Ansh Mehta

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EDUCATION

MS, Robotics and Autonomous Systems Boston, MA, USA
Boston University College of Engineering | GPA: 3.40/4.00 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++, Java, Python, MATLAB, Qt, OpenCV
Embedded Systems: ARM Cortex M3, Cortex M4, AVR, Embedded C, Linux, RTOS, Assembly, Bare-metal programming
Software: EasyEDA, SolidWorks, AutoCAD, Fusion 360, Altium Designer, Arduino, Keil MicroVision
Engineering: 3D Printing, Manufacturing Processes, PCB Designing, ROS, ROS2

EXPERIENCE

Robotics Research Assistant, RASTIC, Boston University, *Boston* June 2024 – Present
- Developed a motion capture calibration robot, using four motor-driven winches to control a central reflector ball.
- Modeled robot dynamics in MATLAB and designed the system architecture, targeting precise control.
- Managed the electronics and controls to achieve real-time feedback and accurate positioning.

Robotics Programming Intern | FIRST Robotics Mentor, The Innovation Story, *Mumbai* June 2022 – July 2023
- Organized and maintained a Unified Object Framework across the entire organization, ensuring seamless cross-compatibility, and standardized communication protocols between all robotic systems.
- Optimized for time in robot software, achieving an 85% improvement in loop times, directly boosting localization and autonomous trajectory following, without compromising on maximum velocity.
- Designed perception and control systems to achieve autonomous task completion repeatably in a limited time frame.

Embedded Systems and Software Team Lead, **Team KJSCE Robocon**, *Mumbai* August 2021 – August 2022
- Developed low level device drivers and firmware, controlling actuators, and reading sensors and HI devices.
- Led a team of 35 Members to achieve an All India Rank 6 at DD Robocon 2022.
- Designed projects using microcontrollers like the AVR128DA48 & STM32F407, using bare-metal programming.

Embedded Software Intern, AM Prototyping Labs, *Mumbai* June 2021 – Aug 2021
- Developed improved firmware and control UI for industrial DLP resin-based 3D Printers, improving print quality.
- Coded low-level firmware for control of motors, projectors, and sensors, providing resolutions up to 38 Microns.
- Developed Linux software for analysis of printer settings, user interface, processing print layers using OpenCV (C++), and communicating with the low-level controller using UART and I2C.

Embedded Software Intern, Rymo Technologies, *Mumbai* April 2021 – May 2021
- Engineered an embedded solution for interfacing sensors and actuators to monitor patient's elbow movements.
- 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
- Engineered a high-precision robotic arm with 2mm end effector accuracy in 3D space.
- Leveraged expertise in Inverse Kinematics, Power Electronics, Embedded Programming, and Control Systems to enhance performance and reliability.

Mobile Robotic Platform
- Engineered a 3-wheel holonomic drivetrain coupled with 2D LiDAR, Proximity, and Long-Range Distance Sensors for autonomous navigation while mapping the environment.
- 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.

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

Teaching Assistant, EK307- Electric Circuits, Boston University September 2024 - Present
Embedded Software Team Member, Team KJSCE Robocon October 2019 – August 2021
Robotics Student Mentor, K.J. Somaiya College of Engineering June 2020 – August 2020