

Varun Rana Electrical Engineering Student

214-3233 Wesbrook Mall, Vancouver BC V6S0B4

varunrajrana98@gmail.com | 587-646-4847

TECHNICAL SKILLS

Computing:

- Microsoft Office
- C, Python 3
- SystemVerilog, Verilog (Quartus, ModelSim)
- 8051 and ARM Assembly
- Altium Designer (PCB Design)
- Solidworks/AutoCAD
- MATLAB
- R software
- Linux Operating System

Equipment:

- Microcontrollers
- DE1-SoC FPGA
- Multimeter
- Breadboard
- Oscilloscope
- Soldering iron
- Reflow oven

Other Skills:

- Class 5 Driver's License

EDUCATION

University of British Columbia

Present - May 2022

Bachelor of Applied Science - Electrical Engineering – Year 3

TECHNICAL EXPERIENCE

UBC Supermileage

Vancouver, BC

Electrical Team-Project Lead

September 2018-Present

- Using Altium Designer in improving PCB design on Prototype and Urban vehicles. Reduction of PCB footprint by over 30% than the previous year through innovative routing and sourcing of better parts.
- Co-ordinating with other divisions to meet specifications and implementing changes in a timely manner.
- Competing at annual Shell Eco Marathon (2nd place) and SAE Supermileage (2nd place) events.

UBC Chem-E-Car

Vancouver, BC

Junior Team

January 2017-April 2017

- Using Solidworks and CAD modelling to begin use of teams first 3D Printer for mounting mechanisms for a variety of parts.

Robotics

Fort McMurray, AB

Lego, Vex, Skills

2012-2016

- Developing technical thinking and problem-solving skills as well as getting introduced to Hardware-Software interaction.
- Competing in various competitions and learning to effectively work in a team environment.

WORK EXPERIENCE

Your Independent Grocer (Loblaws), Fort McMurray, AB

May 2017-August 2017

Grocery and Dairy Clerk

- Stocking and maintaining shelves to improve accessibility.
- Assisting customers to ensure a pleasant shopping experience.

VOLUNTEER EXPERIENCE

Multicultural Association of Wood Buffalo, Fort McMurray, AB

2013-2016

- Helping in setup of shows and events. Setup greeter tables and help backstage.
- Greeter- Welcome all guests and distribute tickets during events.
- Providing backstage assistance.

Western Canada Summer Games, Fort McMurray, AB

August 2015

- Badminton judging
- Guest hospitality
- Backstage show runner for Opening and Closing Ceremonies

Projects

Coin Picker Robot

Languages: C, Python

Using STM32F051 Microcontroller System to build a coin picking robot that can detect a perimeter and coins using inductor coils and picking coins up using servos and electromagnets. Additionally, a light sensor mechanism that can identify coins as well as wireless control from a PC was implemented.

Reflow Oven

Languages: ARM Assembly, Python

Building a reflow oven controller that uses Pulse Width Modulation to control oven temperature according to specifications. Using a thermocouple, keeping track of oven temperature and plotting the graph over time. Sending phone alerts using Python when process is complete.

DE1-SoC ARC4 Decryption and VGA Core Systems

Language: SystemVerilog

Creating a design that uses several on-chip memories to perform ARC4 decryption. Creating Datapaths and State machines to use an embedded VGA adapter core in order to output to a display. Implementing efficient code that can reduce clock time for displaying as well as using parallel cracking to cut time to decipher in half.

Robot Claw

Language: C

Working with sheet metal and an Arduino kit to build a claw from the ground up while using the engineering design process to weigh pros and cons and successfully use claw to pick up objects.

Rainwater Harvesting System Analytical Model

Leveraging data analysis in Microsoft Excel to carefully study historical data and making choices in categories of storage and catchment tanks to deliver the most reliable solution when put through a stress test. The model placed 2nd with an uptime of 81%.
