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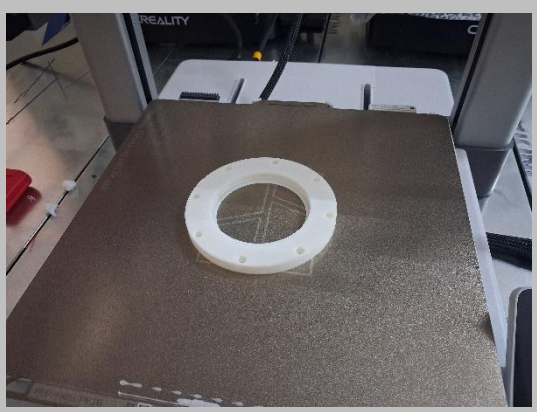
RAMAIAH
Institute of Technology

MSRIT AICTE IDEA LAB

NEWSLETTER

Inauguration of MSRIT AICTE IDEA LAB on 27th November 2026

The event was inaugurated by Dr. Parswanath H. V. and presided over by Dr. Karisiddappa, Sri G. Ramachandra, and Dr. N. V. R. Naidu, with the presence of coordinators, faculty members, and Heads of Departments, reflecting the institute's strong commitment to research, prototyping, and startup culture.



First 3D Print at MSRIT AICTE IDEA LAB by Sathvik Rao (1MS22EC117)

ACARE – Autonomous Clinical Assistance Robot is the first 3D-printed project at MSRIT AICTE IDEA Lab. Guided by Dr. Lakshmi Srinivasan, the project is developed by Sathvik Rao, Sarvesh Bhattacharyya, Shreevanth M, and Shreyas S. It is a robotic system designed for hospital assistance and patient care. The robot integrates voice-based control, a robotic arm, and autonomous navigation to support doctors and nurses in performing repetitive tasks efficiently.

The MSRIT AICTE IDEA Lab at **M S Ramaiah Institute of Technology, Bengaluru** was inaugurated on **27 November 2025**, marking an important milestone in promoting innovation, product development, and entrepreneurial activities among students and faculty.

The inauguration was done by **Dr. Parswanath H. V.**, Chief Executive, Gokula Education Foundation (Engineering & General Science). The event was presided over by **Dr. Karisiddappa**, Chief Academic Advisor, Gokula Education Foundation (Engineering & General Science), **Sri G. Ramachandra**, Chief of Finance, GEF (Engineering & General Science), and **Dr. N. V. R. Naidu**, Principal, Ramaiah Institute of Technology, and Chief Mentor of the MSRIT AICTE IDEA Lab.

The event was attended by **Dr. G. M. Madhu**, Professor and Head, Department of Chemical Engineering, M S Ramaiah Institute of Technology, Bengaluru, and Coordinator of the MSRIT AICTE IDEA Lab, along with **Dr. Archna**, Registrar Academic at M S Ramaiah Institute of Technology. Shri. Mahadev Kokkari. Registrar (Administration), **Dr. G. S. Prakash**, Controller of Examinations, MSRIT, and **Dr. Siva Kiran R. R.**, Co-Coordinator of the MSRIT AICTE IDEA Lab. Faculty members associated with the IDEA Lab and present during the inauguration included **Mr. Gururaj**, Department of Mechanical Engineering; **Swathanthrakumar K. P., Gireesh**, Department of Mechanical Engineering; **Dr. Neelamsetti Kiran Kumar**, Department of Electrical and Electronics Engineering; and **Dr. Rajendra Prasad P.**, Department of Electronics and Communication Engineering.

The event was also attended by Heads of Departments from various departments along with faculty members, highlighting the institute's collective commitment to fostering innovation, research, prototyping, and startup culture through the AICTE IDEA Lab initiative.

MSRIT - AICTE IDEA LAB empowers students and faculty across all departments with eight state-of-the-art workflows: Additive Manufacturing, Digital Manufacturing, PCB Manufacturing, IoT & AI, Product Development & Reverse Engineering, Printing & Sublimation Technologies, Advanced Engineering Tools, and Welding Technologies. Additional workflows include Business Process Modeling and Knowledge Digitization and Archival, supporting integration with MBA courses, Humanities, and Library systems. Together, these facilities drive ideation, prototyping, and innovation across disciplines.

Vision

To provide and sustain entrepreneurial activities to foster a startup culture and implement environmental, social, and economic solutions.

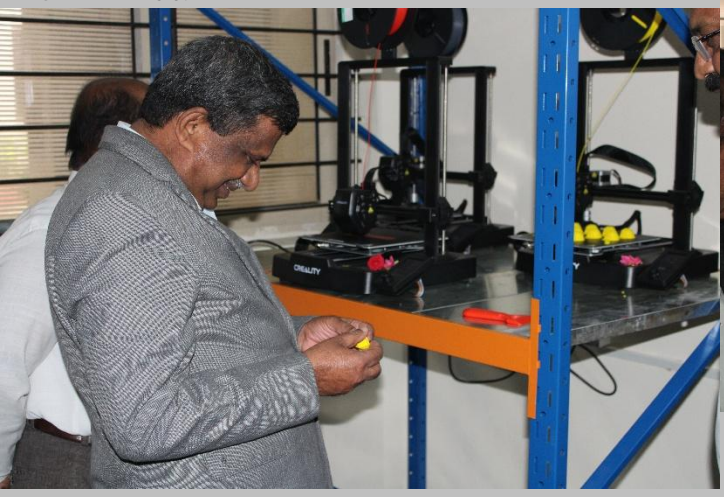
Mission

- To promote innovation and product development among young faculty and students.
- To organize entrepreneurial conclaves, ideathons, hackathons and competitions.
- To convert innovative ideas into tangible products and solutions.
- To encourage start-ups and their ecosystem.

Photograph by Dr. Alex Koshy, Department of Chemical Engineering, MSRIT

Dr. Karisiddappa, Chief Academic Advisor, Gokula Education Foundation (Engineering & General Science), and **Dr. N. V. R. Naidu**, Principal, Ramaiah Institute of Technology, and Chief Mentor of the MSRIT AICTE IDEA Lab.

Dignitaries and Esteemed Guests of Honour during the Inauguration Ceremony



Dr. Karisiddappa, Chief Academic Advisor, Gokula Education Foundation (Engineering & General Science), at observing 3D Printed modes at Additive Manufacturing Laboratory

Mr Gururaj, Faculty Team Member demonstrating to Dr. Karisiddappa, Chief Academic Advisor, Gokula Education Foundation (Engineering & General Science).

Dignitaries and Esteemed Guests of Honour visiting Product Design and Reverse Engineering Laboratory.

Dr. G. M. Madhu, Coordinator of MSRIT AICTE IDEA Lab, demonstrating the stereo microscope to the dignitaries and esteemed guests of honour.

Dr. G. M. Madhu, Coordinator of MSRIT AICTE IDEA Lab, explain about Printing Technology to the dignitaries and esteemed guests of honour.

ROSNAUT Club of ECE Department demonstrating about robot in the IOT and Smart Systems Laboratory to **Dr. Karisiddappa**, Chief Academic Advisor, Gokula Education Foundation (Engineering & General Science),

Dr. Siva Kiran RR, Co-Coordinator of MSRIT AICTE IDEA Lab, explain about PCB Manufacturing to the dignitaries and esteemed guests of honour.

Mr. Gururaj, Faculty Team Member of the MSRIT AICTE IDEA Lab, demonstrating the use of an inspection camera in the Advanced Manufacturing Tools Laboratory.

Project Title: Custom Function on Generator Using Digital Direct Synthesis

Team Members
Rakshak R – 1MS24EC090
Sanket S Chincholi – 1MS24EC106
Rehan Fazal – 1MS24EC092
Jyoshitha Pamujula – 1MS24EC048
Vansh Idnani – 1MS24EC142

Department of Electronics and Communication Engineering

This project focuses on the development of a compact and low-cost function generator capable of producing different electrical waveforms commonly used in electronics laboratories and experimental setups. Function generators are essential tools for students and engineers to test and analyze electronic circuits.

The system is designed around a Digital Direct Synthesis (DDS) waveform generator IC controlled by a microcontroller. It enables the generation of sine, square, and triangular waveforms across a range of frequencies. A simple user interface consisting of a 16×2 LCD display, push buttons, and a control knob allows users to easily adjust signal parameters.

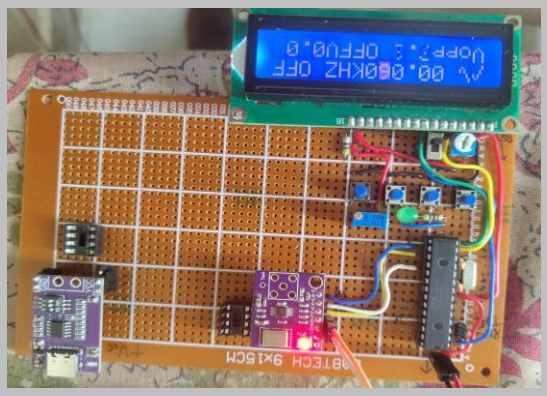
The project demonstrates how a useful laboratory instrument can be developed using commonly available electronic components and embedded programming. The design integrates digital control circuitry with an analog signal conditioning stage to produce stable and adjustable output waveforms.

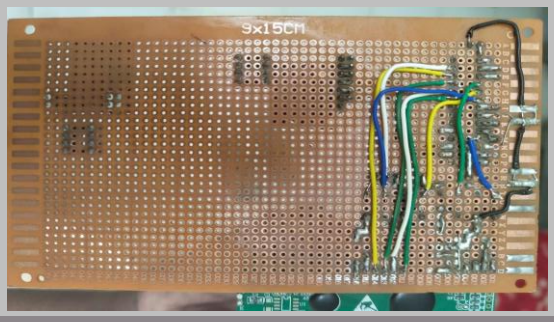
Key Features
- Generation of sine, square, and triangular waveforms
- Adjustable output frequency through a simple user interface
- LCD display for monitoring system parameters
- Compact prototype built using discrete components
- Modular design allowing future improvements and expansion

Current Status

The digital control system and waveform generation module have been successfully implemented and tested. Work is currently underway on the final analog signal conditioning stage and the integration of all modules into a complete working prototype. This project highlights a practical approach to developing laboratory equipment while integrating concepts from embedded systems and analog electronics.

Future Scope
In the future, the system can be enhanced by incorporating features such as higher frequency ranges, improved waveform accuracy, and digital control through a computer or mobile interface. Additional waveform types and amplitude control can also be integrated to make the device more versatile for advanced laboratory experiments.

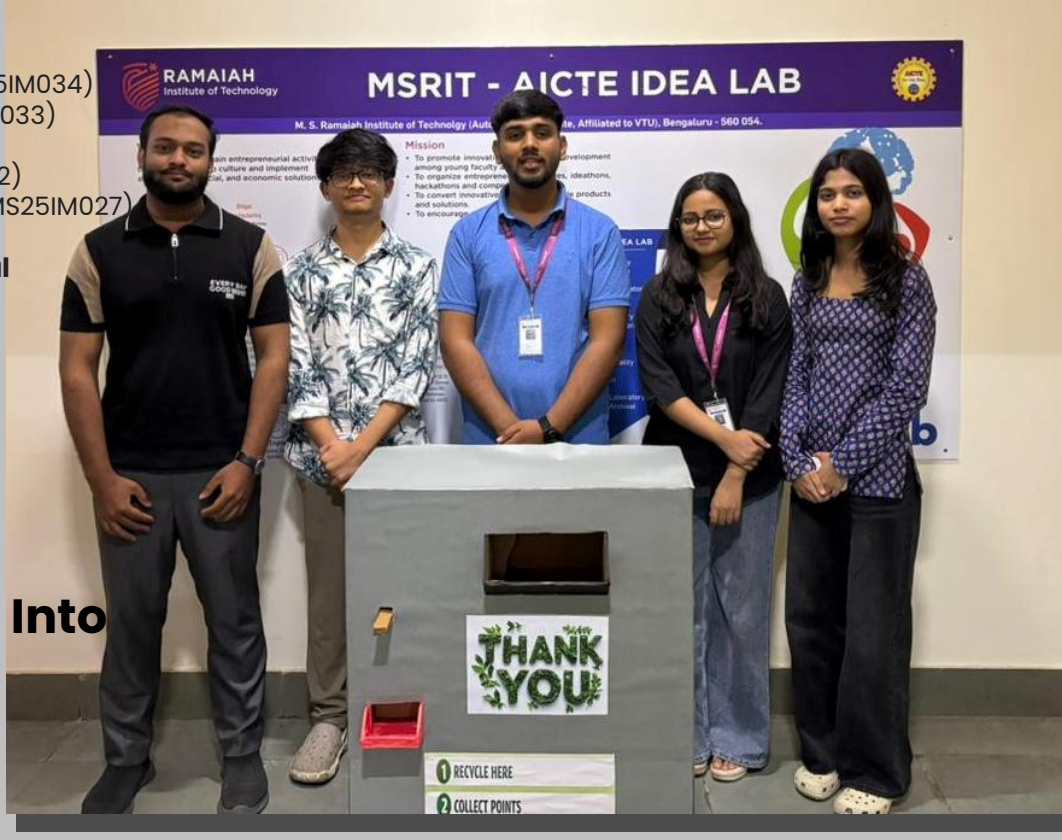




Team Members
Mohammed Junaid(1MS25IM034)
Mayur skanda C (1MS25IM033)
S Lohith (1MS25IM054)
Manavi Gupta(1MS25IM032)
K K Lishya kaveramma (1MS25IM027)

Department of Industrial Engineering and Management

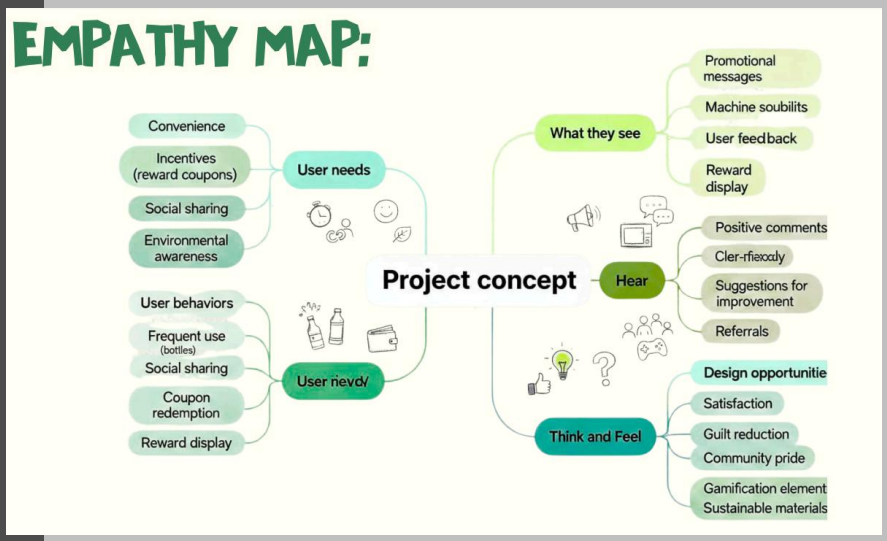
Fun Recycling: Turning Waste Into Rewards

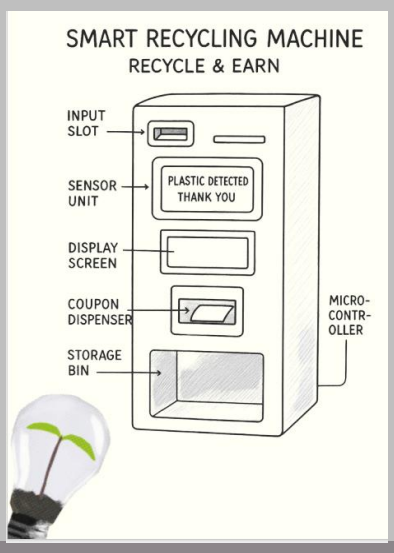


The project **"Fun Recycling: Turning Waste into Rewards"** focuses on encouraging sustainable waste management on campus through a reward-based smart recycling system. Developed using a design thinking approach, the team identified the lack of motivation and awareness among students regarding plastic recycling. To address this, they proposed a **Smart Recycling Machine**, similar to a reverse vending machine, where users can deposit recyclable plastic bottles and receive rewards such as coupons or small items. The system uses sensors and a microcontroller to detect and store recyclable materials while providing instant feedback to the user. Through testing and user feedback from students, janitors, and faculty, the prototype was improved to enhance usability, storage capacity, and response speed. The project promotes responsible consumption and aligns with **Sustainable Development Goal 12**, encouraging a cleaner and more environmentally conscious campus.

PROTOTYPE DESCRIPTION & FUNCTION
This Smart Recycling Machine prototype, similar to a reverse vending machine, encourages recycling by offering rewards.

How it Works:
- Users insert recyclable material into the input slot.
- Sensors analyze and verify the item, then store it.
- Upon acceptance, the system issues a reward (coupon, QR code, • stationery).
- A "THANK YOU" message appears on the display.





IOT ENABLED WASTE MONITORING AND SEGREGATION SYSTEM.

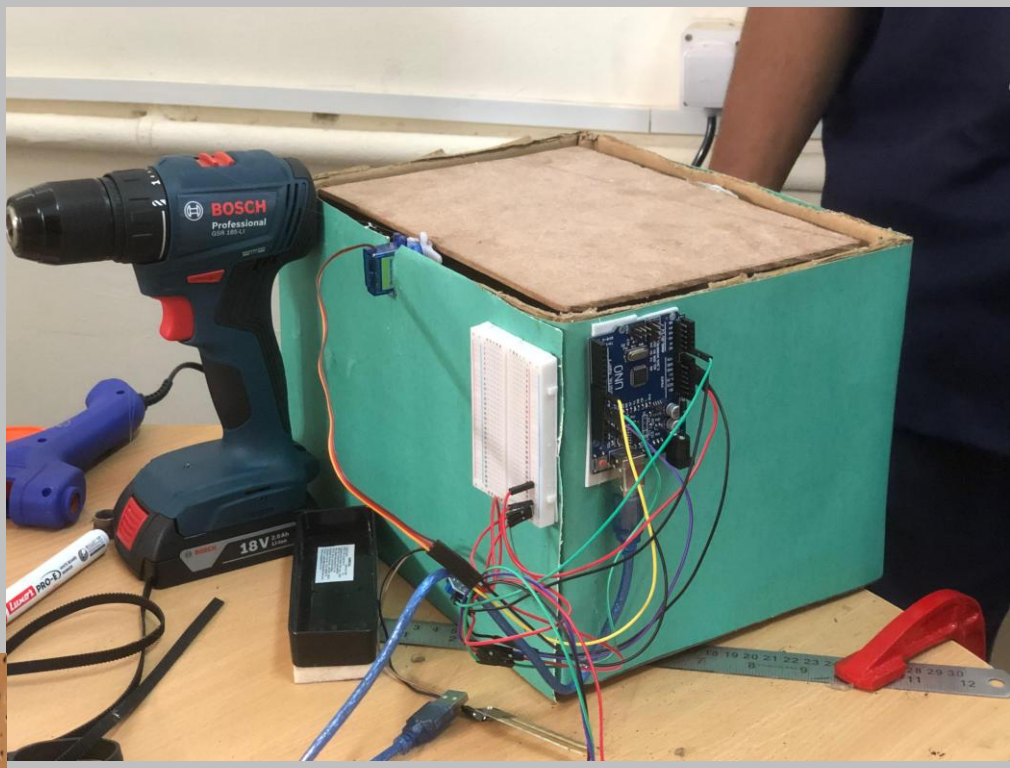
1st SEMESTER PROJECT by Department of Mechanical Engineering, Section N.

Group members: Adi Bopanna K N. 1MS25ME007, Aditi P. 1MS24ME008, Aditya Sinnurkar 1MS25ME009, Adwait Jinagouda, 1MS25ME010 Akhilesh Srinivas, 1MS25ME011)

IOT ENABLED WASTE MONITORING AND SEGREGATION SYSTEM.

IoT Enabled Waste Monitoring and Segregation System is an automated solution designed to classify waste into wet and dry categories using sensor-based technology. The system uses an IR sensor for waste detection and a capacitive sensor to analyze moisture content, with an Arduino controlling a servo mechanism for segregation. Through iterative testing and design improvements, the project achieved reliable performance and efficient waste classification. This system promotes smart waste management and supports sustainable environmental practices.

As part of the design thinking process, over 50 people from urban, rural, and semi-urban areas were interviewed to understand waste management practices. The insights revealed that a majority of households do not consistently segregate waste, highlighting the need for a simple and automated solution. Based on these findings, the system was designed to be user-friendly, efficient, and practical for everyday use. The project focuses on solving real-world problems by combining user needs with technology, promoting better waste management habits and environmental sustainability.



The system simplifies waste segregation by dividing it into clear categories, making recycling more efficient and resource-saving. It enables easy extraction of waste from the bin without spillage, improving usability and hygiene. Research findings highlight that a majority of households do not segregate waste regularly, emphasizing the need for automated solutions. The prototype successfully demonstrates effective segregation into recyclable and non-recyclable waste, supported by sensor integration and smart design. Overall, the system contributes to reducing landfill waste and promoting environmentally responsible practices.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Institute of Technology
MSRIT - AICTE IDEA LAB
M. S. Ramaiah Institute of Technolgy (Autonomous Institute, Affiliated to VTU), Bengaluru - 560 054.
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8 WORKFLOWS
Facilities at MSRIT- AICTE IDEA LAB
• Additive Manufacturing Laboratory
• Product Development and Reverse Engineering Laboratory
• Advanced Engineering Tools Laboratory
• Digital Manufacturing Laboratory
• Welding Technology Laboratory
• IoT and Smart Systems Laboratory
• Intelligent App Development Laboratory
• Industry Automation Laboratory
• Printing Technology Laboratory
• PCB Manufacturing Laboratory
• Immersive Design & Virtual Reality Laboratory
• Glass Science and Fabrication Laboratory
• Business Process Modeling Laboratory
• Knowledge Digitization and Archival Laboratory
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