Ansh Mehta

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EDUCATION

MS, Robotics and Autonomous Systems — Boston, MA, USA
Boston University College of Engineering | GPA: 3.50/4.00 — September 2023 - January 2025

BTech, Electronics Engineering — Mumbai, MH, India
Mumbai University - K.J. Somaiya College of Engineering | GPA: 3.30/4.00 — August 2019 – May 2023

SKILLS

Programming: C, C++, Python, MATLAB, Embedded C, Assembly, Java, Kotlin, Android SDK, MVVM architecture
Embedded Systems: STM32, AVR, Linux (User & Kernel), FreeRTOS, Bare-metal, I2C, SPI, UART, Arduino & Embedded IDEs
Software Tools: SolidWorks, AutoCAD, Fusion 360, Altium Designer, EasyEDA, PCB Designing, ROS, ROS2, Keil
Engineering & Prototyping: 3D Printing, Manufacturing Processes, Electro-mechanical Systems, Motion Planning
Other: Sensor Fusion, PIDF Control, Motion Planning, System Bring-Up, Debugging (Oscilloscope, Logic Analyzer)

EXPERIENCE

Robotics Research Assistant, RASTIC, Boston University, *Boston* — June 2024 – December 2024
- Developed a Wi-Fi-enabled motion capture calibration robot using ESP32 and winches for real-time payload positioning.
- Designed and hosted an embedded web server to display real-time telemetry, system diagnostics, calibration controls.
- Integrated feedback-driven embedded control loops achieving sub-centimeter precision.
- Implemented secure OTA firmware update capabilities for remote maintenance and feature deployment.
- Modelled system dynamics in MATLAB and implemented RRT* to plan dynamic paths across the room.

Robotics Programming Intern | FIRST Robotics Mentor, The Innovation Story, *Mumbai* — June 2022 – July 2023
- Maintained unified communication protocols across robotic systems; enabled diagnostic visibility across subsystems.
- Designed perception and control systems to achieve autonomous task completion repeatably in a limited time frame.
- Optimized loop timing by 85%, enhancing real-time localization and path planning.

Embedded Systems and Software Team Lead, **Team KJSCE Robocon**, *Mumbai* — August 2021 – August 2022
- Built low-level C firmware and drivers for STM32 (Bare-metal) and AVR microcontrollers—implementing interrupt-driven sensor/actuator control loops with <1 ms latency.
- Managed hardware-software integration and diagnostics for real-time motion control.
- Led Git-based code reviews and Agile sprints; authored Python unit-test covering >85% of critical firmware functions.
- Led a 35-member team through sprint planning and technical workshops to secure Rank 6 at DD Robocon 2022.

Embedded Software Intern, AM Prototyping Labs, *Mumbai* — June 2021 – Aug 2021
- Developed Linux-based C++ software and diagnostics UI for DLP 3D printers.
- Built firmware for projectors, motors, and sensors using I2C, UART; achieved 38µm resolution.
- Implemented OpenCV-based print layer analysis and low-level communication monitoring.

Embedded Software Intern, Rymo Technologies, *Mumbai* — April 2021 – May 2021
- Engineered an embedded system to interface sensors/actuators for elbow rehab tracking.
- Utilized AVR C to monitor feedback from sensors, keeping track of recovery metrics to help with rehabilitation.
- Systematized the data flow using SPI, leading to faster exchange of information with other devices.

PROJECTS

6- Degree of Freedom Articulated Robotic Arm
- Built precision robotic arm with 2mm accuracy; implemented inverse kinematics, PID control, and embedded firmware.
- Leveraged expertise in Mechanical Design, Inverse Kinematics, Power Electronics, Embedded Programming, and Control Systems to enhance performance and reliability.

Mobile Robotic Platform
- Designed holonomic robot with LiDAR and distance sensors; developed embedded navigation stack on Linux (ROS).
- Utilized the ROS Navigation Stack to achieve path planning and autonomous navigation, while using signal processing to achieve smooth motor control, reducing fatigue on the drivetrain, and improving mechanical stability by 40%.
- Integrated diagnostics for drivetrain feedback using real-time signal processing.

Additional Projects
Humanoid Robot Leg Design, Swarm Robot Formations, Soft Robotic Starfish, 3D Printer Monitoring Utility, Wrist Rehabilitation Sleeve, Contactless Hand Sanitizer Dispenser, SCARA Robotic Arm.

LEADERSHIP AND ACTIVITIES

Graduate Teaching Assistant, EK307- Electric Circuits, Boston University — September 2024 – December 2024
Embedded Software Team Member, Team KJSCE Robocon — October 2019 – August 2021