Aakash Pirani

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SUMMARY

- Experienced in **C/C++, Python,** Batch,VBS, Arduino, HTML/CSS
- Familiar with embedded platforms: Arduino, **STM ARM Cortex** Boards, Onion Omega, Altera **FPGA, NXP Multi-core MCUs, Qualcomm MSM**

SKILLS

Embedded

- Experience reading and writing technical documentation
- Worked with **I²C, SPI, UART, CAN**
- Developed and debugged firmware for **AUTOSAR, QNX**
- Experience **cross compiling** in a **Linux** environment using **GNU, Makefiles, Linker Files, Pragmas**
- **Debugged multi-threaded firmware** over **JTAG** using GreenHills software

Languages

- 3 years formal education **C++**
- 1 year formal education **Python**
- Developed with HTML/CSS
- Scripting experience with Batch and Visual Basic

Software

- **Altium CircuitMaker**
- **Vector** DaVinci Suite
- Altera Quartus Prime (**VHDL**)
- **Atlassian** Agile Tools
- Git, Jenkins, Test Rail
- Adobe Suite

EDUCATION

University of Waterloo

Candidate for a Bachelors in Electrical Engineering
2018-2022

EXPERIENCE

Ford Motor Company

FIRMWARE DEVELOPER — May 2018 - August 2018

- Developed for the CAN gateway and modem in C and Python
- Integrated in-house firmware with a custom AUTOSAR OS
- Implemented a custom protocol for inter-chip communication
- Worked in an Agile environment, and created a full build path
- Improved software download speeds over CAN by 246%

Waterloo Formula Electric

TELEMETRY - HARDWARE PROJECT LEAD — Sept 2017 - Present

- Assembled a two node CAN Bus using STM F0s, MCP 2515, 2562
- Designed a telemetry system to transfer sensor data from the car's CAN bus over radio to a remote base station
- Wrote C libraries to integrate various peripherals with the STM F0

Waterloo Nanorobotics

SAM ROBOT - ELECTRICAL LEAD — Oct 2017 - Present

- Updated robot design to use transistor H-bridges instead of relays, improving effective control of solenoids
- Wrote Arduino programs to control movement of a 300 micron robot using keyboard controls

LandSolutions LP

ACCOUNTING INTERN — Aug 2016

- Reconciled accounts payable and recievable using Quickbooks
- Revised internal website to enable quick access to popular widgets

PROJECTS

Alarm Plus Plus

WEATHER CONNECTED ALARM CLOCK — Nov 2017 - Present

- IoT Alarm Clock that used an Onion Omega2, 7-segment display and LEDs to portray time and weather using preset light patterns
- Wrote custom C++ libraries to interface with LEDs and display; used Wunderground API to fetch location specific weather
- Cross compiled code in an Ubuntu environment via makefiles, utilizing the Linux command line and GNU

https://github.com/KashPirani/AlarmPlusPlus

IoT Irrigation Controller

WIFI CONENCTED WATERING SYSTEM — Nov 2015 - April 2016

- Autonomously controlled sprinkler and irrgation systems using an Adafruit Feather Huzzah (Wi-Fi connected MCU)
- Wrote software that combines moisture sensor data and real time forecasts to create optimum watering schedules