

Fairoz Ramapur

Embedded System & IoT Engineer | Dharwad, Karnataka | +91 8277215750 |
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Professional Summary

I am an **Embedded System & IoT Engineer** who builds the smart technology inside modern devices—from **solar-powered farm sensors to EV battery monitors**. Over **1 year and 10 months**, I have taken complete ideas and turned them into **working products that people actually use**. My job is to **give "things" a brain**. I write the core code (**firmware**) running on microcontrollers like **ESP32 and STM32**, design how devices communicate over **long-range wireless or industrial networks**, and build the **dashboards** that let users see data and control equipment from anywhere. I work across the entire process: programming in **C/C++ and Python**, building **low-power electronics** that run for months on battery, debugging hardware, and creating cloud backends. I focus on **building practical, reliable solutions** that solve real problems for **farmers, drivers, and factory managers**. I am eager to apply this full-stack, solution-oriented approach to new challenges in industries such as **chip design and embedded systems, drone manufacturing, R&D analysis, healthcare IoT, agriculture IoT**, and the **EV industry for automotive and embedded systems**.

Technical Skills

Category	Skills
Programming & Firmware	C, Embedded C, C++, Python, Basics of java
Microcontrollers & Platforms	ESP32, STM32, Raspberry Pi, Embedded Linux, drone flight controllers analyses and architecture
Automotive & Industrial Protocols	CAN/CAN FD, Ethernet, Modbus RTU, RS485
Communication & IoT Protocols	UART, SPI, I2C, LoRaWAN (Class A), MQTT, HTTP/HTTPS, REST APIs, ZigBee protocol, BLE protocol
Electronics & Lab Testing	Oscilloscope, Multimeter, Power supplies, Signal probing, Hardware debugging and validation
Tools	STM32CubeIDE, Serial tools, Proteus
PCB & Hardware Design	2-Layer PCB Design, Schematic Capture, Layout, EasyEDA, KiCad, Gerber Generation, Design Validation
Testing & Validation	Static analysis, Dynamic analysis, Firmware integration testing, System testing

Professional Experience

IoT Developer

Abhyudaya Techno Solutions Pvt. Ltd., Hubli, Karnataka

July 2024 – Present

- **Designed and programmed the core "brains" for smart devices** used in agriculture and industry. I took projects from a simple prototype to a finished, reliable product that could be installed and used by customers in the field.
- **Made devices "smart" on battery power** by writing special power-saving code. For example, in a remote farm project, I programmed sensors to **"sleep"** most of the time and only **"wake up"** to take a reading and send data. This let the devices run for over 6 months on a single battery charge, saving the client from frequent, costly battery replacements.
- **Made sure all devices could talk to each other reliably**, even in noisy or remote locations. I set up the communication systems (both wired and wireless like long-range radio) so that data from sensors in a dusty field or a mushroom house would always reach the farmer's dashboard without getting lost.
- **Built the online dashboards and mobile-friendly interfaces** that clients use every day. I created the backend systems and visual screens that let them see real-time data (like soil moisture or CO2 levels), receive alerts, and even control equipment like water pumps or fans remotely from their phone or computer.
- **Helped build and test the physical circuit boards** that go inside the devices. I worked with the hardware team to bring new boards to life, testing each electronic part with tools like oscilloscopes to catch problems early. This meant fewer issues for customers later on.

- **Created simple touch-screen interfaces on the devices themselves**, using a graphics library called LVGL. This gave users a way to check data and control things locally, right at the device. I built reusable parts for these screens, which made creating new interfaces 30% faster for the whole team.

Key Projects

Sandalwood Farm Automation System – Solar-Powered LoRaWAN Farm Nodes

- **Developed** a complete monitoring solution for a client requiring remote oversight of soil conditions across large, off-grid farmlands. You can view the live platform here: [Sandalwood Project Dashboard](#)
- **Engineered** low-power sensor nodes to monitor soil moisture, temperature, and humidity, implementing LoRaWAN Class A communication (OTAA/ABP) to provide the client with reliable data from over 2+ km away.
- **Designed** a robust solar-powered system with battery backup, optimizing firmware with deep sleep and sampling cycles to ensure 3–4 days of autonomy and over 6 months of field life, solving the client's problem of frequent manual battery changes.
- **Integrated** all nodes with a Flask-based backend and custom dashboards, providing the client with real-time visualization and alerts to enable proactive irrigation and climate decisions, ultimately improving farm yield.

Smart Mushroom Cultivation System

- **Created** an automated climate control system to address a client's challenge of maintaining precise CO₂, humidity, and temperature for optimal mushroom growth. See the live system here: [Mushroom Cultivation Dashboard](#)
- **Programmed** the central controller to integrate relays and solenoid valves, automating fans, humidifiers, and water flow. This reduced the client's manual intervention by ~70% and led to improved and more consistent crop quality.
- **Built** a user-friendly dashboard with Flask-based APIs for the client, enabling remote real-time monitoring, configuration of setpoints, and logging of historical data for yield analysis and optimization.

EV Telemetry & BMS Data Visualization – Car/Scooter Platform

- **Developed** a real-time monitoring system for an electric vehicle prototype, giving engineers and test drivers clear visibility into the health and performance of the battery pack during rides.
- **Programmed** the firmware to capture critical battery data—like voltage, current, temperature, and charge level—directly from the vehicle's battery management system over CAN/UART communication.
- **Processed and filtered** the raw data to ensure the readings stayed accurate and stable, even during rapid acceleration or regenerative braking where signals can fluctuate wildly.
- **Designed** a simple, driver-friendly display on a TFT screen that shows essential information at a glance: battery status, remaining range, warnings, and speed. This helped the team identify issues early and made test rides safer and more informative.

Agriculture Drone System – Additional Payload & Control Integration

- **Contributed** to a project for a client needing to expand their agriculture drone's capabilities by integrating a custom sensing/spraying payload. The platform for this solution is accessible here: [Drone System Dashboard](#)
- **Implemented** the interface firmware that allowed the main flight controller to communicate with and control the new payload, ensuring reliable telemetry and command execution without compromising flight stability.
- **Supported** extensive field testing at the client's site, fine-tuning control logic and communication parameters to guarantee dependable operation during actual agricultural spraying and monitoring tasks.

Education

Bachelor of Engineering in Electronics & Communication

KLS Vishwanath Rao Deshpande Institute of Technology, Haliyal

2020 – 2024 | CGPA: 7.4/10

Pre-University Course (PCMB)

Aryabhata PU Science College, Dharwad

2018 – 2020 | 75.83%

Languages

- English (Fluent)
- Kannada (Native)
- Hindi (Fluent)

Interests

- Football
- Chess
- Helping others with their tasks and project