

MARIESWARAN M

Mechatronics Engineering (HONS.)

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Education

Hindusthan College of Engineering and Technology	Coimbatore, Tamil Nadu
<i>B.E. Mechatronics Engineering (Hons)</i> CGPA: 8.94 / 10 2022 –	2026
<ul style="list-style-type: none">Relevant Coursework: Robotics, Control Systems, Autonomous Systems, Machine Learning, Computer Vision, Embedded Systems.	
Jay Tech International Hr Sec School (CBSE)	Theni, Tamil Nadu
<ul style="list-style-type: none">Higher Secondary Certificate (HSC): 76%Secondary School Leaving Certificate (SSLC): 72%	2022 2020

Experience

Defence Research and Development Organisation (DRDO)	Sept 2025 – Feb 2026
Computer Vision Intern - <i>Python, OpenCV, Image Preprocessing, Feature Extraction</i>	
<ul style="list-style-type: none">Designed and implemented computer vision pipelines for defense-oriented perception tasks using Python and OpenCV.Worked on image preprocessing, feature extraction, and model evaluation for real-world deployment scenarios.	
Spotless AI Robotics Nov 2024 – April 2025	
Robotics Intern - <i>ROS, ROS2, Gazebo, RViz, Autonomous Systems</i>	
<ul style="list-style-type: none">Worked extensively with ROS and ROS2 for autonomous robot software development.Implemented and tested navigation stacks, sensor integration, and robot control pipelines.	

Projects

Autonomous Sanitization Robot – ZUNO (SIH 2025 Finalist) | SLAM, LiDAR, IMU, Control

Systems

- Designed and developed an autonomous indoor sanitization robot aimed at hospitals and public infrastructure.
- Implemented SLAM-based navigation and localization for fully autonomous operation.
- Integrated LiDAR, IMU, and control systems to ensure efficient coverage and collision avoidance.

6-DOF Robotic Arm Manipulator | ROS2, MoveIt2, Gazebo, OMPL

- Implemented Inverse Kinematics (IK) and real-time servoing for precise end-effector control.
- Performed path planning and obstacle avoidance using OMPL within MoveIt2.
- Integrated sensor feedback to improve positioning accuracy and motion smoothness.

Logistic Cobot System (e-Yantra 2024 – Industry 4.0) | SLAM, AMCL, RP Lidar, ROS

- Developed a dual-robot warehouse automation system consisting of a sorting RoboArm and a mobile RoverBot.
- Implemented SLAM for mapping and AMCL for localization using RP Lidar A1-M8 and IMU.
- Designed coordinated workflows between the manipulator and the autonomous mobile robot.

Robotic Borewell Rescue Kit (SIH 2024 Overall Winner) | Electronics, Motor Drivers, Sensors

- Developed a robotic rescue solution for borewell accident emergencies, winning the ₹50,000 national prize.
- Designed the electronics architecture, including motor drivers and control units for constrained environments.

TECHNICAL SKILLS

- **Languages:** Python, C++
- **Robotics:** ROS1, ROS2, MoveIt2, Nav2, SLAM, Autonomous Mobile Robots
- **Simulation:** Gazebo, RViz, NVIDIA Isaac Sim, Isaac Lab
- **Design:** SolidWorks, Computer Vision, Machine Learning, Embedded Systems

ACHIEVEMENTS & CERTIFICATIONS

- **Winner:** Smart India Hackathon 2024 (Robotic Borewell Rescue Kit)
- **Finalist:** Smart India Hackathon 2025 (Autonomous Sanitization Robot – ZUNO)
- **ISRO Course:** Overview of Space Science and Technology
- **Certification:** SLAM & Autonomous Navigation (Robotics Society of India)
- **Industrial Automation:** Certified by Prolific Pvt. Ltd