

# Yerraballi Gangamma

EMBEDDED SOFTWARE ENGINEER

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Immediate Joiner

Embedded Software Engineer with 1+ year of hands-on experience developing firmware for **ESP32** and **ARM Cortex** microcontrollers using C and C++. Proficient in peripheral driver development, sensor interfacing, and communication protocols (UART, SPI, I2C, CAN). Skilled in Bluetooth and Wi-Fi integration for real-time data systems, with a track record of debugging hardware–software issues and optimising firmware reliability in resource-constrained environments.

## CORE SKILLS

### Languages

C (Advanced) C++ Python Data Structures

### Microcontrollers

ESP32 ARM Cortex-M GPIO Timers  
Interrupts

### Protocols

UART SPI I2C CAN Bluetooth Wi-Fi

### Tools & OS

Arduino IDE Embedded Linux Shell  
Scripting Serial Debugging

## EDUCATION

### B.Tech – Electrical & Electronics Engg.

Annamacharya Institute of Tech. &  
Sciences, Rajampet  
JNTUA | Graduated 2023

CGPA: 7.4 / 10

## LANGUAGES

- ◆ Telugu (Native)
- ◆ English (Professional)
- ◆ Kannada

## PROFESSIONAL EXPERIENCE

### Junior Embedded Engineer

Jan 2025 – Dec 2025

Embedded Firmware Development Role · Bangalore

- Developed and maintained embedded firmware in **C and C++** for ESP32 and ARM Cortex-M microcontrollers, covering GPIO configuration, timer management, and interrupt service routines.
- Designed peripheral drivers for sensors and external modules using **UART, SPI, and I2C** protocols, ensuring accurate data acquisition and communication.
- Implemented **Bluetooth and Wi-Fi** communication stacks on ESP32 enabling real-time wireless data transmission between embedded devices and host systems.
- Diagnosed and resolved hardware–software integration defects using **serial debugging tools** and logic analysis, reducing system fault rates.
- Optimised memory usage and execution cycles to improve firmware reliability and responsiveness in resource-constrained environments.

## PROJECTS

### Health Monitoring System · ESP32

Built a wearable health monitor interfacing pulse and temperature sensors with the ESP32. Implemented threshold-based alert logic triggering notifications for abnormal readings in real time.

### Smart Blind Assistance Stick

Designed an obstacle-detection assistive device using ultrasonic sensors with proximity-triggered vibration feedback, helping visually impaired users navigate safely.

### Agricultural Monitoring System

Developed an IoT-based smart farming node monitoring soil moisture, ambient temperature, and light intensity, enabling data-driven irrigation and crop management.

### Bluetooth-Controlled Vehicle

Implemented wireless vehicle control using ESP32 Bluetooth communication, demonstrating end-to-end embedded control from mobile command input to motor driver actuation.