Shubham Dattatray Asole

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Aspiring **Embedded Systems & Robotics Engineer** with experience in microcontrollers, real-time control systems, and hardware-software integration. Skilled in developing automation systems, wearable devices, and robotic platforms with an emphasis on precision, reliability, and validation. Eager to apply skills in robotics, control design, and embedded hardware development to build next-generation diagnostic technologies.

Skills

Programming Languages: Java, Embedded C, Python, ARM Assembly, HTML
Embedded Systems: ESP32, ARM Architecture, Microcontrollers, UART, I^2C, SPI
Software & Simulation: MATLAB/Simulink, Multisim, LTspice, Vivado, LabVIEW, Linux
Databases: DBMS (MySQL, SQL basics)
Domains: Biomedical Sensors, IoT Automation, Real-time Systems, Control Systems

Education

BTech in Electronics and Communication Engineering
Indian Institute of Information Technology Design and Manufacturing, Kancheepuram *2022 – Present*
XII (State Board)
NKV, Kurunda *2022*

Internship Experience

Embedded Systems Intern *Startrit Infratech Pvt Ltd — May 2025 – Aug 2025*

- Worked on embedded automation and robotics projects for smart infrastructure solutions
- Contributed to the development of a robotic system for lane divider repositioning using Raspberry Pi and UART communication.
- Assisted in designing and validating a sensor-based inspection system for structural anomaly detection.
- Gained experience in real-time control, motor interfacing, ultrasonic sensing, and MATLAB-based simulation.

Academic Projects

Optical Wearable Probe for Neonatal Jaundice Monitoring

- Built a non-invasive wearable device for real-time bilirubin monitoring in neonates.
- Integrated photodiodes, LEDs, and microcontrollers for high-accuracy signal acquisition.
- Performed spectral analysis to improve detection across skin tones.

Railway Sleeper Block Dimension Validation System

- Developed an ESP32-based inspection system using IR sensors and cameras.
- Captured images to validate block dimensions with ± 10 mm tolerance.
- Automated the inspection process to improve throughput.

Smart LPG Monitoring System

- Built an IoT-based gas leak detection system with threshold-based sensing.
- Automated alerts for leaks using SMS to improve home safety.

Satellite Data Prediction and Visualization

- Predicted satellite position/velocity using statistical models and machine learning.
- Created 3D plots, heatmaps, and time-series visualizations using Python.

Position of Responsibility

Hostel Affairs Coordinator *IIITDM Kancheepuram — Mar 2023 – Apr 2024*

- Managed operations for 1000+ hostel residents, including logistics and dispute resolution.
- Coordinated campus-wide events and led a team of student volunteers.