Eleanor Mayes

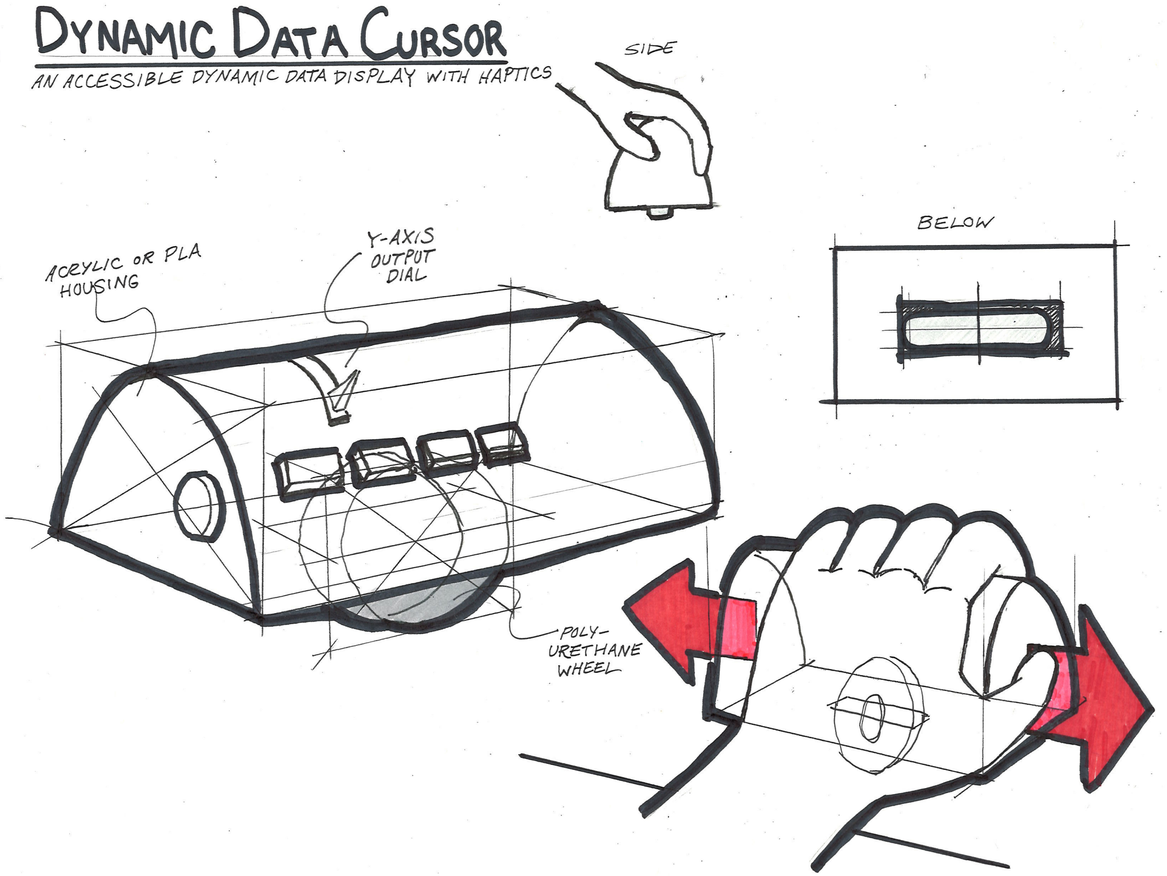
Engineer & Designer

Skrōl

An Accessible Tool for Dynamic Data Display

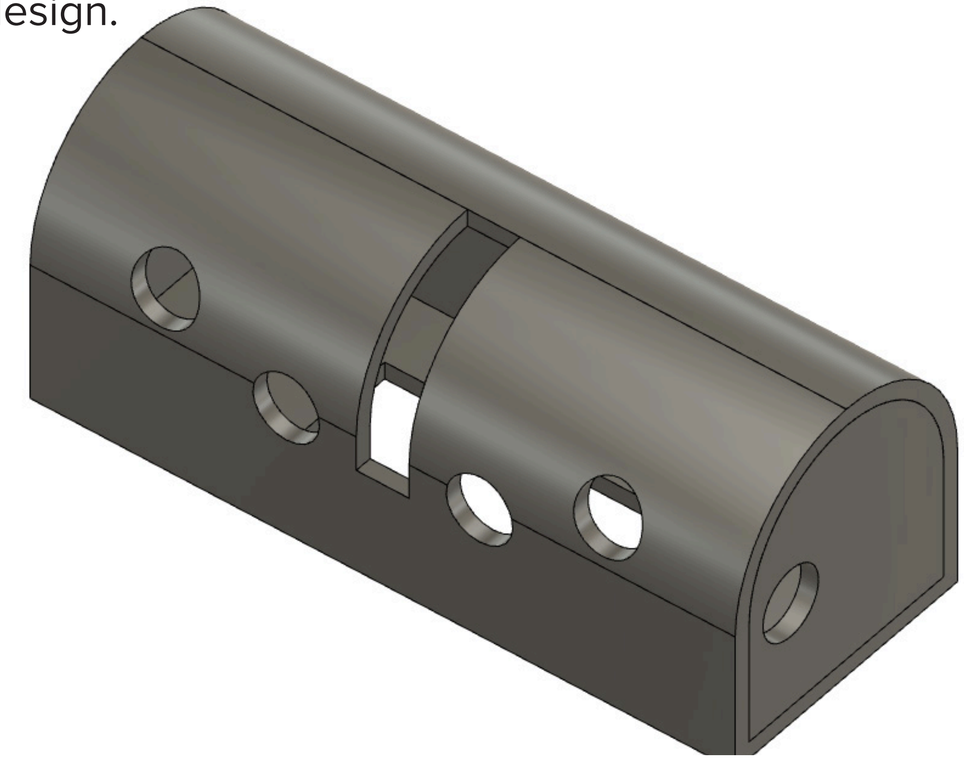
Ideation

it was important to create a tool that could span a range of interaction types. I tested a variety of multisensory output. Indicating parameters as well as providing flexibility in use was a balancing act.



Prototype

At first I developed a design that had features on the ends of the housing, but these ended up making the housing handed, instead of ambidextrous, which was a quality I was looking to include in the final design.



EIDOS

Reducing Food Waste

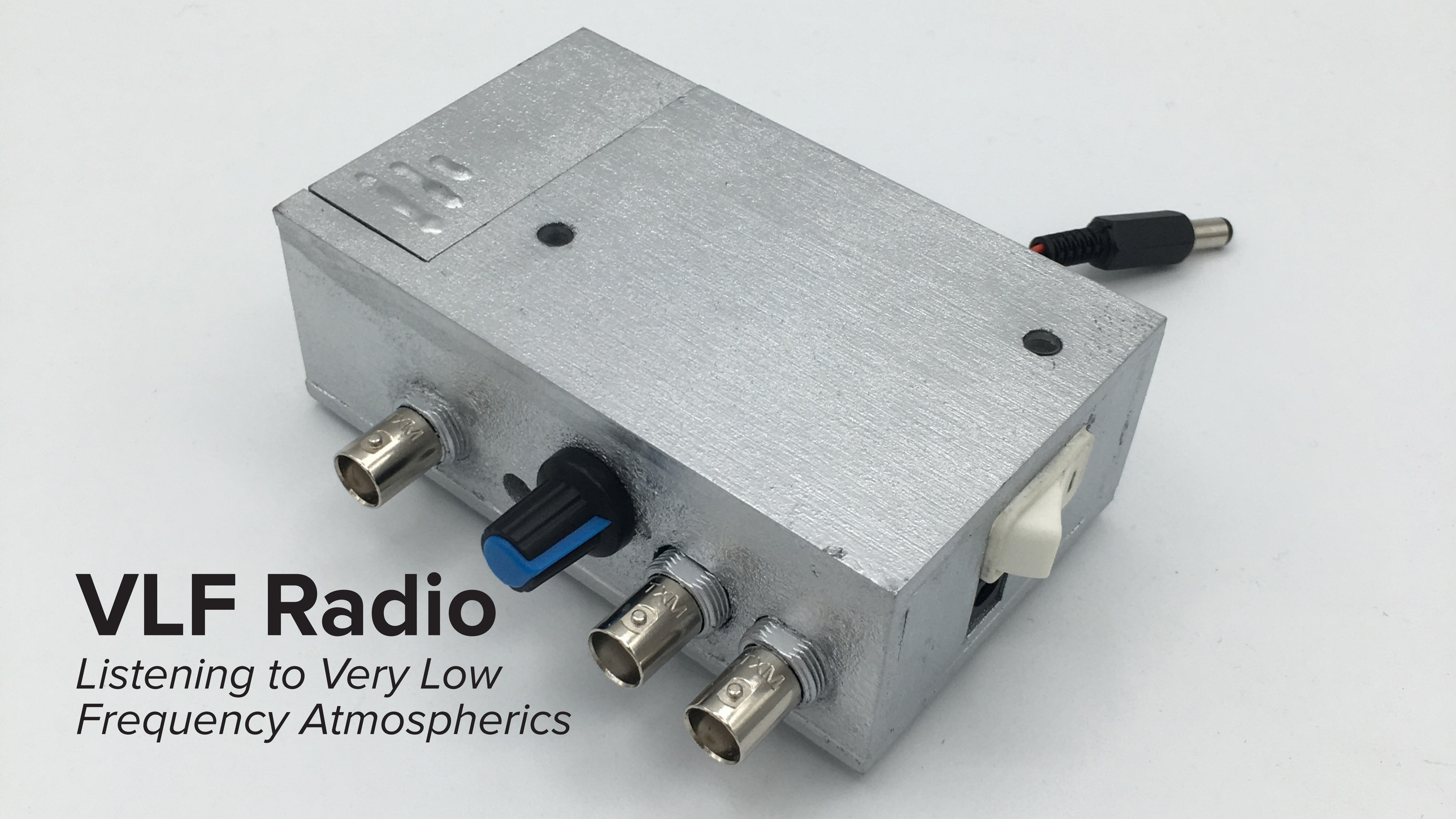
An ambient reminder

EIDOS Prototype mounted on Refridgerator. Design by Eleanor Mayes, Akash Mahajan, Debbie Yuen, Lula Duloup, and Roland Saekow

Prototype

We prototyped an in-fridge notification system, a smart trash compost bin, and a game about proper food storage. Feedback indicated the fridge notification was the most popular and viable idea.

For the food notification system we considered illuminating food with different colors by expiration date, a rotating shelf to orient expiring food at the front, and a mounted display that tracked food consumption and expiration.



VLF Radio

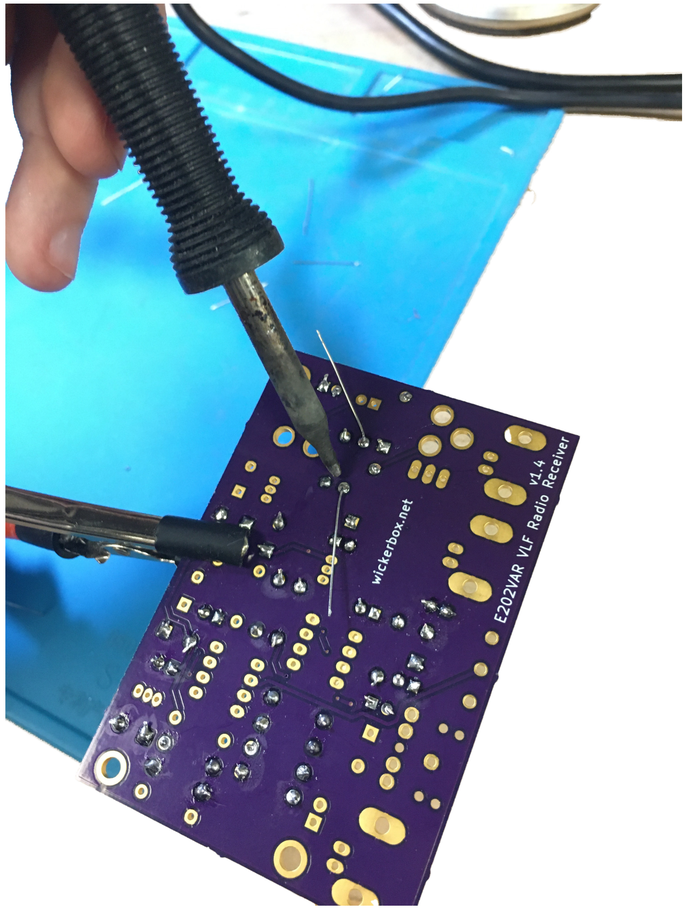
Listening to Very Low Frequency Atmospherics

Scope

I worked with Joshua Miele, a local blind inventor and MacArthur recipient on a variety of projects including building a VLF (very low frequency) radio that we will use in a future project for binaural audio at a massive scale. This will project will span hundreds of miles, and work in collaboration with artists, scientists, and community.

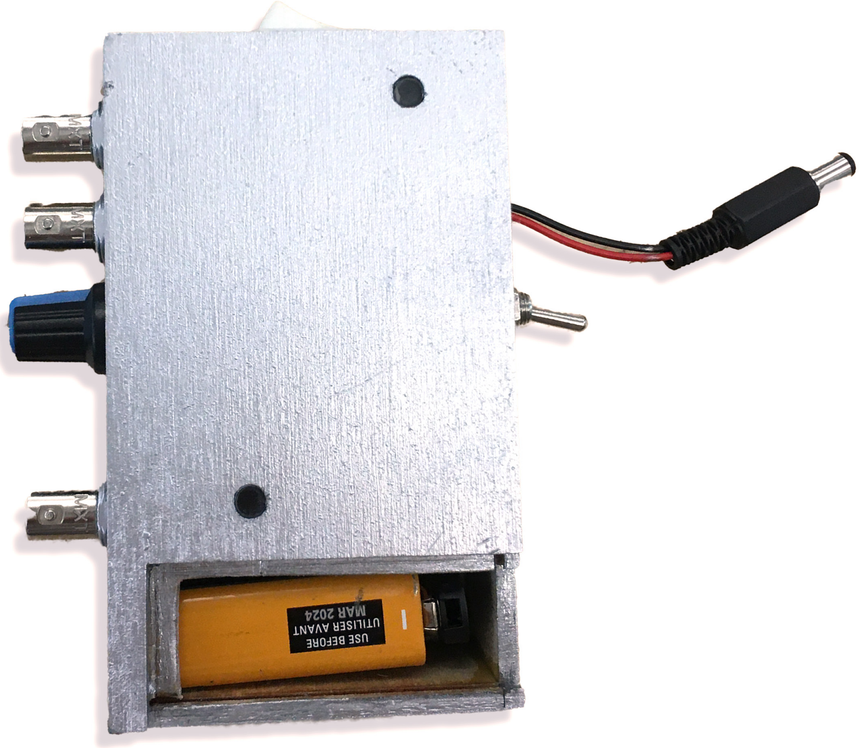
Fabrication

Soldering components to the board



Place board into laser cut box

Insert battery into carved slot



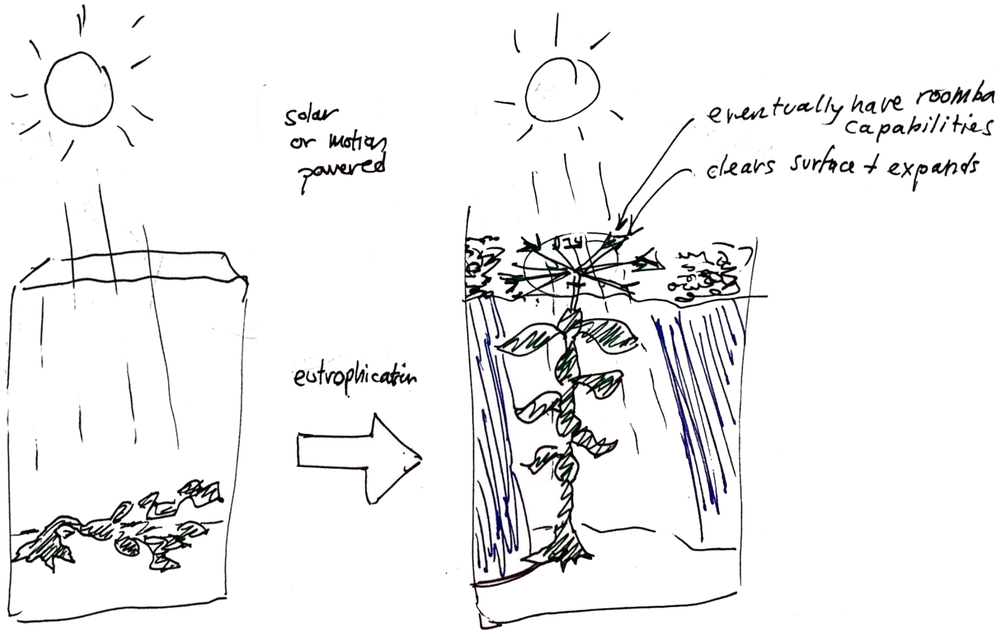
Future Habitat

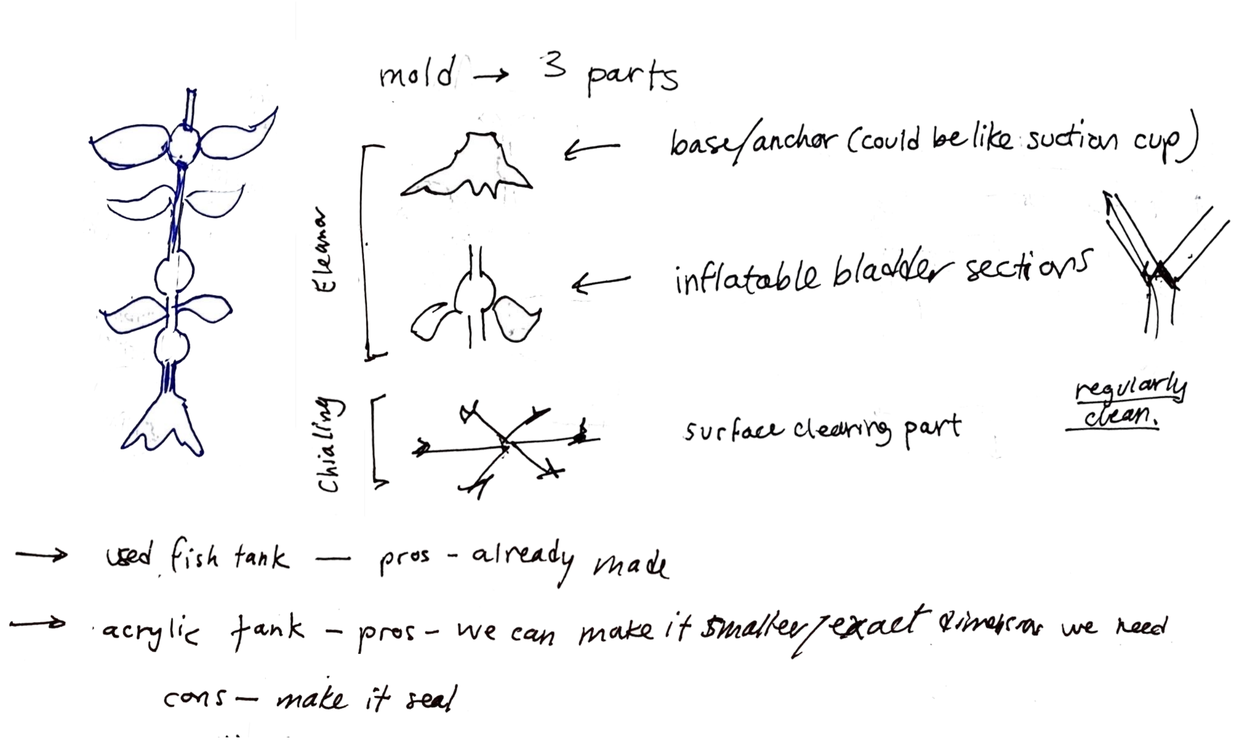
Using feral design to speculate on the future of our oceans.

— with Chia Ling Chen

Sketches

Air bladders of giant kelp and seaweed provided inspiration. We wanted to **create a model** of **speculative infrastructure** when humans live underwater from sea level rise. We thought about how the physical environment and infrastructure could support human activity in a way that did not disrupt the environment. We re-designed streetlights to emulate giant kelp. They inflate and illuminate only when humans pass by.

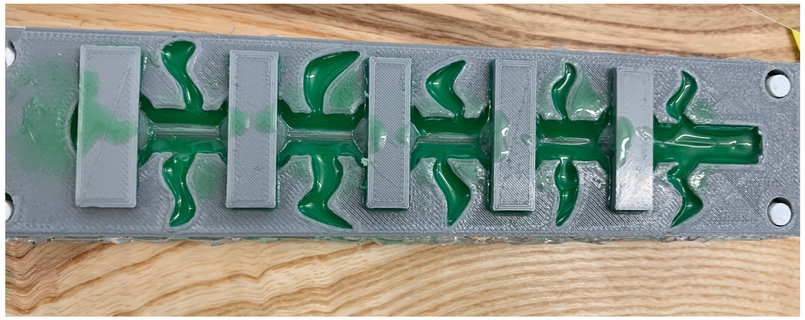




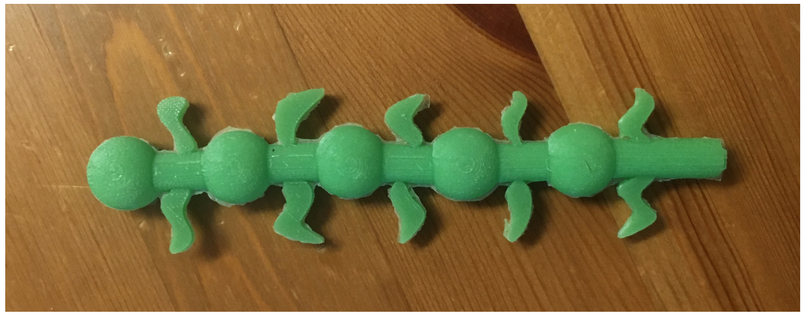
Fabrication

The main challenge we faced during fabrication ensuring that our silicone cured with a consistent thickness. This determined how the kelp looked when it was inflated.

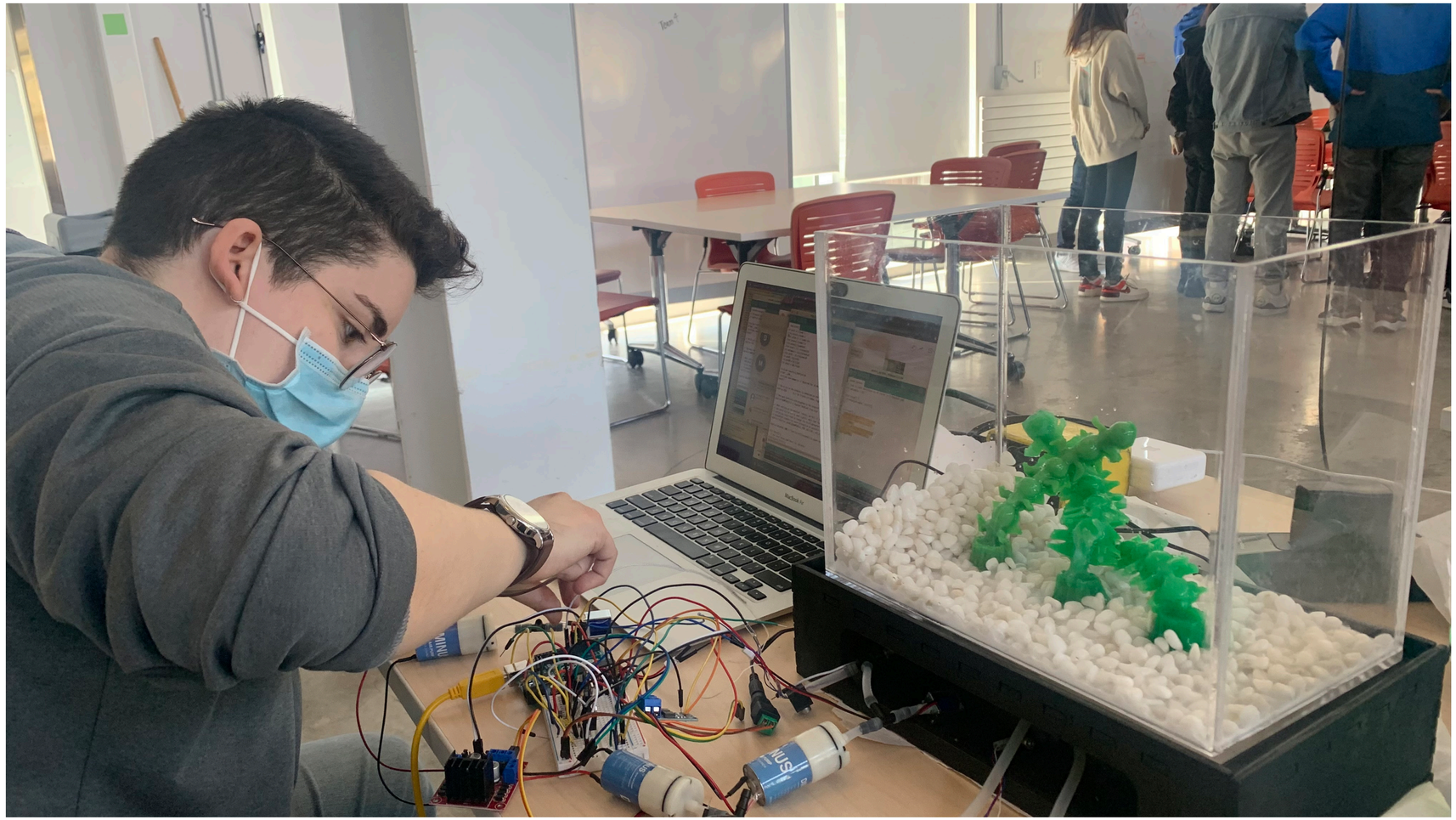
Pouring silicone into the first mold iteration I designed.

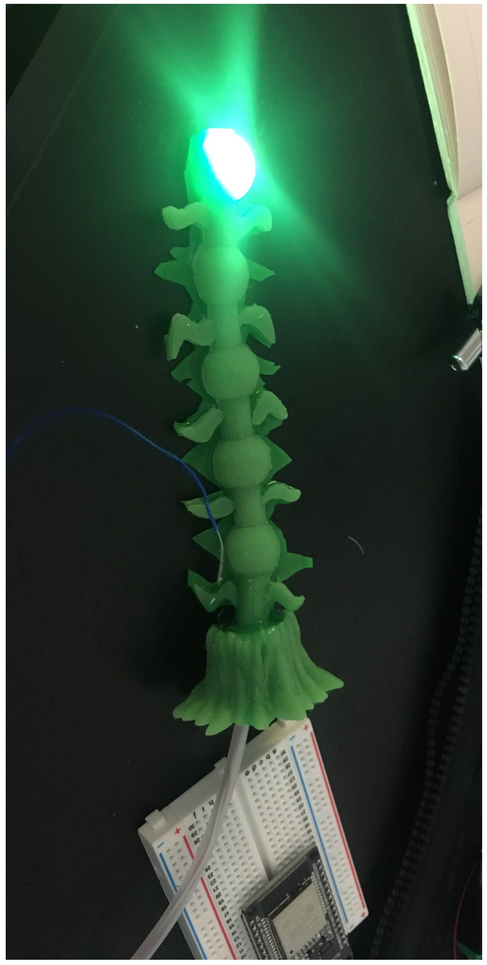


Second iteration: three part mold



Completed kelp





After embedding the neopixel LEDs into the silicone, I designed the electronics to inflate and light up the kelp stalks in sequence using an arduino uno with mini air pumps and solenoids.

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About Me

Creative engineer & designer bringing a wealth of materials science knowledge to the aesthetics and intentionality of design. Passionate advocate of designing just and equitable futures through collaboration with disabled, BIPOC, and LGBTQ+ communities. Prototypes engineering based solutions for accessible & equitable design. ARCUS Social Justice Corps Fellow, Tinkerer and dismantler of things

Experience

Supramolecular Chemistry Lab Undergraduate Researcher
Synthesized and investigated structural and thermal property relationships of liquid crystal elastomers resulting in smart, self-healing, and responsive materials for all flexible electronics.University of Chicago, Sept 2016 – May 2018

Optoelectronics & Photonics Graduate ResearcherDesigned, simulated, and investigated the color science & fabrication of
spectrally-selective mirrors resulting in more efficient Luminescent Solar Concentrators and better Building Integrated Photovoltaics to capture solar energy in sustainable architecture. University of Minnesota, Nov 2018 – Jan 2021

Production Director | Website Developer | Transcription ManagerDesign, develop, and produce over 400 podcast episodes
covering the COVID-19 Pandemic, resulting in over 40,000 downloads. Manage and maintain all facets of podcast project
including archives, website, transcribers, research, and co-hosting resulting in an effective and smooth podcast workflow. COVIDCalls Podcast, May 2021 – Present

Disability Lab Graduate ResearcherDesign and develop a toolkit for launching high school disability cultural clubs, resulting in a compendium of over 40 lessons organized to promote inclusion. Manage all facets of accesible trawling for marine plastic,
collection net prototyping process including designing, testing, experimenting, and providing feedback resulting in adaptive high fidelity prototype. University of California Berkeley, Oct 2021 – Present

Education

Master of Design, University of California Berkeley December 2022
Master of Science in Materials Science & Engineering University of Minnesota January 2021
Bachelor of Science in Chemistry University of Chicago June 2018

Skills

Woodshop NMR Spectroscopy Ellipsometry Solution Process Coating Laser Cutting Rapid Prototyping Miro Figma Profilometry 3D PrintingSolidWorks CAD Slack Python Microsoft Office Suite Mendeley Matlab LaTeX HTML/CSS Google G-SuiteFusion360 BlenderAdobe Creative Cloud