Brielle Chenier

✉ bchenier@uwaterloo.ca   📞 206-954-7048   🔗 briellechenier.com   in /in/brielle-chenier

EDUCATION

University of Waterloo, *BASc in Mechatronics Engineering*   2020 – 2025
- Undergraduate Research Assistant in Wildfire Research within Indigenous Communities
- Spring 2022 Engineering Society President Award

SKILLS

- CAD Software: Certified Solidworks Professional (CSWP), Catia, Onshape, AutoCAD
- Mechanical Design: Ansys, 3D Printing, CNC, Waterjet, GD&T.
- Software: Python, Arduino, C++, Git, Java, LabVIEW

EXPERIENCE

Mechanical Engineering Intern, *Formlabs*   May 2023 – Present
- Designing components for the next generation SLA printer   Somerville, United States

Mechanical Engineering Intern, *Tesla*   September 2022 –
- Redesigned O-ring seal to decrease install force by 80%, tested with Instron.   December 2022
- Calculated heat generation, long term joint resistance and used metrology data to ensure   Palo Alto, United States
  proper performance and manufacturing feasibility.
- Created a test plan and performed 90 degree peel tests to measure polymer adhesion.
- Designed waterproof face seal in Catia and analyzed compression range in Ansys.

Mechanical Technical Lead, *Waterloo Aerial Robotics Group*   September 2020 –
- Integrated mechanical system with electrical and firmware for competition airframes.   August 2022
- Designed quadcopter frame in SolidWorks to carry a 2kg payload and fly 3km.   Waterloo, ON
- Built and performed calculations to ensure sufficient lift, flight time, and appropriate landing
  gear for drones.
- Designed device to grab, pick up and deploy medical packages for fixed-wing aircraft.

Mechanical Engineering Intern - Battery Team, *Beta Technologies* 🔗   January 2022 – April 2022
- Designed fixtures for more efficient battery pack assembly and testing in Onshape   Burlington, United States
- Performed tests to ensure battery pack reliability during crashes and short circuits.
- Created a program in Python to automatically graph and compare results between tests.
- Analyzed battery crash test results and expected deformations using Ansys.
- Created a demo to demonstrate battery technology internally and at tech conferences.

Mechanical Team Member, *University of Waterloo Solar Car Design Team*   September 2020 – May 2021
- Designed tools to aid in car manufacturing and increase efficiency during assembly.   Waterloo, ON
- Assembled carbon fiber and Nomex to create 4 different composite layups for car outer
  structure and bottom panel.
- Researched engineering techniques for welding and built welding jigs for car mainframe to
  support four passengers.

PROJECTS

**Friendship Lamp,** *Color Changing Lamp* 🔗   October 2020 – February 2021
- Developed a program for a Raspberry Pi lamp to connect via Firebase to a buddy lamp and
  display matching colors in real-time.
- Created a website in React to remotely control lamp colors.
- Designed lamp case in SolidWorks and 3D printed to house LEDS

Brielle Chenier

✉ bchenier@uwaterloo.ca   📞 206-954-7048   ↖ briellechenier.com   in /in/brielle-chenier

Undergraduate Research Assistant —
Wildfire Preparedness in Indigenous Communities

- Reviewed previous indigenous evacuations and case studies to add to a comprehensive list of tasks for wildfire evacuation.

- Sorted over 100 tasks into roles and timelines, including the communication needed between roles

- Created an interactive web app with React that makes the research data easily accessible and digestible for communities to aid in evacuation preparedness

Mind Map of Role Interaction
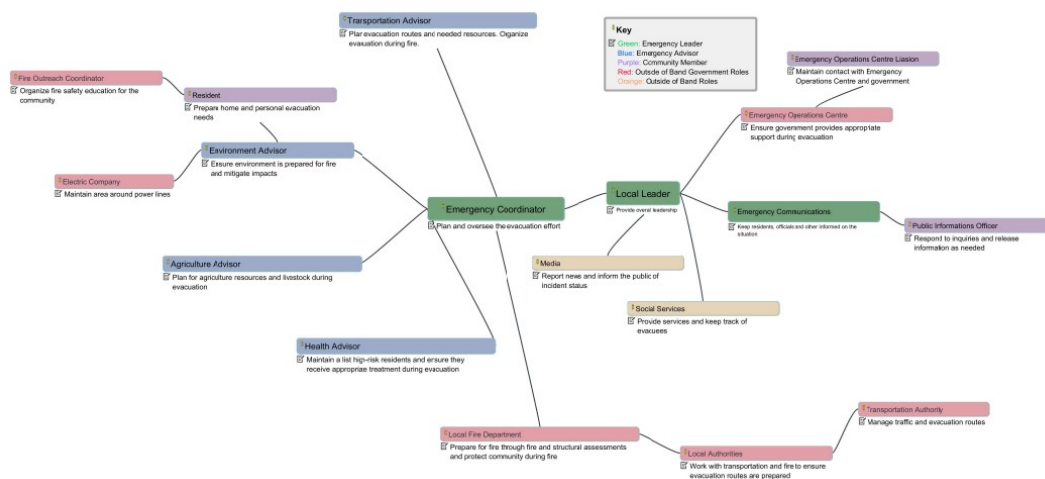
Web App

Clickable map with icons for each role (prototype image above) that will direct to a page with further tasks

Clickable timeline and icons for residents to go through and understand specific tasks and order they should be preformed
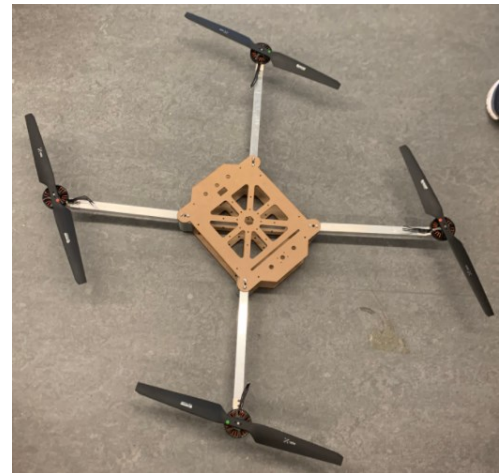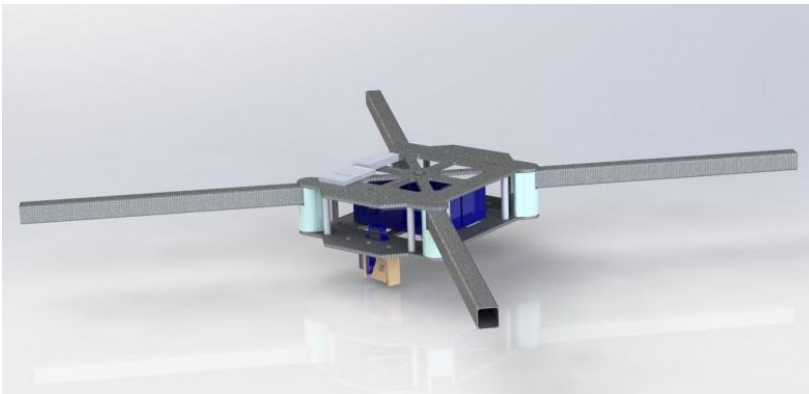
Brielle Chenier

✉ bchenier@uwaterloo.ca   📞 206-954-7048   ↗ briellechenier.com   in /in/brielle-chenier

WARG 2022 Competition Drone

- 4kg drone capable of carrying 2kg payload
- Designed in SolidWorks and prototype made with laser cutting fiber board, final design made with carbon fiber
- 3D printed brackets for arm to keep them rigid during flight as well as distribute battery load
- Attachment spots for camera gimbal, grabber and electrical components

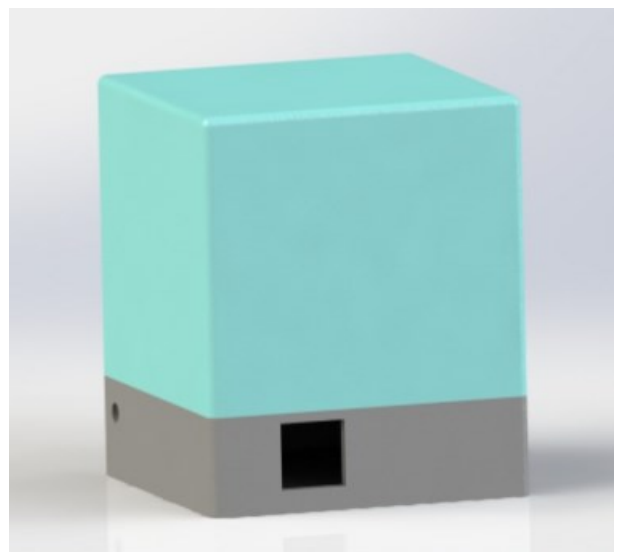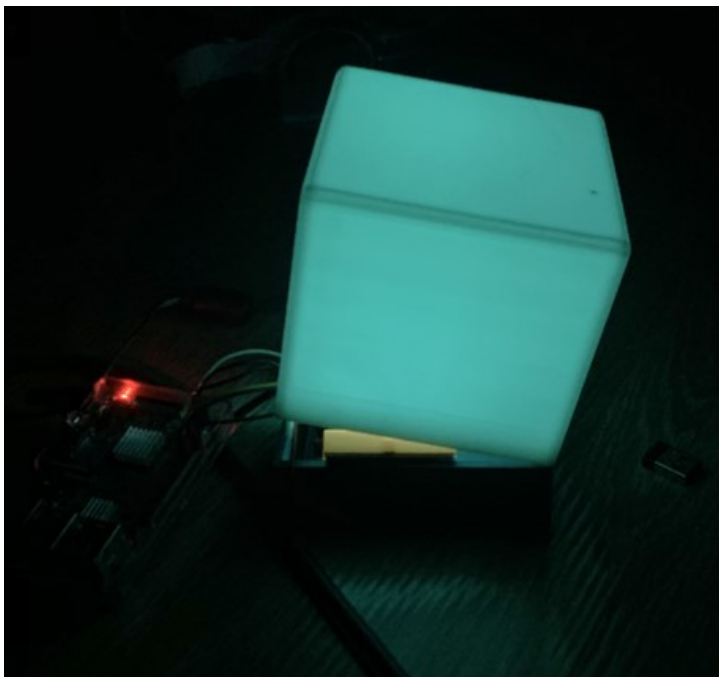## Early Version

Final Version

Brielle Chenier

✉ bchenier@uwaterloo.ca   📞 206-954-7048   ↖ briellechenier.com   in /in/brielle-chenier
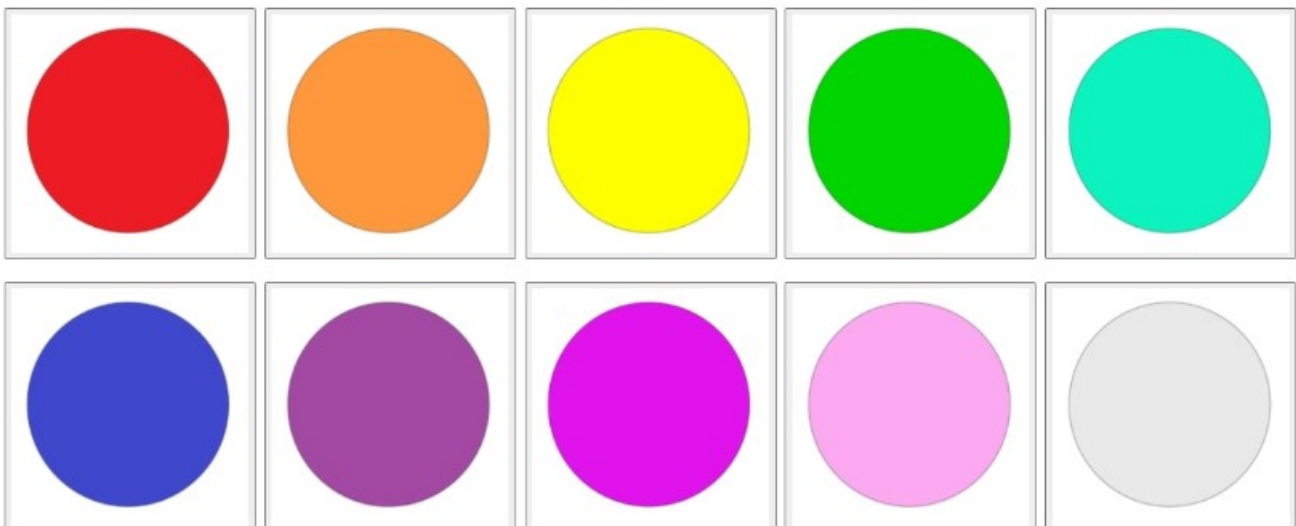
Friendship Lamp

- Developed a program for a Raspberry Pi lamp to connect via Firebase to a buddy lamp and display matching colors in real-time

- Created a website in React to remotely control lamp colors

- Designed lamp case in SolidWorks and 3D printed to house LED strips

Brielle Chenier

✉ bchenier@uwaterloo.ca   📞 206-954-7048   ↖ briellechenier.com   in /in/brielle-chenier

FIRST Robotics, Team 2412: Climb System

- Aluminum extrusion rails driven by chain to lift 150lb robot up a 45cm step
- 6 bearings held in each extrusion to ensure rails stay in correct position and do not bend
- Motor behind bottom bracket to control wheels and move robot forward during climb
- Sheet metal parts made with a waterjet and bent