ALVEE ALAMGIR

3A Mechatronics Engineering

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SKILLS & QUALIFICATIONS

Hardware:

- Schematic capture, component library management, PCB layout design
- Design and analysis of analog signal circuits
- Utilized through work and projects:
  - Sensors (phototransistors, Hall Effect, thermistors etc.)
  - Passive and active components (BJTs, MOSFETs, TRIACs, optoisolators etc.)
  - Communication protocols (SPI and I2C)
  - ICs (GPIO expanders, PWM drivers, shift registers, etc.)
- Assembly and testing tools: soldering, oscilloscope, power supply unit, DMM

Software:

- CadSoft EAGLE
- MATLAB
- Python
- C++

PROJECTS

Visual Equalizer May 2014 – Present

- Utilized MSGEQ7 to split audio signal into multiple frequency bands
- Transmitted filtered signals through serial ports and displayed as a visual equalizer with Python

RGB Display March 2014 – May 2014

- Constructed 16x16 RGB LED display with full colour range display capabilities controlled through daisy-chained 12-bit PWM signal drivers (TLC5940), control switches and shift registers
- Manipulated default timers and transferred data with SPI protocol to maximize display refresh rate

AlvDuino (Custom Arduino Boards) Feb 2014 – April 2014

- Designed PCB layout and assembled custom Arduino Uno R3 boards with EAGLE

Sensors and Instrumentation Project Sept 2013 – Dec 2013

- Applied Hall Effect sensors, IR detectors and optical encoders to control movement of robot
- Performed signal conditioning with multiple operational amplifiers configurations such as Schmitt triggers, instrumentation amplifiers and transimpedance amplifiers

WORK EXPERIENCE

Hardware Design Engineer, Lumotune Inc, Kitchener, ON Jan 2014 – April 2014

- Independently designed and prototyped high voltage circuits in fast-paced startup environment
- Designed LCD driver modules from concept to design and integration with flexible films
- Composed schematic captures and PCB layouts with EAGLE; ordered, assembled and tested resulting PCBs
- Developed power switching circuit designs to meet system requirements using a variety of components and techniques including MOSFETs, TRIACs, I2C protocol, multiplexing and various ICs

Electrical Engineering Student, Syncrude Canada Ltd, Fort McMurray, AB May 2013 – Aug 2013

- Constructed reports for electrical communication equipment increasing production efficiency
- Utilized CSA Canadian Electrical Code to ensure safety standards were met through projects

Automation QA, Fusenet Inc, Burlington, ON Sept 2012 – Dec 2012

- Independently developed mobile automation testing project for Android based platforms using Java
- Composed documents on testing procedures, methodologies and debugging tactics

Quality Assurance Analyst, NexJ Systems Inc, Toronto, ON Jan 2012 – April 2012

- Performed various levels of testing of the CRM application

EDUCATION & AWARDS

Candidate for Bachelor of Applied Science, Mechatronics Engineering Sept 2011 – Present

- University of Waterloo, Cumulative Average: 85.3%

Undergraduate Student Research Award Jan 2014

- Natural Sciences and Engineering Research Council of Canada