

MADHAN RAJ A

Embedded Software Engineer | Embedded Systems | IoT Firmware

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SUMMARY

Embedded Software Engineer with 2 years of hands-on experience in firmware development, debugging, and system integration for IoT and RTOS devices. Adept at collaborating with hardware teams, supporting field deployments, and building robust embedded solutions aligned with project requirements.

EXPERIENCE

Embedded Software Engineer, Spark Drivers and Automation (Jun 2023 – Present)

- Develop and maintain firmware for IoT and RTOS-based devices.
- Debug, program, and test embedded systems for performance and reliability.
- Conduct on-site field support and troubleshooting for deployed systems.
- Collaborate with product and hardware design teams to ensure seamless system integration.

Testing&Assembly Engineer, Yathi Pumps (May 2022 – Nov 2022)

- Performed no-load and full-load testing and motor assembly for operational reliability.

Wiring, Testing&Service Engineer, R.A.Engineering (Sep 2021 – May 2022)

- Manufactured and wired control panels for crusher plant installations.
- Tested, serviced, and maintained electrical panel boards.

PROJECTS

- Sewing Machine Data Logger: Designed an embedded IoT data logger; captured switch or RFID inputs and transmitted to server over Wi-Fi.
- Sewing Machine HMI Touch Module: Integrated data logger with DWIN HMI; enabled live machine monitoring and data upload.
- Test Automation: Built and tested an automatic DUT test platform.
- Power Switch Timer: Developed a timed DC power switch (5V to 12V) with configurable digital input control.
- DWIN Attendance Module: Created an RFID-based attendance module with server upload.

- Linear Weigher Controller: Engineered a system to monitor load, control vibration, and display weight via HMI.

ACHIEVEMENTS

- Successfully supported multiple customer deployments with zero major field issue escalations.
- Recognized for rapid integration with new hardware and for solving embedded system problems independently.

SKILLS

- Embedded C, Basic Java, Basic Python
- RTOS, IoT protocols
- Debug/test tools: Microchip Studio, MPLAB, Keil, CubeMX, Arduino IDE
- Hardware: RS232, RS485, DWIN display, INVT HMI, HC05, L298N, RTC, FRAM, TTL, ULN, RFID Reader
- Protocols: USART, SPI, I2C
- Microcontrollers: ATSAMC20/21, ESP32, PIC16F887, STM32F103C8T6

COURSES

- Embedded Systems Programming -- Practical microcontroller concepts&peripherals
- Certification in C and Python Programming

EDUCATION

B.E. in Electrical&Electronics Engineering, Aditya Institute of Technology • Anna University • 2021 • 7.9 CGPA

HSC, Shri K.K.Naidu Hr. Sec. School • State Board • 2017 • 75.9%

SSLC, T.R.A Hr. Sec. School • State Board • 2015 • 91.5%

ADDITIONAL

- Languages: Tamil, English
- Hobbies: Listening to music, carrom, playing digital games
- Nationality: Indian
- Marital Status: Unmarried
- DOB: 11/05/2000

DECLARATION

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