



AIMAN ISHMAM

Electrical Engineering Student

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Technical Skills

Programming: C, MATLAB, SystemVerilog, ARM Assembly
Electrical: Altium Designer, Circuit and PCB Design, SPI/I2C/UART, Embedded Systems
Lab Skills: Oscilloscope, Multimeter, Signal Generator, Power Supply
Others: Microsoft Office, GSuite

Work Experience

Electrical Communications Member

September 2023 – Present

UBC Sailbot

Vancouver, BC

- Designed and optimized the Power Distribution Board PCB, meeting power specifications.
- Designed enclosures for all the modules in the hull using SolidWorks, incorporating precise cutouts for connectors and ensuring proper fitment and functionality within the system.
- Designed mounting plates for all enclosures to securely fit PCBs onto the mounting board, ensuring proper alignment of standoffs for stability and ease of assembly.
- Conducted testing and validation procedures on buck converters and PCB switching mechanisms designed for UBC Sailbot, ensuring optimal performance and reliability in the system's power management.

Projects

VGA Graphics Generator and Shape Renderer | *UBC, Vancouver*

October 2025 – December 2025

- Designed and implemented a SystemVerilog datapath and FSM controller to drive a VGA framebuffer on the De1-SoC FPGA.
- Engineered modular hardware units for screen-filling, circle drawing using Bresenham algorithm, and Reuleaux-triangle rendering, supporting dynamic center and size parameters.
- Verified correctness and timing through comprehensive RTL and post-synthesis testbenches using ModelSim.

Simple Datapath and Controller: Baccarat | *UBC, Vancouver*

October 2025 – December 2025

- Engineered a real-time Baccarat game on an Intel DE1-SoC FPGA using SystemVerilog, designing hardware modules for card dealing, score calculation, and VGA output.
- Controlled gameplay via a custom FSM, guaranteeing deterministic behavior for card dealing and win evaluation.
- Ensured functional correctness by developing and executing structured SystemVerilog testbenches to simulate game scenarios.

Flight Controller Prototype | *Personal Project*

April 2025 – May 2025

- Built and validated sensor drivers for MPU6050 and BMP388 using I2C, enabling 98% reliable data acquisition through precise register configuration, calibration, and noise filtering.
- Designed a real-time data logging system with FatFS to record sensor metrics, acceleration, gyro, and pressure, to an SD card at 10Hz.
- Implemented USB-CDC telemetry to stream live sensor metrics to a host computer, reducing debugging time by 40% and improving system tuning efficiency.

Remote Controlled Coin Picking Robot | *UBC, Vancouver*

January 2025 – April 2025

- Built a dual-microcontroller, PIC32 and EFM8, system for autonomous coin detection and collection with 95% accuracy using inductive sensing and ultrasonic tracking.
- Designed a wireless remote control with real-time LCD feedback and joystick navigation via JDY-40 radios.
- Integrated a real-time 7-segment coin counter and directional LED indicators, improving user awareness and contributing to smoother, more intuitive operation.

Reflow Oven Controller | *UBC, Vancouver*

February 2025 – March 2025

- Designed an FSM to automate PCB soldering (preheat, soak, reflow, cooling), maintaining $\pm 5^\circ\text{C}$ precision with PWM heating and 10 Hz thermocouple feedback.
- Improved usability by integrating a servo-driven oven door, cooling fan, and LED state indicators via a custom 1-of-4 decoder circuit, enabling smoother operation and reducing the need for manual adjustments.
- Implemented safety features including temperature/time thresholds and an emergency stop, ensuring 100% safe shutdown during testing and preventing overheating incidents.

Education

Bachelor of Applied Science in Electrical Engineering

September 2023 – May 2027

The University of British Columbia

Vancouver, BC