Aakash Pirani

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SUMMARY

- Experienced in **C++, Python,** STM/HAL, Arduino, HTML/CSS
- Familiar with Arduino, **STM ARM Cortex** Boards, Onion Omega, Altera Quartus **FPGA, soldering/wiring** various components

SKILLS

Embedded

- Experience reading schematics and creating working circuits
- Worked with **I^2C, SPI, UART, CAN**
- Proficiency **developing firmware** for topical microcontrollers
- Experience **cross compiling** in a **Linux** environment using **GNU** and **Makefiles**

Languages

- 3 years formal education **C++**
- 1 year formal education **Python**
- Experienced with HTML/CSS
- Proven knowledge of the STM HAL libraries, **C++ standard libaries**

Software

- **Altium CircuitMaker**
- STM Cube MX
- Altera Quartus Prime (**VHDL**)
- Unity
- Confluence, Git, Slack, **Jenkins**
- Adobe Suite

INTERESTS

- Speech and Debate
- Graphic Design
- Home Automation
- Dance Dance Revolution

EXPERIENCE

Ford Motor Company
FIRMWARE DEVELOPER — May 2018 - August 2018

- Developed for the 2020 infortainment system in C and Python
- Integrated in-house firmware with a custom AUTOSAR OS
- Implemented a protocol to route messages multiple CAN buses
- 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