

Adesh Partap Singh

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Personal Website



LinkedIn



GitHub



YouTube



Tools/Technologies

- Altium
- KiCad 6.0
- Arduino
- STM 32 ARM Cortex
- ESP 32/8266
- SMD Soldering
- Circuit Design
- Open CV
- VHDL for FPGAs
- Sequential Ladder Logic
- RaspberryPi
- Linux

Programming Skills

- C
- MATLAB
- C++
- Python
- VHDL
- JavaScript

Other Skills

- SolidWorks
- Git
- AutoCAD
- Jira
- 3D Printing
- GD & T

Education

- University Of Waterloo
- Bachelor's of Mechatronics Engineering'2026
(Last term GPA : **3.8/4**, Deans Honor's List)
- Relevant Courses
- Microprocessors and Digital Logic
 - Sensors and Instrumentation
 - Introduction to Computer Structures and Real-Time Systems
 - Linear Systems and Signals
 - Numerical Methods
- Diploma in Advanced Web-Development and Digital Marketing.
 - Coursera - Embedded Systems Software and Development Environments, Digital Transformations.

Reward

University of Waterloo
President's Scholarship

Sacred Heart Convent School
Award for Academic Excellence

Relevant Work Experience

2023

4 Months

Teaching Assistant – Circuits | University of Waterloo

- Demonstrated circuit design and analysis expertise by effectively instructing and mentoring engineering students in the University's Circuits Theory course.
- Taught topics like **DC & AC circuit analysis, first-order transient response, Diodes, Transistors, Op-amps, electromagnetic theory, Digital Logic** and more.
- Delivered tutorials, labs and help sessions, instructing engineering students on the proper use and application of various laboratory equipment including **multimeters, oscilloscopes, electronic loads and supplies, logic analyzers**, etc. and helped them prepare for their Midterms and Final Exams.

2023

Present



Electrical Team Lead | Waterloo Hyperloop Design Team

- Utilized principles of Electronics to design, program, test and run compact, **low-cost, self-made bare metal chip microcontrollers** that help run the G6 pod.
- Bought in funding worth thousands of dollars, managed **Altium 365 project library**, documented and **conducted Hardware tutorials/knowledge shares** for new + current members and enforced deadlines for manufacturing timeline.
- Led and managed a team to **develop a Battery Management System** that ensures uniform power distribution, regulates voltage and displays the battery's state of charge (SOC) for improved performance and safety of our G6 pod.
- Prepare sketches and drawings (**schematics, wiring diagrams, layouts**) for an electric vehicle charger using **Altium software**.
- Took full responsibility for design, FEA, budgeting, deliverable scheduling, procurement and manufacturing of multiple projects.

2021-2022

4 Months

CAD Designer | Swan Industries

- Demonstrated exceptional mechanical engineering skills by designing and **developing highly precise mechanical punches** and auto parts for renowned companies including **Audi, Honda, and Suzuki**.
- Utilized SolidWorks to optimize the design of the base punch for car parts, resulting in a significant **weight reduction of 16%** and improving the efficiency of the production process
- Managed the supply chain**, of various car parts, ensuring compliance with **IATF 16949 quality standards** and collaborating with cross-functional teams to ensure timely delivery of high-quality products to clients.

Projects

2023

2 Months



STM 32 Board

Printed my own Microcontroller board using an STM32 chip on KiCAD.
Included peripheral features like **Timers (Crystal Oscillators), ADCs, Buck Convertor (Type-C Charger)**, and other passive components. Enhanced the board's communication capabilities by integrating **SWD, I2C, and UART** connectors.

2020

2 Months



Robotic Arm

Built an **app-controlled Bluetooth robotic arm** using an Arduino Uno, programmed in **C++**.
Modelled the parts on **SOLIDWORKS** and manufactured them using a **3D printer and Fine-Blanking machine**, including capabilities like **3 axes rotation**.