

ARVIND (Embedded Engineer)

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Profile Summary

Embedded Firmware Engineer 6 years of industry experience, including 3 years of focused expertise in firmware and bootloader development using C/C++ across STM32, PIC, and AVR microcontrollers. Strong background in FreeRTOS, low-level programming, and hardware-software integration. Proven ability to deliver robust, production-ready embedded solutions across industrial and consumer applications.

Core Skills

Programming: Embedded C, C++

Microcontrollers: STM32, PIC, Renesas, AVR.

RTOS: FreeRTOS

Protocols: UART, SPI, I2C, USB.

Wireless: IR (NEC, RC5).

Tools: STM32CubeIDE, MPLAB X, e2Studio, Arduino IDE,

Hardware: PCB Design (Altium), Debugging, Schematic Design

Platforms: Ubuntu Linux, Raspberry Pi, Windows

Professional Experience

Senior Firmware Engineer

ATRI Solutions, Gandhinagar

Oct 2025 – Present

- Working on induction charger systems (1-phase & 3-phase) for industrial applications.
- Debugged and resolved critical issues in host MCU ↔ display MCU communication.
- Fixed system hanging issues, RTC synchronization problems, and optimized memory utilization.
- Leading 1-phase induction charger development by porting firmware from 3-phase architecture.
- Designed system architecture using FreeRTOS on Renesas MCU (EKRA6M5 DK, e2 studio).
- Developed POC for smart screw tightening machine integrating motor controller, torque sensor, barcode reader, RTC, and RGB PWM control

Embedded Firmware Engineer

4C Tech Venture, Mohali

May 2024 – July 2025

- Developed end-to-end firmware from concept to production for embedded systems
- Designed FreeRTOS-based applications on STM32 and ATmega328P
- Integrated LoRa-based wireless communication modules.
- Worked on hardware design including schematics and PCB using Altium designer.

Embedded Engineer

Lipi Data Systems Ltd., Udaipur

Apr 2023 – May 2024

- Developed and debugged firmware and bootloaders for PIC and ARM devices.
- Implemented FreeRTOS-based multitasking systems.
- Performed hardware debugging, memory optimization, and root cause analysis.
- Built diagnostic and testing tools for production systems.

Earlier Experience

Firmware Engineer – Laxmi Remote India Pvt Ltd, Noida *(Aug 2022 – Mar 2023)*

- Developed IR-based firmware using NEC and RC5 protocols
- Performed validation and testing for consumer electronics products

Embedded Hardware Engineer – Premier Medical Systems, Noida *(Jul 2020 – Aug 2022)*

- Designed schematics and PCB for medical devices (ventilators, anesthesia systems)
- Performed testing, troubleshooting, and on-site support in hospitals

Key Projects

- **3-Phase Induction Charger.**
Worked on firmware debugging, communication issues, memory optimization, RTC fixes, and system stability.
- **Smart Screw Tightening Machine (POC).**
Designed system using FreeRTOS on Renesas MCU with multiple module integration.
- **Ticket Vending Machine (STM32, FreeRTOS).**
Developed multitasking firmware for monitoring and control operations.
- **Thermal Receipt Printer (STM32).**
Implemented firmware enhancements and resolved critical bugs.
- **Peristaltic Pump System**
Designed control logic with manual and automatic operation modes.
- **Auto Height Adjustment System (PIC).**
Developed control system using sensors and switches for positioning.

Education

- **Dr. APJ Abdul Kalam Technical University – B.Tech (ECE), 67% (2018)**