PAVANI T

Embedded Software / IoT Engineer (Undergraduate) | C/C++ | ESP32 | LoRa | MQTT

✉ t.pavani1204@gmail.com   📞 +91 8309353414   ⬤ Pavani-64

WORK EXPERIENCE

Embedded Systems Intern — IoT & Energy Harvesting   June 2025 – July 2025
- Developed embedded C firmware for real-time sensor data acquisition on microcontroller-based systems
- Integrated LoRa wireless communication for long-range, low-power data transmission
- Implemented MQTT-based cloud communication using TTN and Node-RED for live data streaming
- Debugged firmware and hardware issues during bring-up, testing, and field validation
- Assembled, tested, and validated hardware prototypes ensuring reliable firmware–hardware integration
- Documented system architecture, communication flow, and testing procedures

EDUCATION

Thapar Institute Of Engineering & Technology   2022 – 2026
BTech- Electronics & Communication Engineering

PROJECT

RailShield – IoT-Based Railway Safety & Monitoring System
- Developed bare-metal firmware on ESP32 for real-time hazard detection
- Interfaced multiple sensors using GPIO, ADC, UART, and I2C
- Implemented interrupt-driven data acquisition for timely event detection
- Designed rule-based sensor fusion to reduce false positives
- Integrated LoRa communication for low-power, long-range transmission
- Ensured reliable and predictable system behavior under sensor fault conditions

Smart Irrigation System Using ESP32
- Developed embedded firmware in C for sensor-based automation
- Interfaced soil moisture and temperature sensors using GPIO and ADC
- Implemented threshold-based control logic for relay-driven pump operation
- Ensured stable and deterministic control behavior during continuous operation

SKILLS

- **Programming:** C, C++, Embedded C
- **Embedded Software:** Bare-metal firmware, Hardware–software integration, Interrupts, Timers, GPIO, UART, SPI, I2C, Debugging
- **Microcontrollers:** ESP32, STM32
- **Wireless & Protocols:** LoRa, Wi-Fi, BLE, MQTT
- **Hardware:** Basic circuit design, PCB fundamentals, Op-Amps, MOSFETs, Digital electronics
- **Tools:** Arduino IDE, Keil µVision, Git, Linux (CLI), Node-RED, TTN
- **Exposure:** RTOS concepts (task scheduling, timing)

ACHIEVEMENTS & CERTIFICATIONS   **View Here**

- **Embedded Systems & IoT Intern, Thapar University**
- **PCB Design & Fabrication – Thapar University**
- **IoT-Based Systems – Thapar University**
- **Ericsson IoT Fundamentals | Ericsson 5G Technology Fundamentals**
- **Solved 250+ Data Structures & Algorithms problems**

INTERESTS

- **Embedded systems and IoT experimentation**
- **Hardware prototyping and sensor-based automation**
- **Wireless communication and low-power system design**

LANGUAGES

- **English - Fluent , Hindi - Fluent , Telugu - Native**