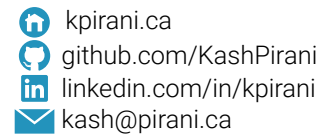


Aakash Pirani



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 **I²C**, **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 libraries**

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 infotainment 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 receivable 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 irrigation 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