materials for Ballistic Protection 22nd October 2021 - UNSW

Marketing System - Google Digital Garage

Building Resilient Bots Using Automation 360 - Automation Anywhere