

ADEPU RAJENDHAR

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Objective:

To secure an Embedded Software Engineer position where I can apply my knowledge of embedded systems, electrical and electronics engineering, and Embedded C programming to develop, test, and validate reliable firmware solutions, while continuously learning and contributing to innovative product development.

Technical Summary:

- Worked on **STM32** controller and **ESP8266**, **Arduino**.
- Experience in GPIO, ADC and Serial Communication Protocols **UART**, **SPI**, **I2C**
- Experience in BareMetal Programming and HAL Level Programming, Shell Scripting.
- Experience on Validation of **SD**, **eMMC**, **OSPI** and **QSPI**.
- Experience on Security Modules like **AES**, **SHA**, **RSA** and **TRNG**.
- Experience on working with **STM32 Cube IDE**, **Keil IDE** and **Vitis**.
- Hands on experience in Linux System Programming, Linux Device Drivers.

Experience:

KERNEL MASTERS

Role: Embedded Software Engineer

Responsibility: Implementation of **SPI**, **UART**, **I2C** and **GPIO** for Rayaan Mini

Date: Jun 2024 – Dec 2024

Description:

The **Smart Weather Monitoring System** is an embedded system designed to monitor and log real-time environmental temperature data using an **LM35 temperature sensor** interfaced with an **ARM Cortex-M4 based STM32F401RBT6 microcontroller**. The system periodically acquires temperature data through the microcontroller's **ADC peripheral**, processes the raw sensor values, and displays the current temperature along with **real-time date and time** on an **LCD module**. The system integrates an **ESP8266 Wi-Fi module** to upload temperature data to a remote server

AMD Hyderabad

Role: Embedded Systems Engineer

Responsibility: Validation of **SD, eMMC** and Secure modules like **AES, SHA**

Date: Dec 2024 – Dec 2025

Description:

Experience in **Silicon Validation** involving functional testing and debugging for **SD** and **eMMC**. Hands on experience with **pre-silicon** and **post-silicon** validation, test execution and issue reproduction. Develop automated test scripts for validating read/write performance, stress testing and error injection scenarios.

Validated security components including cryptographic engines (**AES, SHA, RSA TRNG**) and security key provisioning. Worked on validation of security hardware modules including secure boot, cryptographic accelerators, key storage and hardware eFuse programming

Projects:

Smart Weather Monitoring System:

Developed Platform: Embedded Firmware developed using Keil IDE

Microcontroller used: STM32F401RBT6

Roles & Responsibilities:

- Studied and analyzed **STM32F401 datasheet, reference manual, and ARM Cortex-M4 architecture**
- Performed **peripheral validation** (ADC, GPIO, UART, Timers, LCD interface)
- Developed firmware in **Embedded C** using KEIL IDE
- Debugged firmware issues using **JTAG/SWD-based debugging tools**
- Validated **ESP8266 UART communication** and handled error conditions
- Implemented **EEPROM read/write validation** for offline data storage
- Created and executed **test scenarios** to validate sensor accuracy, communication reliability, and data storage behavior

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Kisan Mithraa Mobile Starter:

Development Tools: STM32CubeMx for peripheral configuration and code generation and Keil IDE for Firmware Development

Microcontroller Used: STM32F103C8T6, GSM M66 Quectel.

Roles & Responsibilities

- Worked on **ARM Cortex-M3** SoC architecture, configuring clock tree, **GPIO**, **ADC**, and **UART** peripherals using STM32CubeMX
- Performed test execution and debugging using **Keil IDE**, analyzing registers, memory, and interrupts
- Validated IP-level functionality such as ADC, GPIO, Timers, and UART.

Description:

Designed and developed a mobile-controlled motor starter system enabling remote **ON/OFF** control via **Call** and **SMS**. Implemented 3-phase power availability monitoring using **ADC-based** voltage sensing integrated with a microcontroller. Automated motor operation logic to prevent **single-phasing** and **voltage fault** conditions, improving equipment safety and reliability. Integrated **UART-based GSM** communication, enabling **real-time SMS/Call** alerts to authorized users regarding power status and motor operation.

Enhanced system security by allowing control access only to **authorized phone numbers**. Conducted real-time electrical testing under **varying voltage** and **load conditions** to verify ADC calibration, timing accuracy, and system stability. Debugged hardware-software interactions at the register and peripheral level. Successfully tested the system under real-time electrical conditions to ensure accurate phase detection and stable motor control

Education:

- Bachelor of Technology in Electrical and Electronics Engineering (EEE) from DRK Institute of Science and Technology with CGPA **7.0** in the year **2024**.
- Diploma in Electrical and Electronics Engineering from Govt Polytechnic College Nizamabad with **66%** in the year **2020**.
- SSC from Zilla Parishad High School with **9.3** GPA in the year **2017**.

Declaration:

I Rajendhar, hereby declare that the information furnished above is true and correct to the best of my knowledge and belief.

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