

Kartikey Pathak

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EDUCATION

Veermata Jijabai Technological Institute (VJTI) <i>B.Tech in Electrical Engineering, Minor in Robotics (CGPA 8.01)</i>	Mumbai, India 2023 – 2027
Matoshree Prabodhini Jr. College <i>HSC, Maharashtra State Board (MHTCET: 99.14%)</i>	Maharashtra, India 2023

PROJECTS

ForkliftSLAM Navigator <i>ROS2, NAV2, UWB, RasPi</i>	March 2025 – Present
<ul style="list-style-type: none">Implementing Simultaneous Localization and Mapping (SLAM) using NAV2 package for autonomous forklift navigation in warehouse environmentsIntegrating Ultra-Wideband (UWB) technology for centimeter-level precision in indoor positioning where GPS is unreliableDeveloping a custom ROS2 node architecture to handle real-time sensor fusion between UWB anchors and onboard sensors	
eYantra Warehouse Drone Competition <i>ROS2, PID, Computer Vision</i>	October 2024 – January 2025
<ul style="list-style-type: none">Developed advanced PID control algorithms for a drone to achieve stable hovering and precise movement in a simulated warehouse environmentImplemented computer vision techniques to detect and decode ArUco markers, enabling autonomous localization and navigationDesigned and executed path planning algorithms to optimize the drone's route through the warehouse, reaching semi-finals of the competition	
Kuruma (Quadruped Robot) <i>C, Python</i>	January 2025 – March 2025
<ul style="list-style-type: none">Designed and built a four-legged robot capable of traversing various terrains for the Mass Robotics CompetitionImplemented different gait patterns (walk, rotate, dance) with adjustable speed parameters for efficient movementDeveloped a teleop controller using MQTT Protocol between ESP32 and Raspberry Pi 5, controlled the Quadruped using Joystick	
Voice Video Manipulator <i>ROS2, Gazebo, RViz</i>	June 2024 – July 2024
<ul style="list-style-type: none">Programmed forward and inverse kinematics for an Open Manipulator X robot arm to perform precise pick-and-place operationsSuccessfully implemented object detection and tracking algorithms to locate target objects in the Gazebo simulation environment	

POSITIONS OF RESPONSIBILITY

Society of Robotics and Automation (SRA) <i>Active Member</i>	August 2024 – March 2025 VJTI, Mumbai
<ul style="list-style-type: none">Conducted technical workshops for students on embedded C programming and ESP32 microcontroller applicationsMentored junior teams in developing self-balancing and line-following robots, sharing expertise on hardware design and software implementationTaught advanced concepts including MPU6050 sensor integration and complementary filter algorithms for accurate orientation estimation	

TECHNICAL SKILLS

Programming Languages: C, C++, Python
Software: ROS2, Gazebo, RViz, KiCAD, ESP-IDF
Hardware: ESP32, Raspberry Pi, Motor Controllers, Sensors
Specialties: Robot Kinematics, Embedded Systems, PID Control, Sensor Fusion