Sakib Hafiz

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Skills

Technical Skills:

- Hardware Proficiency: Power supplies, multimeters, spectrum analyzers, and oscilloscopes for analysis.
- Programming/Software: RISC-V Assembly Language (Linux), C++ (Eclipse)/C programming language.
- LTSPICE/OrCAD: Circuit simulation and analysis for analog and digital designs using software.
- Fusion 360/3D Printing: Created 3D models of custom mounts and fabricated them with a Bambu P1S printer.
- MATLAB & Simulink: Experienced with data analysis and control systems (e.g., damping and system response).
- Troubleshooting: Multimeters and oscilloscopes to verify circuits, measure signals, and diagnose system issues.
- Soldering: Skilled in surface-mount soldering with flux for optimal flow and solder wick for precise corrections.

Transferable Skills:

- Time Management: Utilize Outlook to organize daily schedules and track meetings throughout the day.
- Resilience: Consistently learning from mistakes and improving until the goal is reached.
- Problem Solving: Identify issues quickly and apply solutions, whether in technical projects or team settings.
- Communication: Participating in team discussions and proactively asking questions to ensure clarity.
- Initiative: Immediately would act on problems early and suggest better ways of getting things done.

Technical Project Experience

70 kW Test Cart Assembly – Ballard Power Systems   Feb 2024 – Aug 2024

- Designed and assembled a 70-kW electrical test cart for troubleshooting and validation of bus modules.
- Interpreted P&ID diagrams and electrical schematics to identify pinouts and verify sensor/actuator connections.
- Integrated a 36V/40A power supply with key components such as MOV valves, temperature sensors, actuators, coolant systems, air compressors, inverters, pressure sensors, and fans to create a replicate a module for testing.
- Used Fusion 360 to design PETG structured mounts, and take precise measurements with a caliper.
- Implemented a Power Distribution Board + Breakout Board and 35A fuses to protect high-voltage subsystems.
- Implemented CAN communication for sensor/actuator integration and performed diagnostic tests.
- Conducted functional I/O checks with oscilloscopes and multimeters to validate signals and system performance.
- Applied grounding and ESD safety procedures when handling high-voltage equipment and sensitive electronics to prevent damage.

Autonomous Plant Irrigation System – Simon Fraser University   Sept 2022 – Dec 2022

- Designed an eight-plant watering system that would automatically water plants with a set amount.
- Identified appropriate plant selections, evaluated their size and water requirements to optimize the irrigation system, and decided on small household plants to ensure efficient water management.
- Managed project costs in Excel, tracking expenses to ensure the system is cost effective.
- Utilized Arduino boards, moisture sensors, breadboards, servo motors, and power supply(12V).
- Fusion 360 to model 3D printed spill-free water flow slides made from PLA filament.
- Utilizing the Arduino platform to program servo motors, which are used for water gateways combined with moisture sensors to open the gates for when plants need water.

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Self Directed Projects

BMP280 Sensor Integration of ESP32, EWB (Engineers Without Borders) Club (SFU)　　**Sept 2024 – Jan 2025**

- Designed and implemented a low-cost weather monitoring system using an ESP32 microcontroller.
- Programmed in Arduino IDE with I²C communication, Adafruit BMP280 library, and CP2102 driver.
- Designed breadboard in Fritzing and integrated a BMP280 sensor with an LCD1602 display to view readings.

Work/Volunteer Experience

Alvia Systems, Electronic Position, Riipen Program, Vancouver B.C　　**Feb 2025 – Present**

- Designed a low-cost Tri-Copter VTOL drone system for wildfire detection, utilizing machine learning to monitor and identify fire events.
- Integrated brushless motors, servos, flight controller, GPS module, and 14.8 V 3300mAH Battery for system.
- Designed and modified VTOL fuselage and structural components in Fusion 360, printed using LW-PLA.
- Developed a Raspberry Pi–based ground station to receive live footage from the VTOL, display video on a monitor in real time, and store recordings to an SD card for review.
- Configured VTOL's autonomous flight using Mission Planner with ArduPilot, setting waypoints and verifying transitions from tri copter takeoff to fixed-wing flight.

Ballard Power Systems, Electrical Engineer Co-op, Burnaby B.C　　**Jan 2024- Aug 2024**

- Assisted troubleshooting high-voltage bus/truck modules, addressing issues with EMC/EMI and ESD problems.
- Utilized a spectrum analyzer with a connected antenna to measure EMC frequencies emitted by an inverter which involved integrating ferrites to reduce attenuation(dB) and assessing the performance.
- Used an oscilloscope and data logger to diagnose pressure transducer signals in truck modules. Documented findings in Excel for evidence and reporting, providing clear observations to the team.
- Utilized a Static Electricity Meter to measure ESD build-up on electronic components as high as 1kV, implementing grounding's techniques to help discharge through Earth to prevent ESD.

Education

- Simon Fraser University, Burnaby, B.C, 4th year Electronics Engineering Undergraduate　**Sept 2022 – May 2027**

Awards/Scholarships

- Simulink Onramp Certification- Introduction to, simulation and analysing systems.　**Jan 2025 – Feb 2025**
- CSIS Shanna Knights Award - Issued by Ballard Power Systems　**April 2024 – May 2024**
  - Honoured with the Shanna Knights Award, recognized as the "farthest out-of-the-box idea that was well-considered, where risk is valued, and success or failure is not a criterion."
  - Our project integrated EMC shielding spray to address noise issues from electronic components. The nickel spray made the material conductive, reducing EMI and enhancing overall performance.
- W3 Schools Certification "Certified C++ Developer"　**May 2023 - Jun 2023**

Clubs/Interests:

- EWB (Engineers Without Borders), Experience with ESP 32 microcontroller.　**Sept 2024 – Present**
- 3D Modeling & Printing: Design in Fusion 360 and prototype using a Bambu P1S 3D printer.