# Brielle Chenier

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## EDUCATION

**University of Waterloo, BASc in Mechatronics Engineering** **2020-2025**

- Undergraduate Research Assistant in Wildlife Research within Indigenous Communities

**University Carlos III of Madrid, BASc in Automation Engineering (Academic Exchange)** **2023**

## SKILLS

**Design**: Certified Solidworks Professional (CSWP), Ansys, Catia, Onshape, Onscale
**Mechanical**: 3D Printing (FDM, SLA, SLS), CNC, Waterjet, GD&T
**Software**: Python, Arduino, C++, Git, Java, LabVIEW, MATLAB

## EXPERIENCE

**Launch Operations Engineering Intern, *SpaceX*** May 2024 – Aug 2024 | Brownsville, TX

- Developed autosequences for Starship pre-flight check system, enhancing test safety and repeatability; reduced operator pre-test interactions by 90%.
- Created planning for Starship removal from new static fire test stand, coordinated with engineers and technicians to develop best process while ensuring ship and ground systems always remained in safe configurations.
- Designed and programmed dashboard to calculate commodity storage and usage for test operations; removed step to manually confirm sufficient commodities before each test.

**Technical Program Management Intern – High Voltage Distribution, *Tesla*** Jan 2024 – April 2024 | Palo Alto, CA

- Managed launch of new HV connector which will be used across 4 gigafactories and all Tesla vehicles.
- Coordinated initial launch of new HV distribution system including discussions with suppliers and validating prototype parts with design and integration.
- Ran weekly meetings with multiple design, supply chain and manufacturing teams to ensure efficient communication and alignment on projects.

**R&D Engineering Intern, *Formlabs*** May 2023 – Aug 2023 | Somerville, MA

- Designed and optimized dust filter for new SLA printer ensuring even and adequate cooling. Collaborated with suppliers to determine manufacturing methods and performed physical testing to validate mathematical models.
- Managed wiring for SLA printer in CAD and communicated with electrical and manufacturing teams to ensure compatibility and ease of installation
- Improved initial fan duct models in CAD to match supplier injection molded standards.

**Battery Engineering Intern, *Tesla*** Sep 2022 – Dec 2022 | Palo Alto, CA

- Redesigned O-ring seal to decrease install force by 80% in order to meet manufacturing ergo limits, tested with Instron.
- Calculated heat generation, long term joint resistance and used metrology data to ensure proper performance and manufacturing feasibility on battery pack terminal.
- Created a test plan and performed 90-degree peel tests to measure polymer adhesion during manufacturing processes.
- Designed waterproof face seal in Catia and analyzed compression range in Ansys.

**Mechanical Engineering Intern, *Beta Technologies*** Jan 2022 – Apr 2022 | Burlington, VT

- Ran test to measure short circuits in battery cells; used data to characterize different batteries flight operating limits.
- Performed tests to measure cell behaviour during crashes. Analyzed test results and expected deformations using Ansys.
- Created a demo to demonstrate battery technology internally and at technology conferences.

## PROJECTS

**Mechanical Technical Lead, *Waterloo Aerial Robotics Group*** Sep 2020 – Aug 2022 | Waterloo, ON

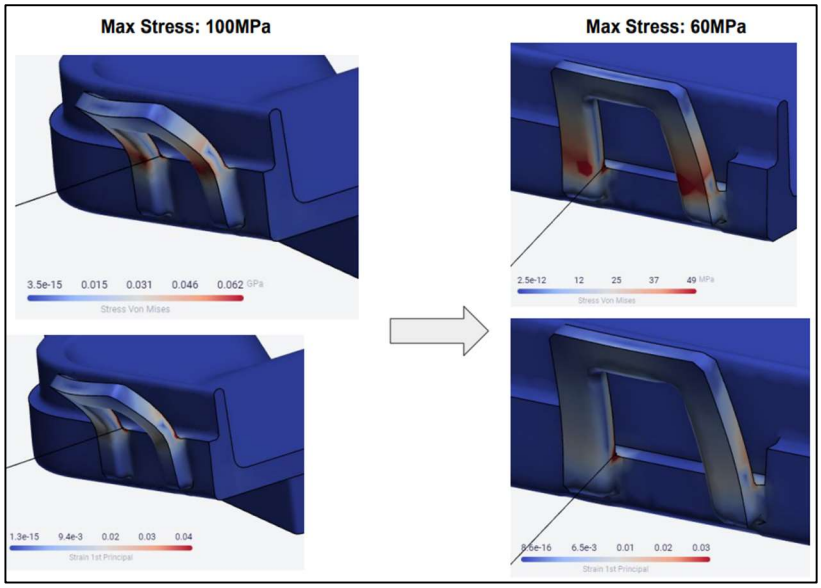
- Led mechanical team of 10 students to deliver 2 competition airframes and associated mechanical systems. Collaborated with electrical and firmware teams to complete system integration.
- Designed quadcopter frame in SolidWorks to carry a 2kg payload and fly 3km.
- Build and performed calculations to ensure sufficient lift, flight time, and appropriate landing gear for drones.

**Friendship Lamp, Color Changing Lamp** Oct 2020 – Feb 2021

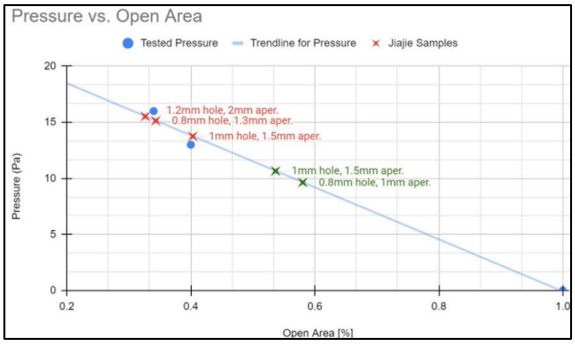
- Wrote program for a lamp to connect via Firebase to a buddy lamp and display matching colors in real-time.
- Created a website in React to remotely control lamp colors.
- Designed lamp case in SolidWorks and 3D printed to house Raspberry Pi and LEDs.

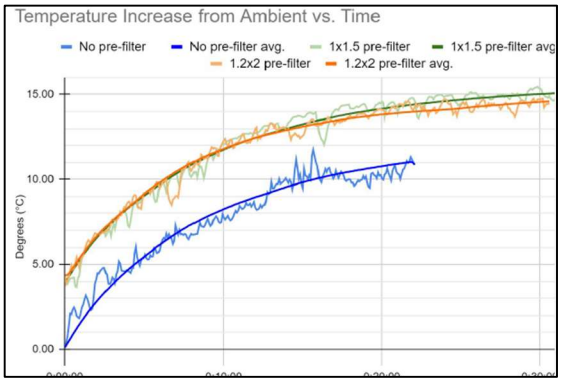
# Brielle Chenier Design Portfolio

## Mechanical Engineering Intern, Formlabs




FEA Analysis for injection molded part

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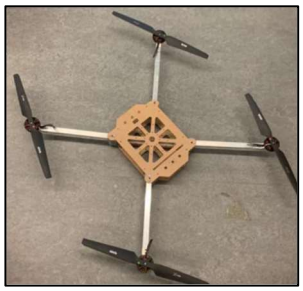
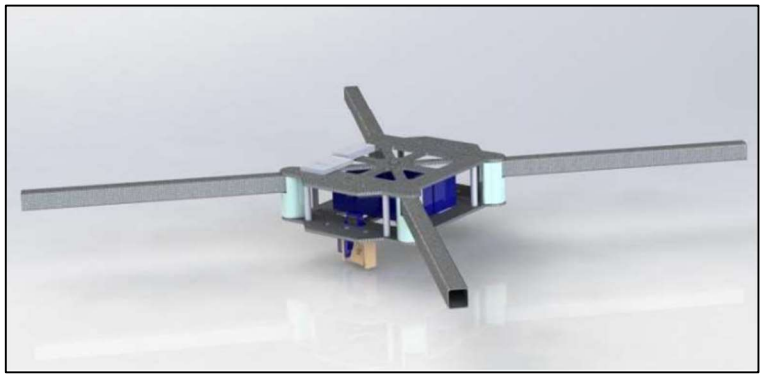
## WARG 2022 Competition Drone

- 3D printed arm brackets to keep them rigid during flight
- Attachments points for camera, grabber and electrical components
- 4kg drone capable of carrying a 2kg payload
- Designed in SolidWorks, final design made with carbon fiber



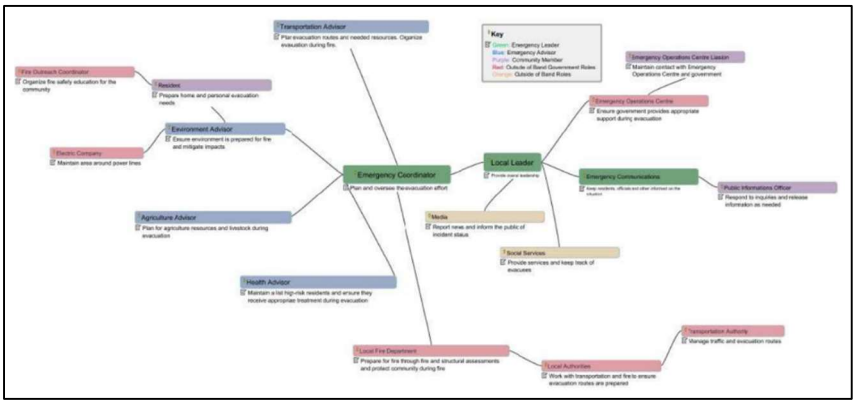
Final Design



Prototype

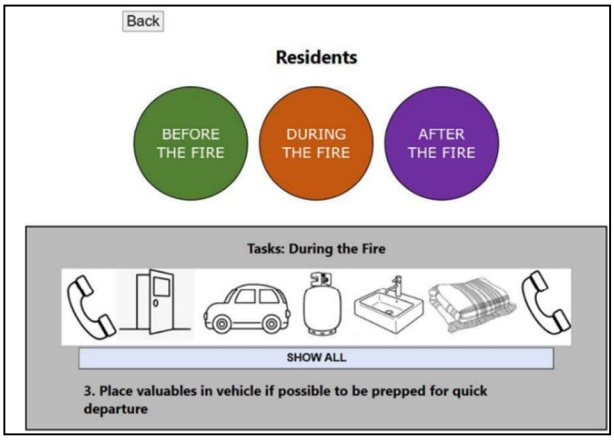
# Undergraduate Research Assistant -
# Wildfire Preparedness in Indigenous Communities

- 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 as well as organized the communication needed between roles
- Created an interactive web app with React, enabling the research data to be easily accessible and digestible for communities




Mind Map of Role Interactions

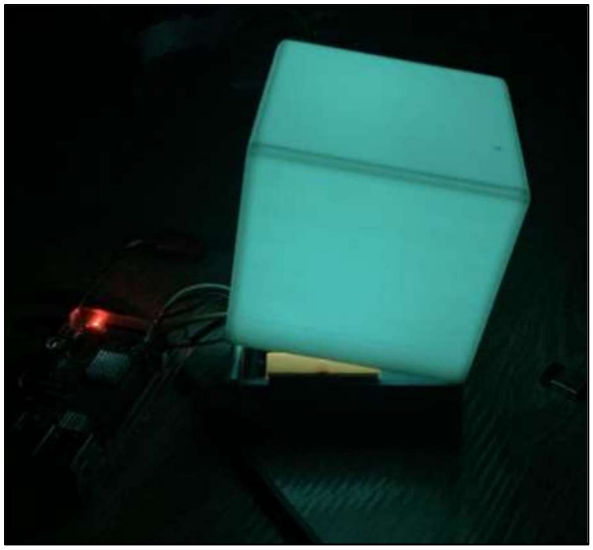
Map with icons for each community role that will direct to page with further tasks

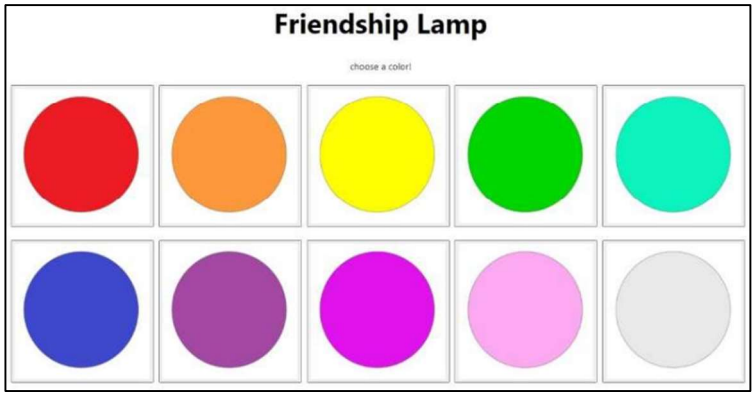


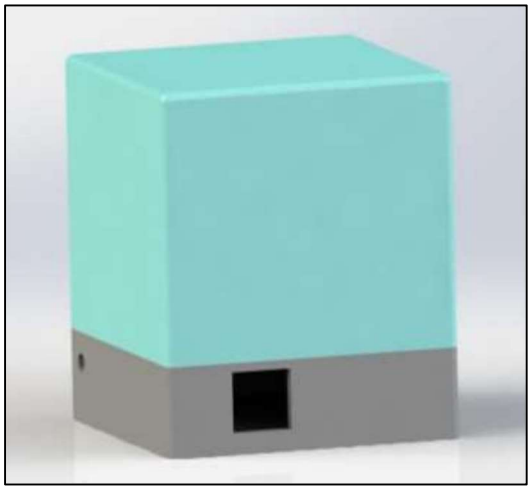

Clickable timeline and icons for residents to go through and understand specific tasks and order they should be performed

# 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 lamps





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# FIRST Robotics, Team 2412: Climb System

- Aluminum extrusion rails driven by chain to lift 150lb robot up a 45cm step
- 6 bearings in each extrusion to ensure rails stay aligned
- Motor behind lower bracket to control wheels and move robot forward during climb