MAHMUBUL HOQUE

Mechatronics Engineer, U'Waterloo, Grad 2018
San Francisco, California, US

Contact Information

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Technical Skillset

Firmware/Hardware

- Language | *C, C++, Python*
- MCU | *STMicro, PIC, Renesas, Arduino*
- IDE | *iAR Embedded, Atmel Studio, MPLab*
- Communication | *SPI, I^2C, UART, USB*

Controls

- Control System Design | *PID, State Space*
- Use of Matlab, Simulink, and LabVIEW
- Test Automation for Data Acquisition/Analysis

Electrical

- Mixed Signal Electronic Design | *LTSpice*
- Schematic Capture | *Altium, OrCAD, PADs*
- Test | *Oscilloscope, DMM, PSU, Logic Analyzer*

Mechanical

- CAD Modelling | *AutoCAD, SolidWorks, Catia*
- Mechanical Analysis | *FEA, Materials, Thermal*
- 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

Pedestrian Avoidance System (Work Project)

- System vehicles of oncoming pedestrians 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