MAHMUBUL HOQUE

Mechatronics Engineer
University of Waterloo

Contact Information

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Skillset

Electrical

- Mixed Signal Electronic Design | LTSpice
- Circuit Testing/Optimization
- Power Integrity, Signal Filtering
- PCB Design, Schematic Capture | Altium, Eagle

Hardware

- Hardware Rapid Prototyping
- Control System Design | Implement, Simulations
- Data Acquisition with Test Automation
- Firmware Programming | FPGA, ASIC, PLC, HMI
- Use of Matlab, Simulink, and LabVIEW

Mechanical

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

Personable

- Keen Eye for Details
- Positive Client Interactions
- Project Management | Budget, Schedule, Specs

Work Experience

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 -> Tesla Truck
- Circuit Design, Board Testing, Signal Processing, Hardware Integration, and Controls Simulations

Canadian General Tower | Electrical Engineer
December 2014 - May 2015

- Designed controls simulation of entire weld lines to improve manufacturing efficiency by 140%
- Hands on experience with various robots, PLC and Embedded Systems for optimization

Projects

Wind Tunnel Controller (Work Project)

- LabView control system and GUI design
- Interfaced multiple sensors, implementing sensor fusion for real-time road simulation
- Created 3D visual simulation to see dynamic pressure changes over chassis of vehicle
- Implemented I/O data logging with dynamic data referencing for reverse video analysis

Smart Lock System (Personal Project)

- Developed product to eliminate need for peripherals and introduce automation
- Rendered enclosure in Solidworks, optimised via mech analysis; FEA, thermal, impulse, shock
- Captured PCB schematic 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

Accreditation

University of Waterloo,
Bachelor of Applied Sciences

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

Interests & Activities

- Racket sports
- Space travel
- Able to make minute rice in 56 seconds