

Matt Kowalczykowski

Mechatronics Engineering



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Summary of Qualifications

- Co-op experience designing, soldering and programming of PCB's including use of Express PCB and EagleCAD
- Responsible for optimizing a small scale manufacturing operation of electrical control boxes
- Part of a team working on a novel engineering product with mechanical, electrical and software components
- Developed understanding of the engineering process involved in the creation of a large embedded control system
- Use of professional tools in classroom and industry including oscilloscopes, precision multimeters, soldering station, wire crimpers and strippers, as well as industry standard software packages
- Experience in multiple programming languages such as C/C++, Python, Java in Linux and Windows environments
- Development with modern microcontrollers such as the ARM M4 Cortex to create embedded systems

Work Experience

Junior Hardware Engineer *EnerMotion Inc.* May 2015 – September 2015 (Co-op Term)

Overall Co-op Rating: Outstanding

- Responsible for design, machining, wiring and assembly of electrical control boxes for large remote systems
- Soldering and debugging of PCB's and other electrical components, including work in Express Schematics and PCB software
- Created test rigs for scientific testing of new batteries, components and wiring connectors
- Programming of PIC micro-controllers and debugging of C code
- Working with 3D printers and Solidworks software to create plastic brackets for PCB's
- Production of several different wiring set ups, including measurement, stripping and crimping to ensure reliability and safety
- Optimization and organization of electrical room for small scale manufacturing and ESD safe work areas

Weld Cell Lead *Jancox Stampings* May 2014 – September 2014 (Co-op Term)

Overall Co-op Rating: Outstanding

- Experience operating multiple manufacturing machines including welders, steel presses and quality control stations
- Raised production standards of an automotive weld cell by 26%, and beat previous peak production by 37%
- Developed communication and troubleshooting skills with management and technical workers
- Improved efficiency by taking the time to learn minor troubleshooting fixes for equipment
- Use of several quality control techniques to ensure a high quality product for the customer

Education

McMaster University

3rd year Mechatronics Engineering Student

September 2013 – Present

- Courses in electricity and magnetism, embedded systems, electro-mechanical devices and professional software
- Hands-on design labs making practical devices such as a working speaker system and using a variety of mechanical and electrical measuring devices

Relevant School Projects

- MECHTRON 3TA4 – Embedded System Design I
 - Use of STM32F4xx board to design numerous embedded systems
 - Weekly labs involved projects such as a reaction game, digital measurement device and traffic controller
 - Interrupt based control structures applicable to real world control systems
- SFWR ENG 3K04 – Software Development: Robot Controller
 - Object-oriented behavior class to control both simulated and physical robots
 - Based off the open source Player-Stage program
 - Implemented numerous behavior methods for different pathing options and sensor interfacing
 - C++ running remotely in a Linux server environment

Extracurricular Activities & Interests

McMaster Sumobots Competition

- Competition to develop an autonomous robot that is able to push other robots out of a circular ring
- Interfacing with different types of sensors, including IR emitter/receiver and ultrasonic
- Developed embedded system PCB using ATMEGA32 microcontroller programmed with Arduino software
- Use of EagleCAD software to create detailed electrical schematics and PCB layouts
- Machining of aluminum chassis using shop tools such as milling machine and chop saw

Web Design

- Learned the basics of web design such as HTML, CSS, Javascript for use in personal projects
- Have utilized modern web frameworks such as Bootstrap to ensure proper responsiveness on various devices