Pranav Kolekar

[Portfolio](#) | pranavkolekar13@gmail.com | [LinkedIn](#) | [GitHub](#) | [ROS Discourse](#)

Education

M.E.S Wadia College of Engineering	Pune, Maharashtra
Bachelor of Electronics and Telecommunications : 7.53 CGPA T.E.	*Dec 2021 - Present*
S. M Choksey High School and Junior College	Pune, Maharashtra
Higher Secondary Education(12th) : 81.00%	*Jun 2020 - Feb 2021*
S. M Choksey High School and Junior College	Pune, Maharashtra
High School Education(10th) : 85.20%	*Jun 2018 - Mar 2019*

Experience

Robotics Lead, Robocon 2024 | *ROS2, Gazebo, RViz, URDF* — Feb 2024 - July 2024
MES Wadia College of Engineering — *Pune*

- Directed R&D to innovate robot functionalities, leading to the successful development, assembly, and integration of advanced control systems in Robot 1, improving operational efficiency by 20%.
- Implemented ROS2 in Robot 2,made URDF(Unified Robot Description File), integrating encoders, Lidar, IMU, and cameras, and conducted comprehensive Gazebo simulations.
- Integrated SLAM (Simultaneous Localization and Mapping), and Path Planning for Robot 2, enabling accurate real-time mapping and autonomous navigation in the Arena.
- Worked alongside the team to design and deploy robots under tight deadlines, ensuring seamless collaboration and on-time completion for Robocon 2024.

Electronics Intern | *Arduino Cloud, Python* — Mar 2024 - May 2024
Canspirit AI — *Pune*

- Integrated devices with Arduino Cloud for data collection, improving accuracy by 30%.
- Developed cross-platform data logging systems, optimizing storage and retrieval processes.
- Implemented IoT solutions for seamless hardware-software integration.

Electronics and Embedded Systems Developer | *Product Development* — Oct 2023 - Jan 2024
Indkarta LLP — *Pune*

- Developed two embedded systems for medication processing in clinics and labs.
- Designed custom PCB layouts to enhance reliability in clinical applications.
- Managed R&D and testing phases to ensure product quality.

Projects

Autonomous Exploration and Mapping in Uncharted Terrain | *Mapping, Navigation* — Aug 2024 - Present

- Developing autonomous navigation algorithms for exploring and mapping unknown terrains.
- Successfully created a ROS2 package to map 3D environments using 2D LiDAR data.
- Simulating robotic systems in Gazebo to evaluate performance and refine exploration strategies.

Smart Library Management System | *Python, MicroPython, HTML, Raspberry Pi Pico W* — Jan 2024 - Apr 2024

- Developed an RFID-based system for book loans, reducing transaction times by 50%.
- Configured a web server for real-time monitoring of books, loans, and user data, improving access by 40%.
- Enabled seamless web server connectivity via Wi-Fi, enhancing user interaction by 35%.
- Utilized JSON for efficient data storage and retrieval, cutting retrieval times by 45%.

Skills

Programming Languages: Python, C/C++, MicroPython, rclcpp, rclpy.
Robotics & Software Frameworks: ROS2, Nav2, OpenCV, SLAM.
Simulation & Visualization: Gazebo, RViz.
Development Tools: GitHub, VS Code, VMware Workstation.
Hardware: Arduino Boards, Raspberry Pi, NVIDIA Jetson Nano,Raspberry Pi Pico.
Mechanical & Design Tools: KiCad, Fusion360.
Cloud Tech and Protocols: Git,Blynk IOT, UART, I2C $ SPI, CAN, MQTT, TCP/IP, UDP, ZIGBEE.