

Anmol Chhatwal

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EXPERIENCE

Robotics Engineering Co-op | TopHat Robotics Sep '20 – Dec '20

- Designed the electrical system in KiCad for the Semi-Autonomous Snow Plowing Robot, to control the motors and peripheral sensors.
- Applied GD&T concepts to interpret and design drawings in Solidworks, while assembling 10 new semi-autonomous robots.
- Troubleshooted battery current issues and reduced noise in the main 150A Roboteq motor controller circuit to resolve issues with the PCB.
- Worked with an Nvidia Jetson to control user input to drive the robot, snowplows, and interface with the designed electrical components.

Software Engineer | Kitchenmate Jan '20 – Apr '20

- Used CoffeeScript, Pug, and SCSS to implement new features for the native web app, improving user retention and sales efficiency.
- Performed Embedded C++ Tests and debugged electronic failures with the new Smart Cooker.
- Implemented data partitioning in the SQL database, improving query times up to 75%.

Technical Design Lead | UW VEX Robotics Team Oct '19 – Present

- Founding member of the University of Waterloo's first VEX University Robotics Design Team.
- Performed rapid prototyping, CAD modelling (Fusion360, SolidWorks), vision sensing, sensor programming, PID & hysteresis control in C
- Designed an efficient electromechanical system capable of extending 15 feet; receiving the National Design Award.

Projects

Team & Electrical Lead | KeyStone

- Created a contact-less home delivery solution, innovated to help flatten the curve during COVID-19
- Implemented a linear hall sensor, ultrasonics, thermocouples, and barcode scanning alongside a UI friendly mobile app for users.
- Used SolidWorks to create a 3D model alongside technical drawings to be used for assembly. Used Altium Designer for the schematics.

Team Lead & Developer | Velvet

- Built an app to sort/suggest recipes & create automatic grocery lists based on the ingredients currently in your fridge in real time.
- Implemented HTML, CSS, JavaScript, and Microsoft Azure's vision inspection API for real time food recognition.
- Received the best application prize in the NPSS'20 App Pitch Cohort

SKILLS

Mechanical

Fabrication Training AutoCad GD&T
Mechatronics Assembly 3D Printing
Part Design Mechanical Drawings
Rapid Prototyping SolidWorks
Machine Shop Training

Electrical

Altium Designer KiCad PCB Design
Arduino Motor Controllers Soldering
Electronic Capture Raspberry Pi
I2C Microcontrollers ESP 32
Schematic Design Electronic Testing

Software

C++/C JavaScript CoffeeScript
Embedded Programming PID Loops
Hysteresis Control GIT HTML/CSS
Writing Software Tests Arduino C

EDUCATION

Mechatronics Engineering

University of Waterloo

Candidate for **BASc**

2019 – 2024 (Expected)

ACHIEVEMENTS

| VEX Uni. National Robot Design Award
| VEX Uni. New York Robot Design Award
| WATPD Engineering Scholarship
| VEX 3x World Championship Competitor

INTERESTS

| Electronics & Microcontrollers
| PC Building & Robotics