

Mahdi Faghani

Firmware Engineer

Aug 25, 1982 Rasht, Gilan, Iran
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I have been developing firmware for microcontrollers such as STM32 (ARM Cortex-M), STM8, and AVR using C/C++ for 13+ years. Having 8+ years of official working experience as a firmware engineer developing microcontroller based products including research, design, hardware and firmware development, prototype, test, and improvement. I use Altium Designer for schematic capture and PCB design. I develop Windows software using C# and have developed various software to automate hardware test, calibration and configuration processes. Since 2018, I have been involving in variety of projects such as optical fiber transponder equipment, GUI embedded software using Qt and Windows software using C#, as a freelancer.

WORKING EXPERIENCES

Firmware Engineer

Freelance, Dec 2017 – Present, Rasht, Iran

- Contribution to firmware development and helping former teammates for some projects I have done for my former employer JDEVS.
- Embedded software development for a Digital Visual Acuity System using Raspberry Pi and Qt/C++.
- 11 months of close cooperation with a small smart home group developing firmware for smart home appliances such as touch switches, RFID access control, and lighting RGB and dimming controller using STM32, STM8 and ESP8266.
- Hardware design, PCB design and firmware development for several projects such as greenhouse controller and TFT LCD display using STM32, STM8, and AVR.
- Optical fiber switch system (OPU) and 180G Transponder system design including hardware design, firmware development, prototype and test – Ethernet, TCP/IP, SNMPv1/2c/3, MIB, DHCP, HTTP web server, FreeRTOS, etc.
- Software development using C# and SQLite.

Firmware Engineer

JDEVS, Nov 2009 – Dec 2017, Tehran, Iran

- Working within the R&D team.
- Firmware and hardware development for user interface LCD displays for industrial converter and UPS products.
- Hardware design and firmware development of a network interface (Web/SNMP) for industrial converter and UPS products.
- Contributing to implementation of MODBUS RTU protocol as the inter-communication protocol for UPS and converter products instead of hard wire parallel signaling.
- Implementing an extra MODBUS RTU slave for the UPS system providing remote access instead of using PLC in order to reduce cost.
- Windows software development for configuration, calibration and testing products
- Customizing firmware for various projects.

Electrical Technician

NFG (Rolling Mill - Steel), Jul 2006 – Mar 2009, Anzali Industrial Zone, Iran

- Implementing, installing, maintaining, wiring, and repairing electrical circuits and equipment.
- Using AC and DC motor drives.
- SIEMENS LOGO programming (FBD).
- Operating the production line, speeding up repairing process and reducing production interruption time.

EDUCATION

BSc in ICT (Information Communication Technology)

Mehr-e Astan University - Gilan, IRAN, 2012

SKILLS

- Firmware development using C/C++, bare-metal and FreeRTOS.
- Hardware design using STM32F1/F4/H7, NXP LPC2148/1788, STM8, AVR ATmega/xmega, familiar with MSP430, NRF51822, W7500.
- PCB design using Altium Designer.
- Windows software development using C#, SQLite.
- Embedded software development using Qt/C++.
- Using Keil, IAR, Atmel Studio, STVD, CodeVisionAVR, MS Visual Studio, VSCode, and Qt Creator, STM32CubeMX.
- Interfacing peripherals and protocols such as USB Device, SPI, I2C, GPIO, SDIO, DMA, ADC, UART, RS-232, RS-485, MODBUS RTU/TCP, Ethernet, TCP/IP, UDP, SNMP, HTTP, DHCP, etc.
- Interfacing digital and analog sensors, modules and ICs such as RTD, Load cell, HDC1080, ADCs, DACs, GSM, Bluetooth, Memory (EEPROM/NAND Flash/SD/FRAM), W5500, etc.
- Developing various HMI using AVR, STM32, FT81x, LCDs, touchscreens, etc.
- Arduino and ESP8266 development, familiar with embedded systems such as Raspberry pi and BBB.
- Familiar with Python and Git.
- Hardware design and firmware development for some optical fiber equipment such as SFP.
- Web server implementation on STM32 using HTML, CSS and Javascript.
- Using of standard electrical equipment such as oscilloscopes and logic analyzers, hands-on soldering skills.

LANGUAGE

English – Upper Intermediate

COURSES

- GIT workshop, JDEVS Education Center, Tehran, IRAN, 2017
- Industrial NiCd Batteries, SAFT AB, Oskarshamn, SWEDEN, Sep 2015
- C++, JDEVS Education Center, Tehran, IRAN, Dec 2014
- Industrial Lead-Acid and NiCd Batteries, JDEVS Education Center, Tehran, IRAN, Aug 2014
- Altium Designer Workshop, PDESTC, University of Science and Technology, Tehran, IRAN, Feb 2014
- C# .Net, JDEVS Education Center, Tehran, IRAN, Dec 2012
- General Electronics, Rasht Vocational School, Rasht, IRAN, Mar 2008
- Electrical Technician Level 2, Rasht Vocational School, Rasht, IRAN, Oct 2007

REFERENCES

Dr. Seyed Adib Abrishamifar

Professor at the University of Science and Technology, Tehran IRAN

Design consultant at JDEVS, Tehran, IRAN

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Dr. Ahmad Aleahmad

Professor at the Noshirvani University, Babol, IRAN

Senior Power Electronic Designer and consultant at JDEVS, Tehran, IRAN

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