MAHMUBUL HOQUE

Mechatronics Engineer

University of Waterloo, Graduate 2018

Contact Information

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Technical Skillset

**Firmware/Hardware**

* Rapid Prototyping for Proof of Concept
* IC Programming | Arduino, STMicro, PIC
* IDE | iAR Embedded, Atmel Studio, MPLab
* Communication | SPI, I2C, UART, USB
* Control System Design | PID, State Space
* Use of Matlab, Simulink, and LabVIEW
* Test Automation for Data Acquisition/Analysis

**Electrical**

* Mixed Signal Electronic Design | LTSpice
* Circuit Optimization and PCB Testing
* Schematic Capture | Altium, OrCAD
* Test | Oscilloscope, DMM, PSU, Logic Analyzer

**Mechanical**

* CAD Modelling | AutoCAD, SolidWorks, Catia
* Mechanical Analysis | FEA, Materials, Thermal
* Manufacturing Design | Six Sigma, Lean
* Design of Electromechanical Systems

**Personable**

* Strong Team Leadership
* Positive Client Interactions
* Effective Project Management

Work Experience

**RMF Design | Hardware/Firmware Engineer**

May 2018 - Present

* Responsible for hardware design, firmware development, and design validation of products
* Authored products in medical, automotive, industrial, and commercial industries

**Stantec Consulting | Electrical Design Engineer**

May 2017 - August 2017

* Designed Revit electrical schematics, accounting for lighting, security, and acoustics
* Analyzed 3 Phase, High voltage, AC power and proper transformer rating, adhering to CSA

**Tesla | Prototype Engineer**

August 2016 - December 2016

* Designed test setups to validate integrity of new electric vehicle concepts -> Model 3, Tesla Truck
* Circuit Design, Board Testing, Signal Processing, Hardware Integration, and Controls Simulations

Projects

**Bus Safety System (Work Project)**

* System warns pedestrians of oncoming busses via CAN inputs and audio/visual outputs
* Developed automotive rated board with electrical isolation and ESD protection
* Programmed on Arduino IDE, prioritizing maintainability and development time
* Circuit Design, PCB Fabrication, Firmware Development, and System Testing

**Smart Lock System (Personal Project)**

* Developed automated door lock to eliminate need for peripherals
* Rendered enclosure in Solidworks, optimised via mech analysis; FEA, thermal, impulse, shock
* Design circuit to interface with low voltage peripherals, minimizing power usage
* Scripted Python based facial + voice recognition, while accounting for fail safes and security
* Product Design and Manufacturing, Circuit Testing, Mechanical Design, and Software

**Virtual Fitting (Final Year Project)**

* Developed product to eliminate fitting issues and facilitate online clothes shopping
* Lead in deciding appropriate hardware, as well as designing PDU with CSA approval and budget
* Designed product enclosure, considering visual appeal and mass/thermal distribution
* Scripted AR to capture live body dimensions and dynamically overlay clothes
* Product Design, Hardware Testing, Circuit Design, Team Management, and VR Simulations

Education

**Bachelor of Applied Sciences, Waterloo University**

* Mechatronics Engineering, 2018, Honours
* Minor in Cognitive Sciences, 2018

Interests & Activities

* Racket sports
* Space travel and observation
* Able to make minute rice in 56 seconds