

MOHIT SANJAY MEHENDALE

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SUMMARY

Embedded Firmware Engineer with ~2 years of experience in C/ C++ development for embedded systems, including Linux-based IoT gateways and microcontroller-based firmware. Strong foundation in communication protocols (UART, SPI, I2C), state-machine-based design. Experience in delivering production-grade embedded software with focus on reliability, modularity, and maintainability and exposure to RTOS concepts.

PROFESSIONAL EXPERIENCE

R & D Assistant (Embedded Software Engineer), Signify Innovations India Ltd. 08/2024 – 02/2026 | Pune, India

Worked on **Raspberry-Pi** based **WaveLinux Area Controller (ARMv8- Cortex A)**, a production-grade **embedded Linux IoT gateway** used for smart lighting control.

- Stabilized production firmware by debugging and fixing critical defects in a large **C++ embedded Linux codebase**, improving overall system reliability.
- Good understanding of **state-machine-based logic** for Zigbee end devices, improving device commissioning, configuration consistency, and runtime fault recovery.
- Implemented embedded features end-to-end, including **CAT Phase Dimmer** and **CAT Zone Wallstation**, expanding supported lighting control capabilities.
- Improvised and maintained **Linux user-space services**, utilizing **D-Bus IPC** and **MQTT pub/sub messaging** for reliable inter-module and device communication.
- Worked on MQTT-based communication over **TCP/IP** stack for reliable device-to-gateway data exchange.
- Shouldered embedded **build and deployment workflows** using the **Yocto Project / BitBake**, ensuring reproducible builds and smooth feature rollout.
- Documented clear **software design and interface** in Confluence, improving cross-team alignment and development clarity.
- Collaborated with QA, frontend, backend, and mobile teams to perform root-cause analysis and deliver stable production releases.

Firmware Intern, Signify Innovations India Ltd. 02/2024 – 03/2024 | Pune, India

- Gained hands-on experience with **Embedded firmware development** using **Silicon Labs Mighty SoC kits** for Zigbee-based wireless devices.
- Validated Zigbee communication flows including device joining, message exchange, and network behavior under varying conditions.
- Performed firmware flashing, debugging and gaining exposure to embedded development workflows.

PROJECTS

Embedded IoT Gateway Feature Integration

- Integrated smart lighting control devices with a **Linux-based embedded gateway**, enabling end-to-end device discovery and configuration.
- Implemented embedded feature logic in **C++**, interfacing with **Zigbee, MQTT, and D-Bus** for reliable inter-device and inter-process communication.
- Enhanced a legacy embedded codebase while maintaining backward compatibility and stable runtime behavior.
- Performed system-level integration testing and coordinated with cross-functional teams to resolve firmware integration issues.

IOT Based Animal Shelter Management System

- Developed **embedded firmware** for an ESP32-based environmental monitoring system with sensor interfacing (DHT11, MQ-2, HW-038) using **ADC and GPIO**.
- Implemented real-time data acquisition and threshold-based decision logic for sensor-driven control using Embedded C.
- **Designed and integrated** actuator control using relay drivers for automated environmental regulation (fans, water pumps) based on sensor inputs.

SKILLS

Programming Skills: — C++, C

Protocols : — I2C, SPI, UART, Zigbee, MQTT

General: — Object-Oriented Programming(C++), Data Structure (Basics)

Embedded Systems & Firmware: — Embedded Linux, Real Time OS (task scheduling, synchronization, interrupt)

Build, Version Control & Tools: — Git, GitLab, Bitbucket, JIRA, Confluence

Testing & Debugging: — Firmware Sanity Testing, Log-Based Debugging, Log Analysis, Root-Cause Analysis.

EDUCATION

Bachelor of Technology (Electronics Engineering), 2021 – 2024 | Pune, India

Walchand College of Engineering Sangli
CGPA: 8.57

10+2 (CBSE), Jawahar Navodaya Vidyalaya Gondia 2018 – 2019 | Navegaon/Bandh, India
Percentage : 89.20%

AWARDS & RECOGNITIONS

- **Runner-Up – Hackovation 2025, Signify Innovations India** – Secured 2nd place in a company-wide hackathon for developing embedded solution for smart lighting systems.
- **Filed Innovation Disclosure Report (IDR)** – Submitted an IDR for the hackathon project, contributing to potential intellectual property.
- **Finalist – Embeddthon, Walchand College of Engineering, Sangli** – Recognized among top 3 teams in a competitive embedded systems hackathon.