

FARHEEN

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PROFESSIONAL SUMMARY

Embedded Firmware Engineer with 1.5+ years of experience while skilled in Embedded C/C++, FreeRTOS, and microcontroller development. Proficient with MPLAB, KEIL, and Proteus, with strong debugging experience using oscilloscopes and logic analyzers. Experienced in I2C, SPI, UART, RS - 232 , ADC, and DAC integration. Comfortable working across Linux, and Windows environments.

TECHNICAL SKILLS

- **Programming Languages:** Embedded C, C, C++, Python
 - **RTOS :** Free RTOS
 - **Development Tools:** MPLAB 8, KEIL, Proteus
 - **Hardware:** Hardware Debugging, Oscilloscope Usage, Logical Analysers, PIC, STM32
 - **Peripherals & Interfaces :** I2C, SPI, RS - 232 , UART, ADC, DAC
 - **Operating Systems:** Linux, Windows (7/10/11)
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PROFESSIONAL EXPERIENCE

Embedded Software Engineer

PARAMITA SOLUTIONS | May 2024 – Present

- Developed and validated **applications for embedded systems** , focusing on **RTOS** integration, hardware abstraction layers, and **communication protocol stacks** .
 - Enhanced **application performance by 10%** through algorithmic optimization and refactoring of critical C++ modules.
 - Led root cause analysis and debugging of complex system - level issues, resulting in increased system reliability and performance.
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PROJECT EXPERIENCE

1 Burn Rate DAQ Team Size: | 4 Technology: C, C++, dsMCU (Microchip), MPLAB X IDE

Role: Embedded Software Engineer

- Developed firmware on a 16-bit Microchip dsMCU for real-time burn-rate measurement, including high-speed sampling, filtering, and on-board computation.

- Implemented interrupt-driven ADC acquisition, timing measurement modules, and calibration routines to ensure accurate and repeatable results.
- Built MCU-side communication interfaces (USB/UART/analog) for synchronized data exchange with the NI USB-6001 DAQ.
- Integrated safety checks, error handlers, and watchdog mechanisms for reliable longduration test operations.
- Performed firmware validation, signal verification, and system bring-up in coordination with the R&D team.

2. GSM Communication Module

Team Size: 3 | Technology: MPLAB X, Embedded C, PIC, HART Communication

Role: Embedded Software Engineer

- Developed an add-on GSM communication module enabling remote diagnostics and field data monitoring for water meter systems.
- Implemented HART protocol handling on a PIC microcontroller for reliable retrieval of sensor and diagnostic data.
- Built GSM firmware features including AT command control, network registration, message framing, and error-recovery logic.
- Integrated UART-based communication between PIC, HART modem, and GSM module to ensure seamless data flow.
- Designed event-triggered alerts and periodic reporting mechanisms for robust field communication.

EDUCATION

Bachelor of Technology (B. Tech) Bapatla Engineering College