Vijayesh Khullar

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Technical Skills

- **Electrical -** Circuit Tools, Oscilloscope, Soldering
- **Software -** C, C++, Java, Python
- **Hardware -** STM32, ESP32, CAN, SystemVerilog, Assembly
- **Technologies -** Alitum, KiCad, SolidWorks, Matlab, Visual Studio Code, ModelSim, Quartus

Education

University of British Columbia *Sept 2023 – Present*
BASc in Electrical Engineering

- **Coursework:** Data Structures and Algorithms in C, Computer Systems I, Introduction to Computation in Engineering Design in C, Signals and Systems

Experience

Mechatronics Subteam *Vancouver, BC*
BAJA FSAE *Sept 2024 – Present*

- Designing the engine Tachometer PCB, CVT Belt Temperature Sensor, and a custom rear vehicle Electronic Control Unit (ECU)
- Creating custom PCBs using Altium software then assembling and testing using lab equipment

Technical Writer *Maple Ridge, BC*
Prime Health LTD *Jul 2024 – Aug 2024*

- Developed Standard Operating Procedures (SOPs) documentation for packaging machines, enhancing operational efficiency and industry compliance
- Collaborated with engineering teams to troubleshoot and resolve machine issues, minimizing downtime and optimizing performance

Projects

Electric ATV Conversion

- Converting a 110CC ATV to run using a motor
- Designing and constructing a custom 48V battery using lithium ion cells used to power vehicle electronics and the electric motor
- Adapting the steering and braking systems to ensure compatibility and optimal performance with the electric motor

Hand Gesture Recognition System

- Utilized an open-source computer vision repository, integrating MediaPipe library in Python, to detect and classify hand gestures in real-time captured from a computer webcam
- Engineered an Arduino-based microcontroller system to receive and interpret gesture commands from the computer vision application
- Used SolidWorks to design and 3D print articulated fingers to mimic the recognized hand gestures

Python Platformer

- Created a platformer game in python using PyGame Library
- Designed and implemented game mechanics, including player movement, collision detection, and level progression.
- Utilized object-oriented programming principles to create modular and reusable code components