Quaduino

PCB Designing
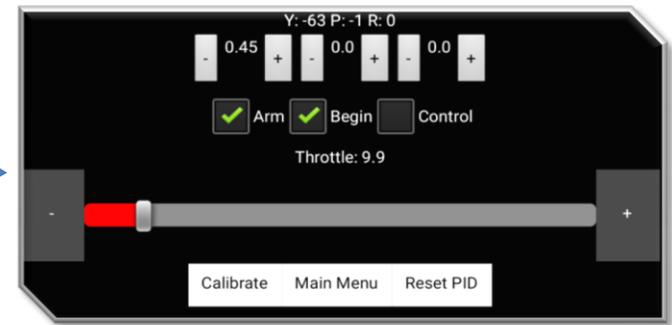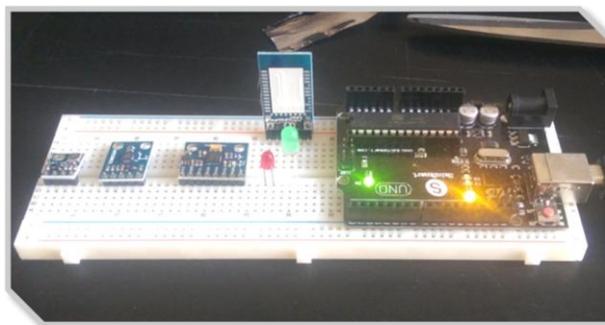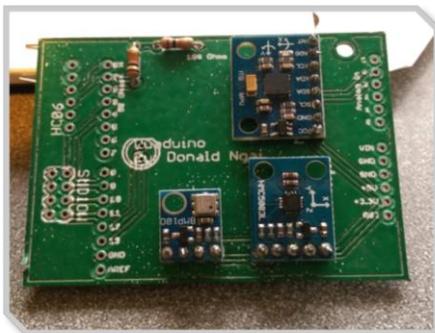•Designed a PCB board using CadSoft EAGLE
•Experienced at soldering though hole components

Hardware
•Gained hands on hardware debugging experience
•Systematically chose each component to ensure compatibility

Microcontroller (Arduino UNO)
•Coded in the C/C++ language
•Created a PID control system for motors
•Gathered real time data from sensors using the I2C protocol
•Communicated with custom Android flight controller using Bluetooth.

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Inertial Measurement Unit (IMU) → On board processing unit(Arduino UNO) → Custom Android flight controller

DONALD NGAI

University of Waterloo
3A Computer Engineering

Donald-Ngai.com   ca.linkedin.com/in/donaldngai   github.com/DonaldNgai   Dptngai@uwaterloo.ca

Programming Experience	

Experienced
C/C++ | Java | Python | C# | ASP.Net | VHDL | ARM Assembly

Proficient
EAGLE | HTML | PHP | CSS | JavaScript | jQuery | SQL

Version Control Systems
Git | Team Foundation Version Control

Hardware
Altera Cyclone II FPGA | Arm Cortex M3 | Arduino Uno

Projects

Arduino Quadcopter   *github.com/DonaldNgai/Quaduino*
– Controlled wirelessly via Bluetooth and a companion android application I created, the quad copter uses various sensors such as an magnetometer, gyroscope, and barometer to communicate with the Arduino UNO using the I2C protocol.
– Using the sensor values, a PID control system was used to allow the quadcopter to correct it's orientation automatically.
– Designed and printed a custom PCB board for the main control unit using CadSoft EAGLE.
– Created a companion Android application which communicates with the main control unit via Bluetooth to communicate information such as the throttle, desired orientation, and PID values.

Pebble Phone Finder   *github.com/DonaldNgai/FindPebble*
– Created a Pebble JS application to communicate with a companion Android application to locate either device.
– Utilized background services and an understanding of the Android activity life cycle to force devices to respond regardless of their state.

Alpha Myo Device Lock Application   *github.com/DonaldNgai/MyoLock*
– Using the Alpha Myo android SDK, I created an android application with 3 other Computer Engineering students.
– Programmed the application to interpret real-time data and unlock a phone when a series of correct gestures in the correct orientation are performed.

Ticketer Web Application   *github.com/DonaldNgai/Ticketer*
– Building on top of the Slim PHP micro framework, I coded a live web application capable of distributing virtual tickets for users within a 1km radius.
– Built a custom authentication system which includes features such as CSRF protection and password hashing.

Custom Pebble Watchface   *github.com/DonaldNgai/Sometimes*
– Using the CloudPebble online development platform, I created a custom watch face for my Pebble Time.
– The watch face automatically communicates with the companion android application to retrieve real time weather information.

EMPLOYMENT

Game Design Analyst | *Doubleplay Entertainment*   *September 2015 - January 2016*
Toronto, ON
  – Developed a scratch card game featured as the daily bonus game for the main company application using ActionScript 3.
  – Took the initiative to build an application using Python during after hours to automate a daily time-consuming task. As a result, a day's worth of excel data gathering and processing was reduced to a matter of a few clicks.

Application Developer | *Oncorp Direct*   *January 2015 - May 2015*
Toronto, ON
  – Created a new dynamic company website *(Oncorp.com)* using the ASP.NET development framework while ensuring optimal Google search recognition.
  – Coded the front and back end of an internal web application used by developers to send emails, reference coding standards, and log information about projects.
  – Patched screen scraping console applications for 6 different US sites by altering their respective regex expressions.

Networking Assistant | *City of Toronto*   *May 2014 - September 2014*
Scarborough, ON
  – Configured and deployed 15+ different Cisco 819 Routers to their respective water towers to enable wireless communication to the machinery within.
  – Upgraded existing copper wire cabling to fiber optic cables in water stations.
  – Composed a detailed floor plan of Toronto Waters' data center including all the equipment in use and underground wiring using Microsoft Visio.

EXPERIENCES

Hacker | *Hack The North*   *2014*
Waterloo, ON
  – Along with a hacking partner, I built a Line Queue web application while using Github to collaborate and maintain our code.

Hacker | *hackWaterloo*   *2014*
Waterloo, ON
  – Developed a android application which utilized the prototype Alpha Myo Device in a hackathon against 60 other engineering students.

Orientation Leader | *University of Waterloo*   *2014-2015*
Waterloo, ON
  – Demonstrated teamwork skills as I worked with a 9 other leaders to lead a group of 60+ first year students through a week of various team-building activities

EDUCATION

Candidate for Bachelor of Applied Science in Computer Engineering
University of Waterloo, Waterloo ON   *2013 - present*

HOBBIES

Semi-Competitive Waterloo Ice Hockey Intramurals (2015 - Present)
Competitive Waterloo Basketball Intramurals (2014 - 2015)
Excessive TV series binging (Doctor Who, Friends, Smallville, The Flash)