

Max Sobhani, P.Eng.

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Summary of Qualifications

- Professional Engineer with M.A.Sc. in Electrical Engineering
- 6+ years of experience in digital, analog, and mixed signal electronics hardware design
- Experienced with full life cycle of development and design of new products
- Experienced in embedded software/firmware development in C and Assembly
- Strong verification and debugging skills with hands on experience with lab equipment
- Eager to take initiative and responsibility in a team environment
- Able to take charge of a situation and see it through to resolution

Technical Skills

Digital, Analog, and Mixed Signal Circuit Design

- Experienced in schematics and PCB design with Altium Designer, Cadence OrCAD, and PADS Suite
- Proficient in designing mixed signal systems incorporating interface technologies such as USB, SPI, I2C, UART, Parallel, LVDS, and Ethernet
- Expert in designing with Microcontrollers, DSPs, DSCs, DC-DC converters, Flash Memories, EEPROMs, analog filters, LCD Displays, ADCs, DACs, RTCs, I/O expanders, and Ethernet Controllers
- Extensive knowledge on the architecture of Microchip, Freescale, and TI Microcontrollers, DSCs, and DSPs
- Skilled in cost-efficient design without affecting the design requirements and system reliability

Firmware Development

- Deep knowledge of embedded firmware development using C and Assembly languages
- Experienced in firmware development for Microchip, TI and Freescale products
- Competent in using all peripherals including Ethernet (using TCP/IP Protocol), USB, SPI, I2C, UART, and Parallel ports
- Proficient in developing firmware for remote controlled and network based systems using TCP/IP Protocol

Experience

Intermediate Hardware and Firmware Engineer

2009 – Present

Arshon Technology Inc., Vaughan, ON

- Designing reliable and detail-oriented analog, digital, and mixed signal hardware
- Designing hardware for a wide variety of industrial and commercial applications
- Designing highly efficient DC-DC power supply circuits with different topologies
- Developing firmware in application-specific products for use with embedded microcontrollers and DSPs
- Developing sophisticated network-based firmware using TCP/IP Protocol
- Utilizing Cooperative multitasking technique in firmware development for task-intensive applications
- Working with a number of industrial protocols including Modbus™ (RTU and ASCII) and CIP™ (especially the EtherNet/IP™ adaptation)

Research Assistant

2006 – 2008

Communications Research Lab, McMaster University, Hamilton, ON

- Researched on electronic and telecommunication devices and simulated the designed devices
- Developed programs in C, C++, and MATLAB
- Contributed to outstanding team work in the simulation of complex devices

Electronics Engineer (Co-Op)

2003 – 2005

Sazgar Rayaneh Shiraz, Shiraz, Iran

- Designed reliable electronic boards for use in control equipment in a CD manufacturing site
- Addressed equipment issues and debugged problems promptly in a fast paced environment

Software Skills

Hardware Design Tools

- Altium Designer
- Cadence OrCAD
- PADS Suite
- VHDL

Firmware Development languages and suites

- Languages:**
 - C
 - Assembly
 - C++
- Suites:**
 - MPLAB IDE
 - CCSstudio
 - CodeWarrior IDE

Programming Languages

- C
- MATLAB
- C++
- C#

General Software

- Microsoft Office
- Adobe Photoshop
- Microsoft Visio
- AutoCAD

Education

M.A.Sc. in Electrical Engineering (GPA: 93.75%) **2006 – 2008**

McMaster University, Hamilton, ON

- Received full departmental scholarship

B.Sc. in Electrical and Electronics Engineering (GPA: 95.75%) **2001 – 2005**

Shiraz University, Shiraz, Iran

- Received three departmental honorary awards in 2002 – 2004 as the first ranked student
- Received three university honorary awards in 2002 – 2004 as an exceptionally talented student

Activities

Planning Committee Chair **2009 – 2012**

Canadian Red Cross Branch Council, Hamilton, ON

- Prepared and presented the annual operating plan to the Branch Council President
- Partnered with staff to set priorities and objectives for the branch

Recent Projects

Network-Based Logging and Monitoring System (Hardware Design and Firmware Development)

- Designed the main board incorporating Microcontroller, EEPROM, Flash Memory, RTC, ADC, Ethernet Controller, DC to DC controllers, Power Monitoring System, among other electronic parts
- Developed the network-based firmware with support for EtherNet/IP™ Communications
- Designed a memory efficient firmware capable of logging detailed events for years using 32MB memory

Internet Based Audio Power Manager (Hardware Design and Firmware Development)

- Designed the display board containing Microcontroller, EEPROM, LED Controller, Graphical LCD
- Developed the FTP boot-loader for the product enabling in-market firmware update capabilities
- Contributed to firmware development for the device as part of the firmware development team

Industrial Precision Vibration Meter (Hardware Design and Firmware Development)

- Made use of serial and parallel Flash Memories, EEPROM, DC-DC Converter, Li-Ion Battery Charger IC, Digital Accelerometer, and TI's TMS320C5515 Low-Power DSP in the hardware design
- Incorporated a hardware/firmware protection device to protect the intellectual property rights
- Wrote a Cooperative Multitasking Firmware that made use of I2C, SPI, and UART communications

Functional Test Jig for Validating Arshon's Single Phase Energy Meter Boards (Hardware Design)

- Interfaced with PC using the USB port and with the Energy Meter using Serial Port
- Performs many hardware and functional tests on the Energy Meter Boards
- Rugged design with extra ESD protection optimized for use in production line environment

Network-Based Voltage Reduction Energy Management System (Firmware Development)

- Updatable weekly schedule and other settings in web-pages over Ethernet using TCP/IP Protocol
- Use of SNTP servers to retrieve time from the network periodically for timing accuracy
- Logged data after each event and emailed it to the adjustable user email using SMTP server