

NAVYA SRI BONDALA

Embedded Software Engineer

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PROFESSIONAL SUMMARY

Dedicated Embedded Software Engineer with 2.7 years of hands-on experience in firmware development and testing for embedded devices. Specialized in IoT modules like Cellular, Wi-Fi. Good at programming tiny computers and making them talk to each other (UART, I2C, SPI). Eager to apply my expertise and continue learning in a growing company, contributing to its success through collaborative innovation.

EDUCATION

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

Electronics and Communication Engineering.

2017-2021

SKILLS

- C, SQL, BASIC LINUX COMMANDS
- ARDUINO IDE, TERATERM, QCOM
- COMMUNICATION PROTOCOLS: UART, I2C, UART, SPI
- MQTT, LORA, 2 WAY COMMUNICATION(C2D, D2C)
- WIFI, ZIGBEE, 2G/3G/4G/LTE & GMS, GPS TECHNOLOGIES
- RASPBERRY PI, MICROCONTROLLERS: ATSAM21, ATMEGA328, ESP8266, ESP12E. ESP01, ESP32, ESP32 WROVER-E, ESP32 WROVER-UE, STM32,
- CELLULAR MODEMS: SIM7000G, SIM7070, EC200U
- BOOTLOADING RASPBERRY PI
- IOT SYSTEMS & SENSOR INTEGRATION
- HARDWARE-SOFTWARE INTEGRATION
- IOT DEVICE INTEGRATION WITH AWS IOT CORE, AZURE, NODE-RED
- POWER BI DASHBOARD ANALYSIS & REPORTING
- CROSS-FUNCTIONAL TEAM COLLABORATION
- DEFECT TRACKING & DOCUMENTATION
- DATA VALIDATION ACROSS APP, WEB & SYSTEM PLATFORMS
- TEST PLANNING & EXECUTION

WORK EXPERIENCE

Embedded Software Engineer,

ATYA Technologies Private Limited, Hyderabad

MAR 2024 - MAR 2025

Atya Electronics India Pvt. Ltd. was founded in October 2022 and offers tailored solutions for the entire product development cycle, including design, assembly, and testing. The company specializes in creating embedded solutions using DSPs, FPGAs, and microcontrollers, such as servo controllers, high-speed data acquisition systems, and video processing solutions. Atya is dedicated to providing comprehensive services, from concept to production, to meet the unique needs of their clients.

Project: Weather Alert Device:

Client: IIT Patna | Role: Embedded Engineer

Project Description:

Developed an IoT-based Weather Alert arm-wearable device for farmers to provide localized weather forecasts and alerts using GSM/LTE connectivity, GPS tracking, and audio playback, enhancing field-level awareness and decision-making.

Key Responsibilities:

- Designed and developed embedded software across multiple product versions, integrating different cellular modems (2G/3G and 4G/LTE) for cloud communication, location tracking, and audio playback.
- Implemented AT command-based communication between microcontrollers and cellular/GPS modules, supporting data transmission(D2C), C2D messaging, and multilingual audio playback.
- Integrated and programmed hardware components including audio amplifiers, batteries, solar circuits, vibration motor, temperature & humidity sensors, and LED indicators for different board versions.
- Developed SD card functionality for audio file retrieval and playback; optimized code for improved battery efficiency and performance.
- Worked with Hardware and mechanical(3D design) team for customized board bring-up and enclosure box for the requirement.
- Implemented GPS-based location tracking and voltage measurement (pipeline, battery, and solar).
- Prepared technical documentation and flow charts including system specifications, hardware/software integration notes, and testing reports for all board versions.
- Conducted regression testing, performed root cause analysis (RCA), and implemented corrective/preventive actions for identified issues across versions.
- Collaborated with cross-functional teams to analyze cloud data, generate performance reports, and support application integration.

Project 2: Pipeline Voltage Measurement device(POC)

Role: Embedded Engineer

Project Description:

Developed an embedded pipeline measurement device that monitors pipeline voltage variations, solar and battery voltage, and GPS coordinates, transmitting data to the cloud via a GSM module for remote monitoring.

Key Responsibilities:

- Designed and developed embedded firmware for data acquisition and communication.
- Integrated pipeline voltage sensing hardware with a GSM-enabled module (2G/3G) for wireless data transmission.
- Interfaced and calibrated sensors for pipeline voltage, temperature and humidity sensor, solar voltage, and battery voltage measurement.
- Implemented GPS interfacing to acquire and transmit location data.
- Worked closely with the hardware team for circuit integration.
- Prepared technical documentation including system specifications, hardware/software integration notes, and testing reports.
- Collaborated with the software/cloud team to ensure proper data format and transmission protocol.
- Conducted testing and debugging of embedded hardware and firmware to ensure reliable operation.

Project 3: Indoor Air Quality Monitoring Device (POC)

Client: Embed View | Role: Embedded Engineer

Project Description:

Developed a proof-of-concept IoT-based indoor air quality monitoring device that continuously measures 4 different particulate matter, temperature, humidity, and oxygen levels, displays real-time readings on a Nextion touch display, and transmits data to the cloud via Wi-Fi for remote monitoring and analysis.

Key Responsibilities:

- Integrated PM sensor, temperature & humidity sensor, and O₂ sensor with a microcontroller for real-time data acquisition.
- Implemented Wi-Fi connectivity to send sensor data to a cloud platform.
- Developed firmware for real-time data processing and display on Nextion touchscreen.
- Conducted POC testing and sensor calibration to ensure accurate readings.
- Prepared technical documentation including system design, sensor integration, and cloud data flow.

Embedded Software Engineer, Samhitha Crop Care Clinics, Hyderabad

MAR 2022 – SEP 2023

Samhitha Crop Care Clinics is an agri-tech startup offering precision farming advisory services by deploying IoT sensors, telemetry devices, drones and analytics to monitor soil, weather and crop-health data and deliver actionable insights to farmers.

Project: IoT Agriculture Devices

Client: Farmers | Role: Embedded Quality Control Engineer

Samhitha IoT Device a telemetry-based IoT device for precision agriculture, which monitors plant health using soil moisture, soil temperature, and weather sensors (rainfall, wind speed, wind direction). Data collected via GSM is analyzed in Power BI and databases to support decision-making for farmers.

Key Responsibilities:

- Performed comprehensive testing of embedded software for IoT-based precision farming devices integrating soil moisture, soil temperature, and weather sensors (wind speed, wind direction, rainfall).
- Developed and executed detailed test plans and procedures to validate sensor functionality, system performance, and data accuracy.
- Conducted functional, regression, and stress testing of SD card storage features to ensure reliability and optimal throughput.
- Collaborated with hardware and software teams to identify defects, and ensure system compliance with design specifications.
- Performed root cause analysis (RCA) for detected issues, documented findings, and implemented corrective and preventive measures.
- Supported data validation and analysis processes to enhance agricultural advisory services for farmers, contributing to improved crop yield and disease prediction accuracy.
- Monitored and maintained device delivery and deployment details, supporting the deployment team in the field.