Mohammad Hassan Lotfi

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Embedded Software Developer

As a seasoned embedded software developer, I possess advanced proficiency in embedded C/C++ programming. I also have experience in Embedded Linux and a background in hardware that enables me to cooperate closely with hardware teams. I am a self-organized and proactive problem-solver with strong social skills, and a proven ability to work collaboratively in a team environment toward achieving shared goals.

Technical Skills

- Embedded C/C++ - OOP - STL - Architectural Pattern - Design Patterns
- Embedded Linux - Application Programming - Cross Compile - Shell Script - Buildroot
- Software Debugging - gdb - Valgrind
- VSC - Git - GitHub
- Make - CMake
- Docker
- Analytical thinking - Clean Code - SOLID Principles
- Microcontrollers - AVR(ATMEL) - ARM NXP Cortex M3-M4 - STM32 Cortex M0-M3-M33 - HT Cortex M0
- Protocols - DLMS - MODBUS - SPI - UART/USART - I2C - I2S - USB - LAN(TCP/IP) - FTP - IEC-62056 (metering systems) - CANBUS - AES128 - HASH
- Scrum - Agile
- Unit Testing with Google Test framework

Experience

Sanjesh Afzar Asia (Software) Sep 2012 – Feb 2025
Embedded Software Developer *On-Site – Tehran, Iran*

- Smart electricity meter (SEM)
  * Achieving a high degree of precision by implementing software techniques
  * Implementing auto-updating features through external memory
  * Improving user experience
  * Knowledge-Sharing
  * Design and development of CMSIS for peripherals
  * Close cooperation with the Hardware design team to optimize the system by implementing software techniques
  * Technologies: C, SOLID principles, State Machine, DLMS HDLC, MODBUS RTU, Safe Upgrade, Bootloader, Embedded external flash memory, Embedded external EEprom memory, Digital IO, RS-485, Optical prob, Arm Cortex-M0, IAR, ADC, UART, EXINT
- Electricity Meter Remote Reading Modem (TM100)
  * Implementing software filter instead of hardware one to reduce production cost and time
  * Programming a tester board to test all features of the device
  * Technologies: C/C++, State Machine, DLMS Wrapper/HDLC, SOLID principles, Safe Upgrade, Bootloader, Embedded external flash memory, Digital IO, RS-485, Optical prob, Arm Cortex-M0, IAR, ADC, UART, EXINT
- Automatic mechanism to test board (TestBench)
  * Controlling test procedures with web software
  * Programming a tester board to test all features of the device
  * Dynamic test by employing xml file
  * Writing a project with RTOS
  * Create and print certificate end of each correct test
  * Technologies: C/C++, C#, JS, HTML, CSS, RTOS, LAN, ADC, IIS, UART, XML, Excel, SQL Server
- Smart water meter (MWM529)
  * Using a software filter to optimize the output
  * Achieving a high degree of precision by implementing software techniques

    * Programming a tester board to test all features of the device
    * Implementing and developing IEC 62056-21 (standard protocol for metering systems)
    * Ultra low power Consumption energy
    * AES128 encryption algorithm is used in all communications
    * Use of low consumption glass display by lcd driver micro)
    * Technologies: C/C++, RTOS, SOLID principles, Safe Upgrade, Bootloader, Embedded external flash memory, Embedded external EEprom memory, Digital IO, RS-485, Optical prob, Arm Cortex-M0, KEIL, ADC, UART, EXINT, 4-20mA
- Electricity multi-feeder logger (LPM150)
    * Implementing auto-updating features through SD-Card
    * Safety writing and searching method (in SD-Card) by Implementing advanced software techniques
    * Implementing and developing IEC 62056-21 (standard protocol for metering systems)
    * Considering software architecture in software development to add features with the least amount of modification
    * Teamwork, the pair-programming method in software development
    * Technologies: C/C++, OOP, SOLID principles, IEC 62056-21, Design Patterns, Safe Upgrade, Bootloader, PWM, FATFS, Digital IO, RS-232/RS-485, ARM LPC1788 Cortex M3, KEIL
- Reading all device from optical port with a lot of protocols (OP730)
    * Programming a tester board to test all features of the modem
    * Technologies: C, M2M, OpenCPU, Safe Upgrade, Bootloader, Digital IO, Optical port, IEC 62056-21
- Electricity Meter Remote Reading by dial up service (AD100)
    * Programming a tester board to test all features of the modem

The Ministry of Industry, Mine and Trade (Software) Apr 2011 – Sep 2012
Software Developer *On-Site – Tehran, Iran*

- SAPTARESH
    * User friendly
    * Optimal use of the database
    * Technologies: C#, JS, JQuery, SQL, ASP, LinQ, Data Entry Work

Mahan (Software) Jan 2010 – Apr 2011
Embedded Software Developer *On-Site – Tehran, Iran*

- CHP (Check health parameters)
    * Using measurement modules
    * The connection between computer software and hardware
    * Technologies: Embedded C, Board bring-up, ATMEGA 8, ATMEGA 32, Hardware Design, PCB Design, Altium Designer

Education

IAUT Abhar, Iran
Bachelor of Science in Electronics Engineering *2009 – 2013*

Language

English
Full professional proficiency

Other skills and interests

OS	:	RTX, FreeRTOS
Hardware Design	:	Altium Designer
Mobile	:	Web App, Android, Java
Web	:	HTML, CSS, PHP, JavaScript, Apache Web Server, IIS Web Server
Desktop	:	C#, Python
Database	:	SQL Server, SQLite, mySQL

Hobbies

Swimming, Cycling