Rishi Upath
Electrical Engineering Student | Vancouver, BC

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Skills

Software: Altium Designer, LTspice, STM32CubeIDE, Quartus, ModelSim, MATLAB, Visual Studio, MS Office
Languages: C, SystemVerilog, Assembly
Lab Equipment: Multimeter, Oscilloscope, Function Generator, Power Supply, Soldering Iron, Reflow Oven
Hardware: Microcontrollers (STM32, EFM8, N76E003, ATMEGA328P), FPGA (DE1-SoC), Arduino, Raspberry Pi

Education

University of British Columbia – BASc in Electrical Engineering (CGPA: 87%)   Expected May 2027
Co-op Program: Available 4-12 months beginning January or May 2026
Relevant Courses: Circuit Analysis, Computing Systems, Signals and Systems, Data Structures, and Algorithms

Design Team Experience

Electrical Team Member, UBC Rover – Vancouver, BC   September 2024 – Present
- Assembled rover electrical hardware including wiring, SMD soldering, and e-stop and developed rapid prototype firmware with Arduino to support other subteams in preparation for national rover competition
- Conducted functional testing of power distribution and battery systems using multimeters and power supplies, validating performance under operational conditions
- Designed power filter PCB using Altium Designer to reduce noise exposure to sensitive rover components and simulated filter performance with LTspice

Projects

Atmosphere Monitoring Station – Altium, C, STM32, I^2C Portfolio
- Designed custom 4-layer PCB in Altium Designer integrating STM32 microcontroller, temperature/humidity sensor, ambient light sensor, and GPIO pin header, following proper practices for fabrication
- Implemented dual power input system with USB or battery supply, incorporating ESD protection and large copper pours for safe and reliable operation
- Developed C firmware in STM32CubeIDE to read sensors over I^2C and transmit via USB for live monitoring

Coin Picking Robot – C, Microntrollers, Electronic Peripherals   Portfolio
- Worked with 6 teammates to develop an autonomous and manual robot capable of detecting, retrieving, and storing coins within a defined perimeter using EFM8 and STM32 microcontrollers
- Developed firmware for servo-based coin pickup mechanism and electromagnet, and implemented Colpitts oscillator and tank circuit for reliable coin and perimeter detection
- Proposed and integrated ultrasonic sensor subsystem, using trigger/echo protocol for accurate distance measurement to enhance robustness of autonomous navigation

Simple RISC Machine – Quartus, ModelSim, SystemVerilog, FPGA   Portfolio
- Designed Reduced Instruction Set Computer with integrated memory and I/O functionality, capable of executing ARM instructions, on DE1-Soc using Quartus and SystemVerilog
- Created extensive test benches for all modules and simulated in ModelSim, including edge cases to ensure robust end-product
- Developed effective debugging strategies to cut down development time and reduce potential errors

Work Experience

Cashier, Real Canadian Superstore – Richmond, BC   June 2022 – November 2022
- Served 60+ customers daily by processing transactions efficiently, ensuring a positive checkout experience
- Maintained an organized checkout area and consistently upheld punctuality and professional standards