

JANICE TJAN / PORTFOLIO

Janice Tjan is a transdisciplinary product designer who transforms conventional objects into ones of curiosity, learning, and delight.

She is currently a fourth-year undergraduate student at MIT dual majoring in Mechanical Engineering and Art & Design.



Let's bring together our experiences and remix something new!



I am graduating this May and am currently seeking full-time work.

WHAT DRIVES ME

I am looking for opportunities to participate in rigorous experimentation and innovative practice centered around the human experience. I thrive when given creative freedom and the opportunity to work across the gap between design and engineering.

AISLE ASSIST



Adventure begins with peace of mind

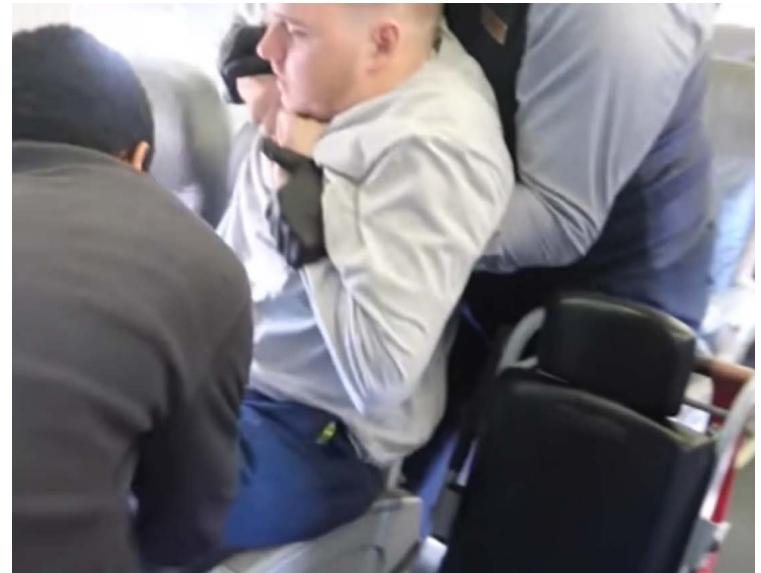


The aisle wheelchair is a device that is unseen by most travelers, but it is an essential device for any traveler who has mobility problems. Transferring from aisle wheelchairs to the airplane seat can be an uncomfortable and potentially dangerous experience. Aisle Assist is an aisle wheelchair that transfers travelers to their airplane seats safely and comfortably without an attendant handling their full body weight.

THE STATUS QUO



2.7 million
wheelchair users in the U.S.
685,000
Wheelchair users traveled
via plane in 2019

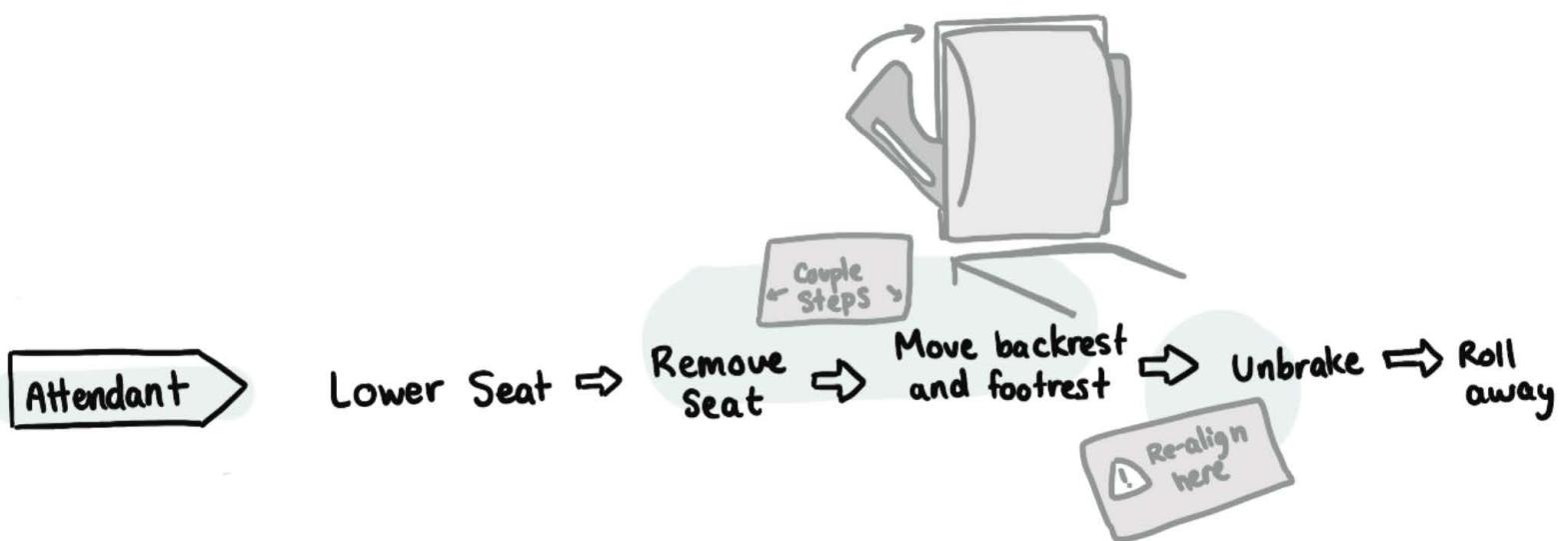
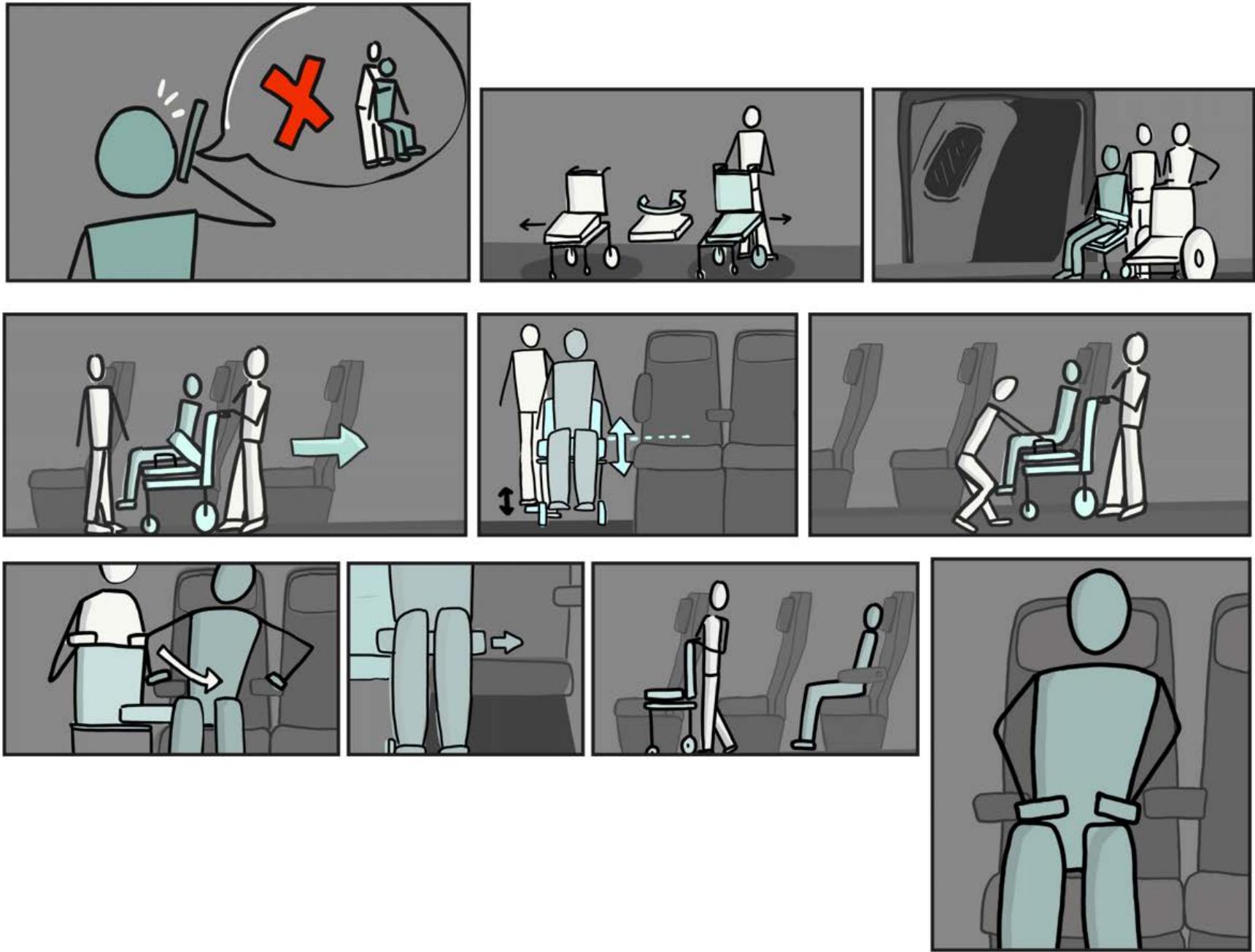


"It makes me **uncomfortable**. It can be **painful** if they transfer me incorrectly and bruises are a common occurrence. I've nearly been **dropped**. If I had a smoother transfer, then the whole experience would be better."

- Cole, Quadraplegic

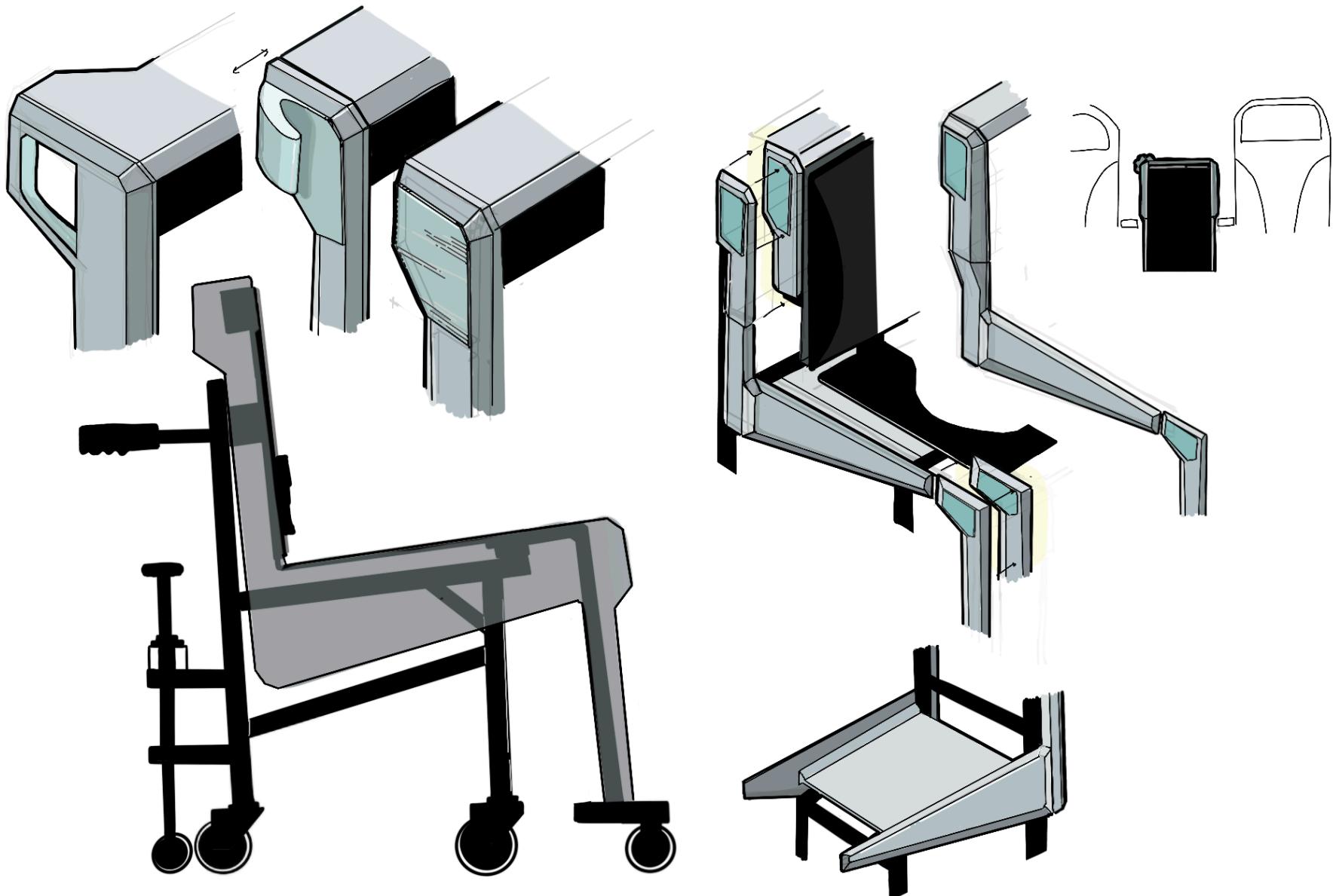


My role on this 18-person team included being Story Officer and Interaction Design (ID) Lead. As a team lead, I aimed to develop my skills in helping translate creative potentials from multiple people into a cohesive product identity. As a Story Officer, my goal was to document the development process via different media to help my team reflect on progress and pitfalls.





A persistent challenge was to develop the interface of Aisle Assist to make it more approachable to operate and sit on. Our initial mockups of Aisle Assist showed technical promise but revealed anxieties about its appearance for users. Our first round of testers described our device as “intimidating [with] a lot of hard edges...” and “a bit like a portable toilet.” Based on a Fusion360 CAD model, I prototyped casing out of acrylic, 3D printed pieces and vinyl.



I took on the challenge of designing and building casing that would have both an aesthetic purpose and the functional purpose of being a handle to deploy the transfer seats of Aisle Assist. I conceived a casing that created a strong profile for the chair giving it a modern look and blending the many moving components into one unified image.



RAPOUR



A system for virtual teatime



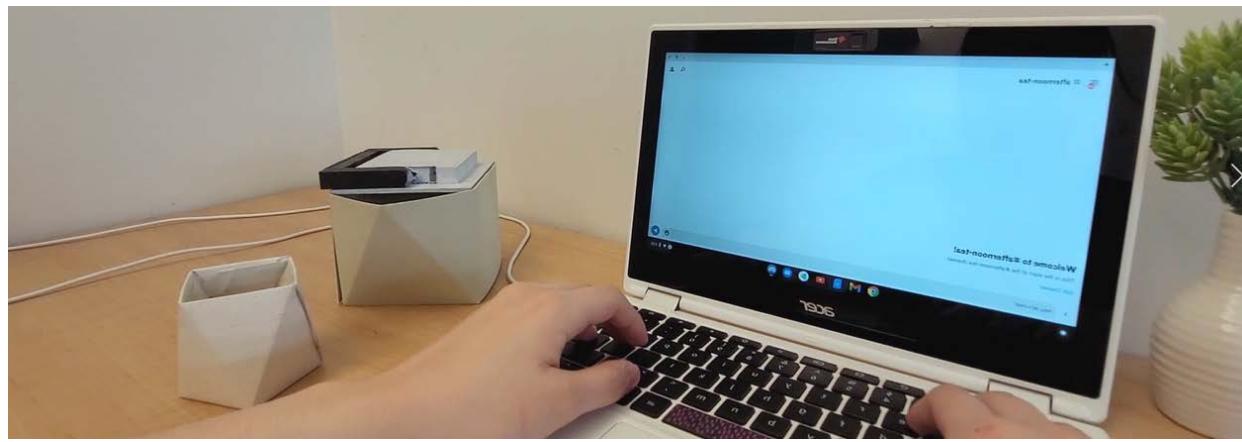
Rapour is a system that synchronizes a pair of teapots for recreating the experience of sharing a drink with a distant friend. For this iteration, friends log onto a bot-mediated discord channel to take turns pouring, requesting, and accepting drinks from each other.

PROMPT

Create a physical interface for remote communication and collaboration, allowing someone to extend their virtual reach into another physical space.

SKILLS

- 3D Printing and Laser Cutting
- Electronics (Arduino)
- Coding (p5.js, node.js)
- Interaction Design





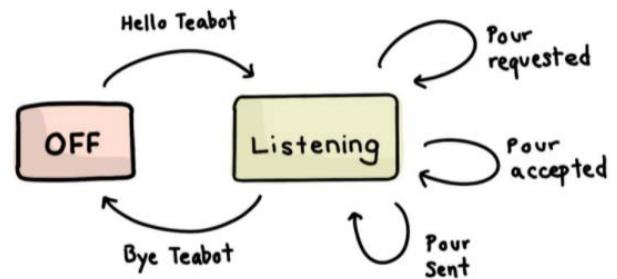
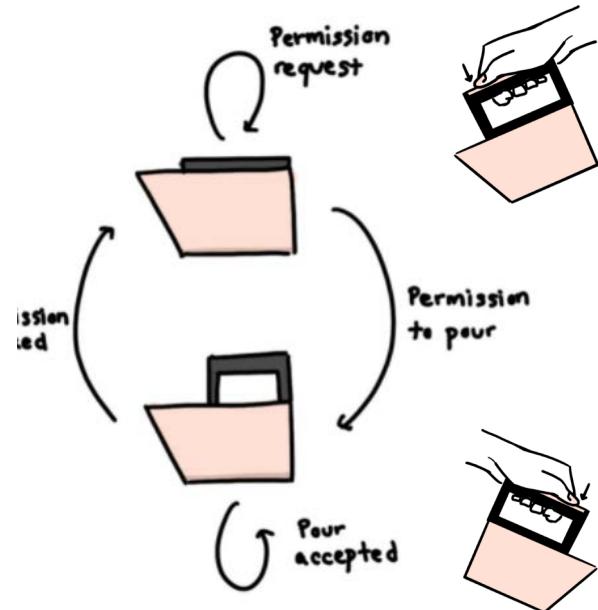
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afternoon-tea

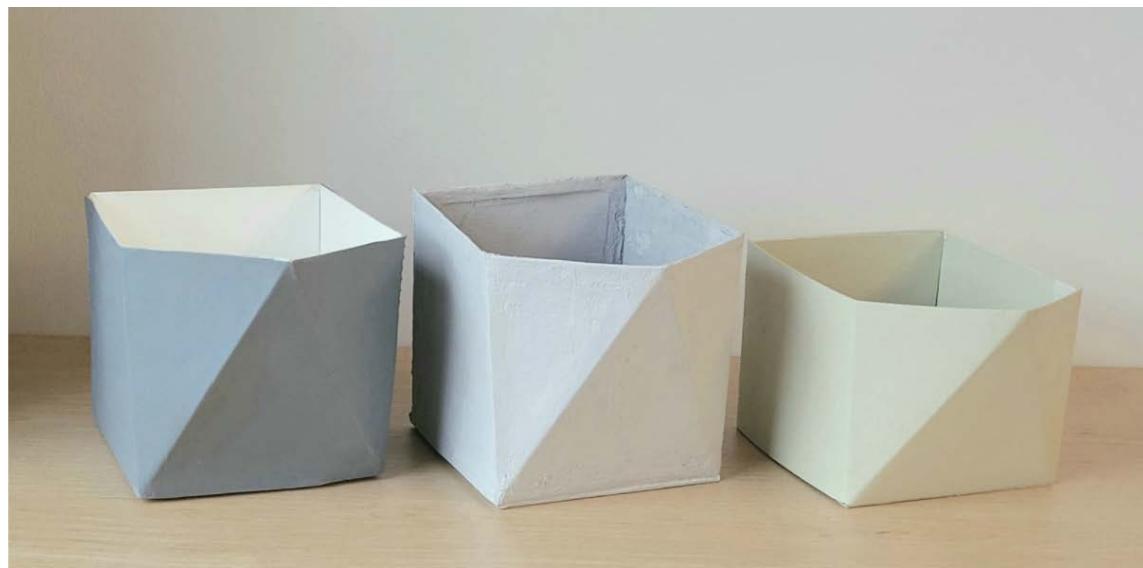
🔔 🎉 🏆

2:02 PM Me Hey, let's chat!
 3:37 PM Janice Totally! Let's share some tea.
 3:46 PM Janice !hello
 3:46 PM BOT TeaBot Hello, I am TeaBot mediator of the Rapour System. Let's have a drink together!
 React with 🥤 to begin
 🥤 3
 6:04 PM Janice !pour @Me
 6:04 PM BOT TeaBot @Janice pours a drink for @Me
 6:04 PM BOT TeaBot @Me accepted the drink.
 6:05 PM Me TY!
 6:06 PM Janice Did you hear about the virtual book tour?
 6:06 PM Me virtual... as in more zoom. No thanks
 6:06 PM Janice Hey it's not that bad 😊
 6:07 PM Me I'd rather be outside this weekend. I'll go to those events when things are back in person.
 Me Do you know any good places for thai in boston. I am running out of options for take out,
 and I'm out of groceries... again
 6:08 PM Janice Typical 😅

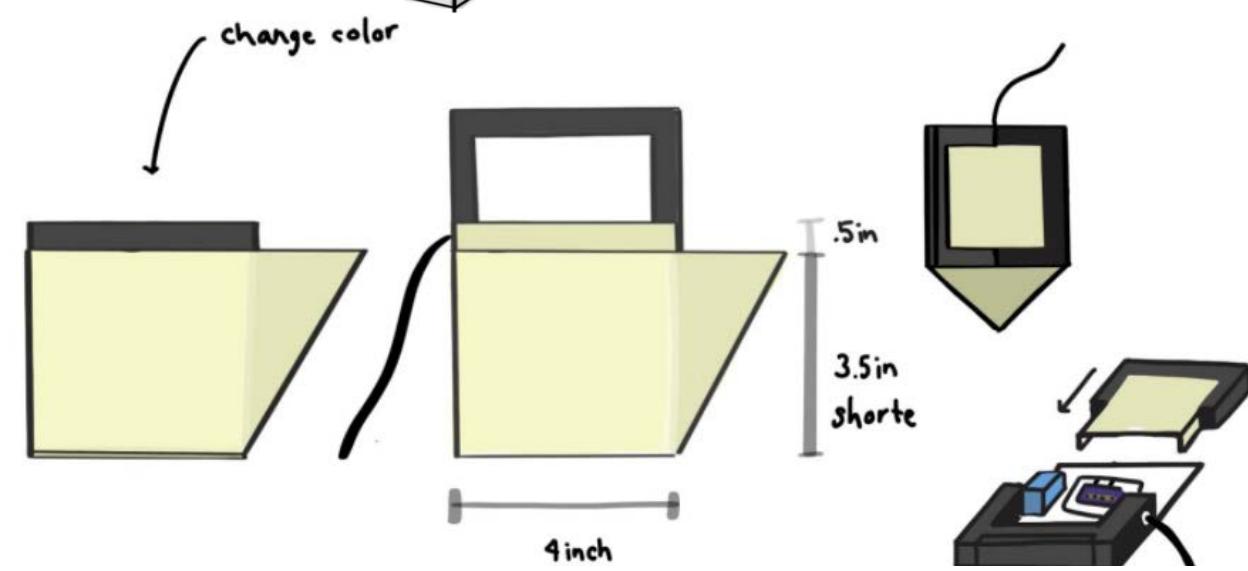
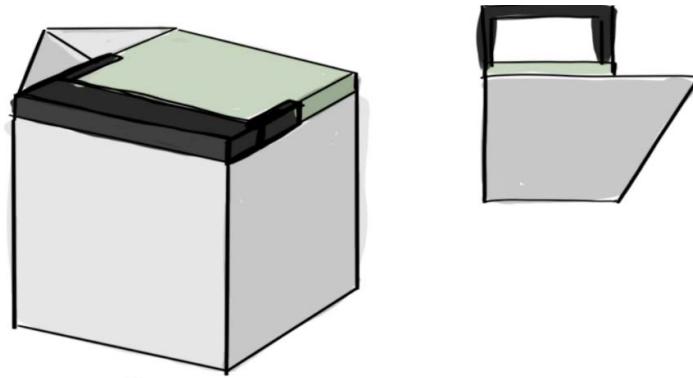
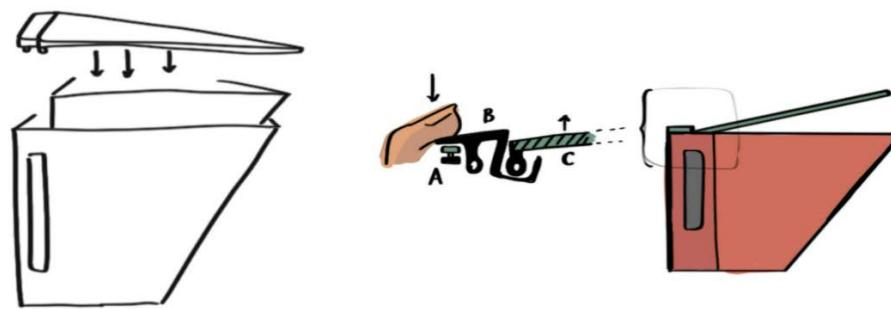
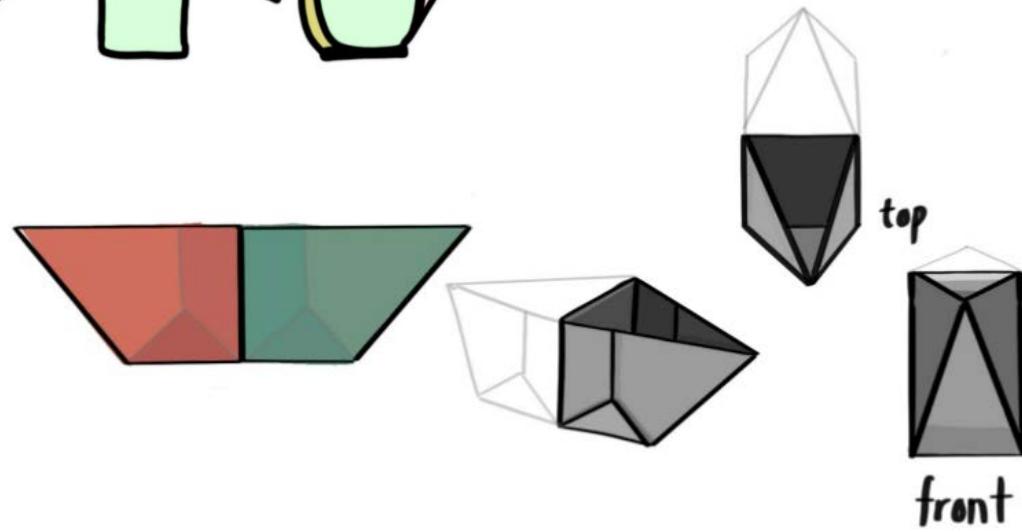
Message #afternoon-tea

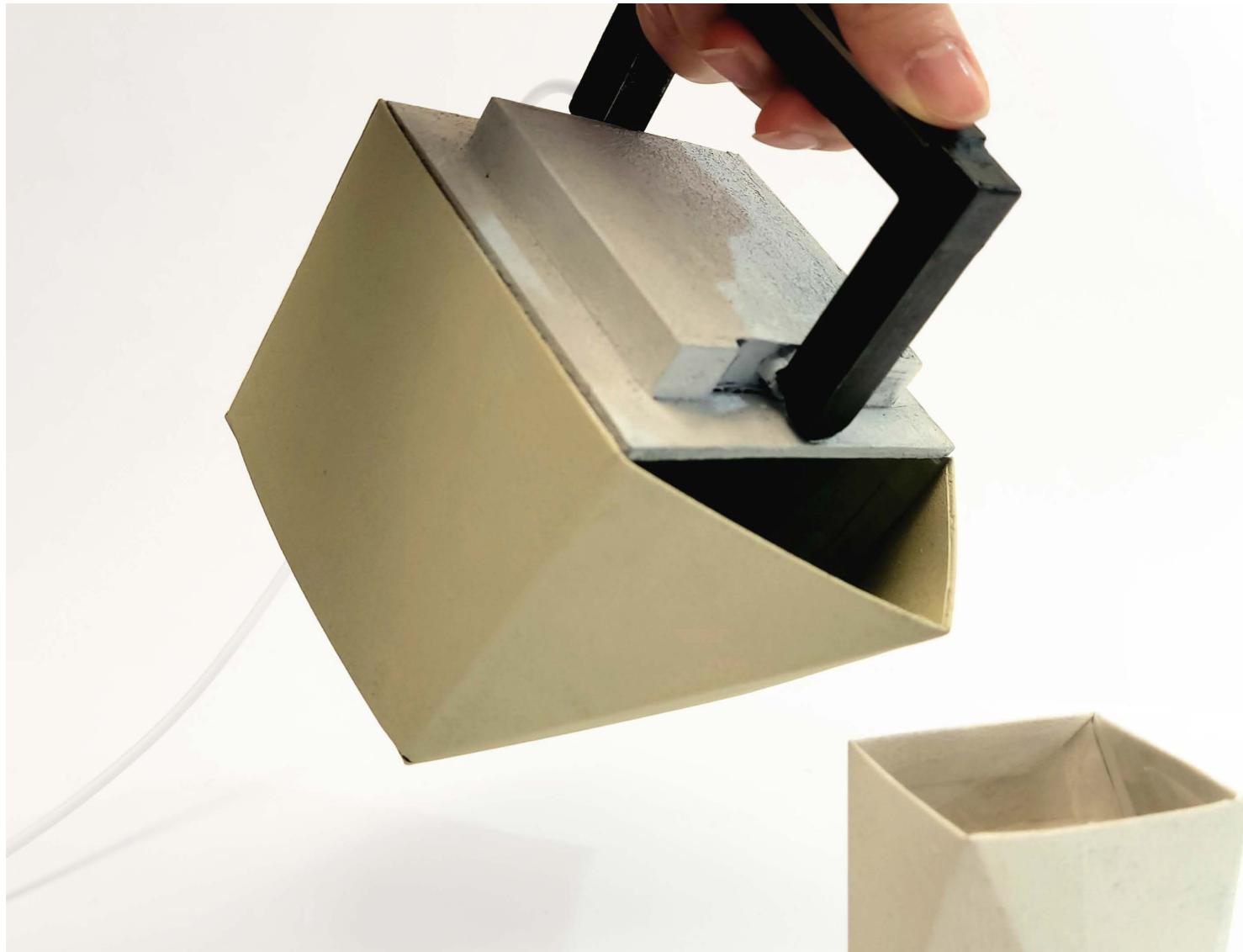


To execute Rapour, I developed a physical and virtual interface. In addition to considering the prompt, this system needed to be accessible to set up and use. The pots are flat packing to increase portability. Additionally, the virtual platform of choice was Discord which is highly customizable and free to use.



While they were flatpack, these containers needed to imitate familiar textures and shapes of traditional teapots to inspire similar conversations that people would usually have over coffee or tea. I also found that unglazed ceramics and mute colors inspired feelings of warmth and comfort.





SHROUD

A lamp for remembrance and preservation.



PROMPT

Create a standing lamp from 1x1 lumber stock based on a set of simple design instructions inspired by Autoprogettazione.

SKILLS

- CAD (Rhino, Grasshopper)
- Woodworking
- Electronics

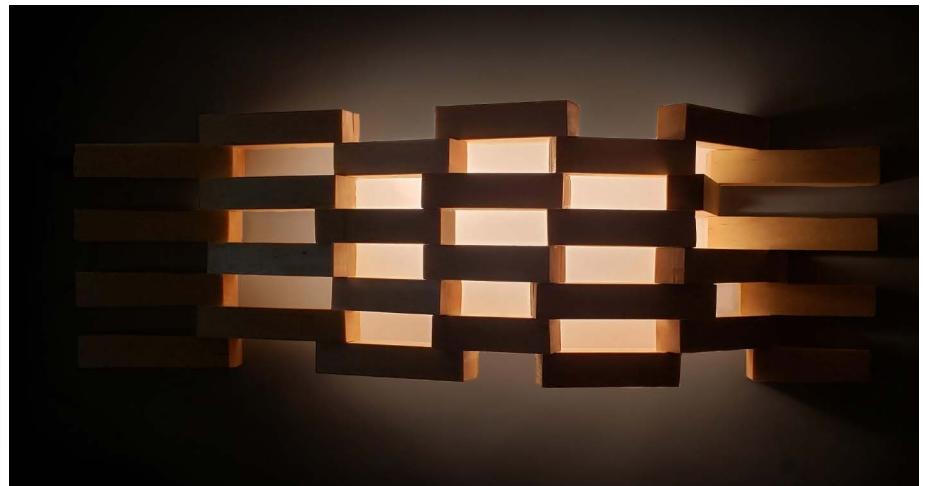
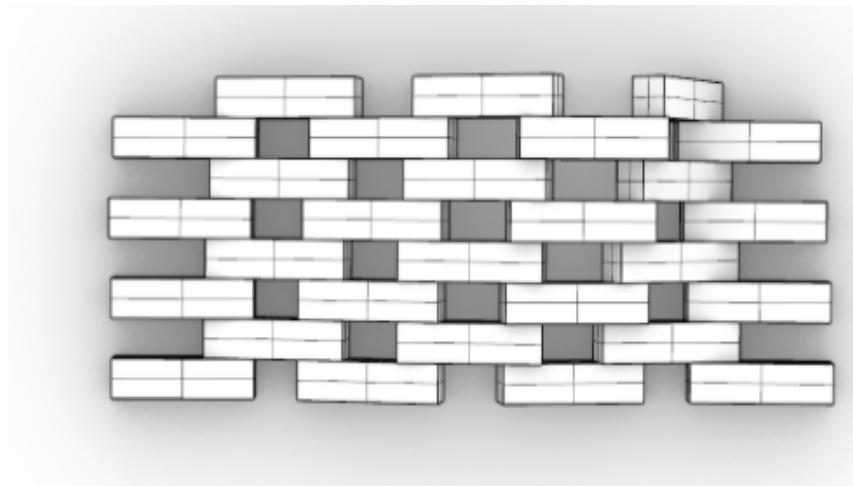
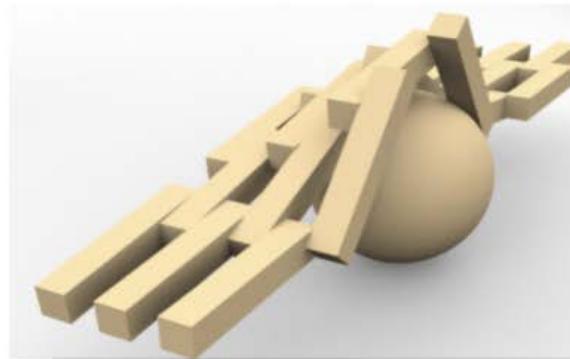
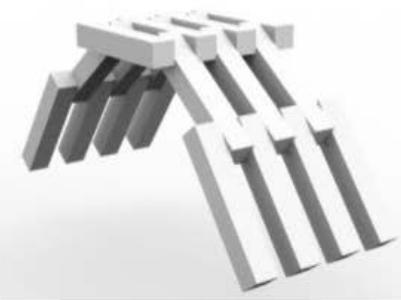
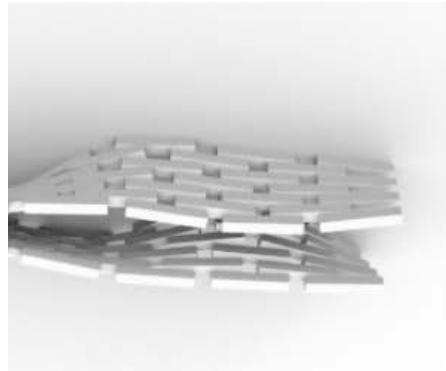
DIRECTIONS FOR FABRICATION

1. Choose an exhaustible, precious object. Drape fabric evenly to cover the object.
2. Cut wood into 3 varying lengths, short, medium, and long.
3. Build a perforated brick pattern emulating the shape of the drape fabric with the shortest blocks closest to the object and the longest blocks farther away.
4. Illuminate the short pieces of wood placed nearest to the object.

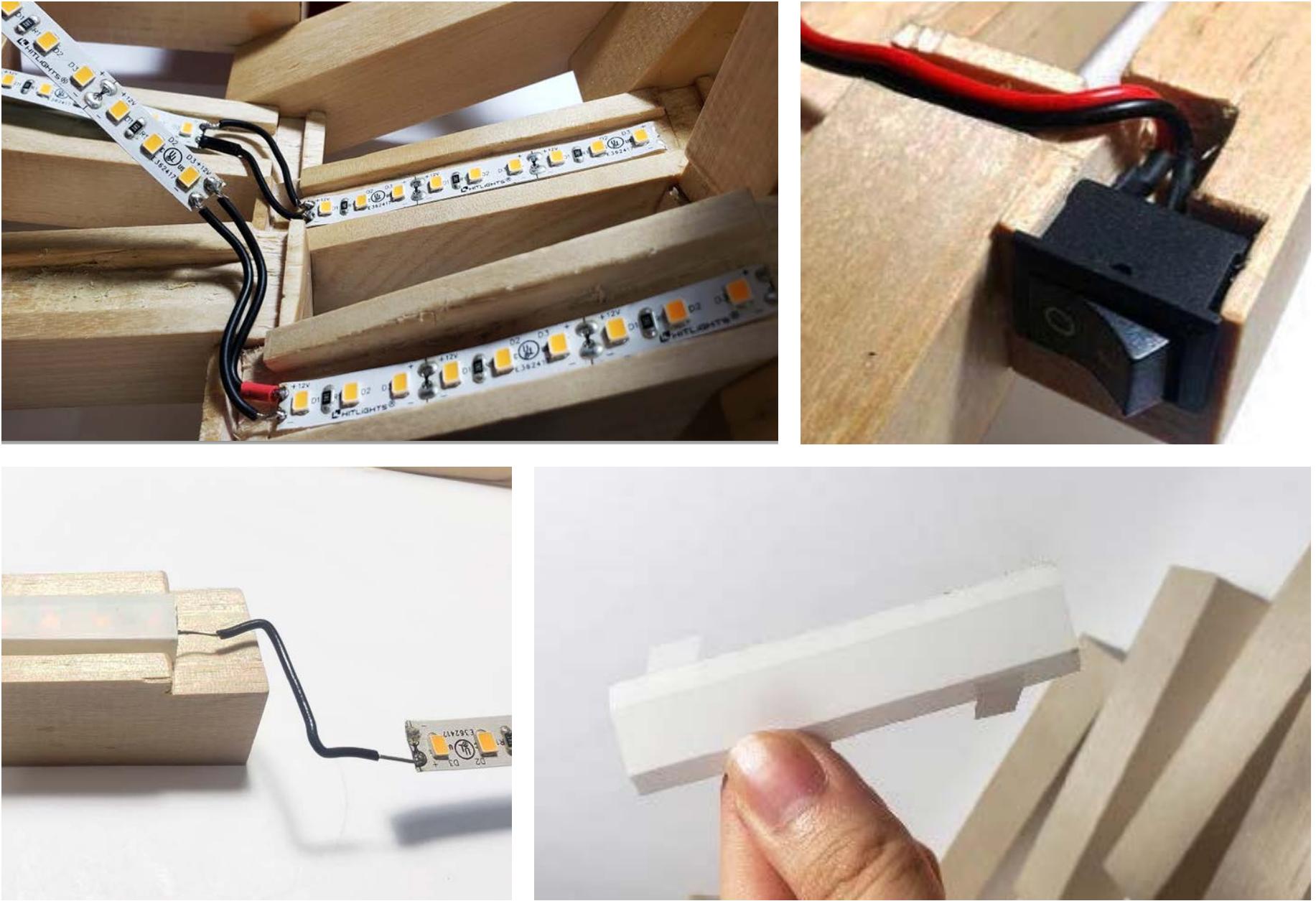




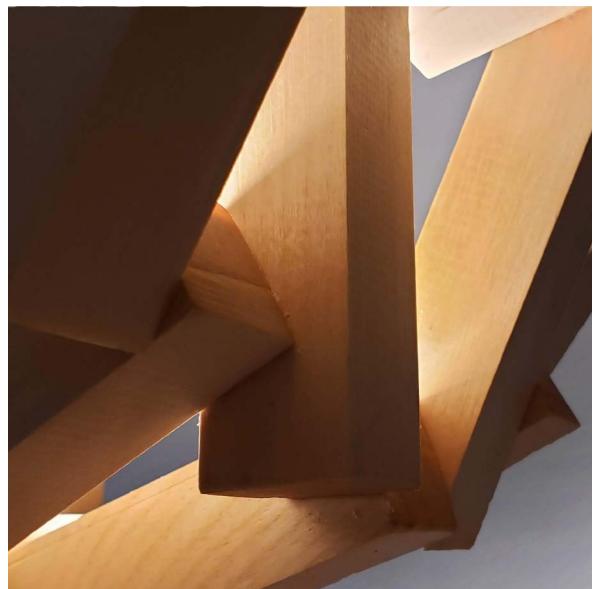
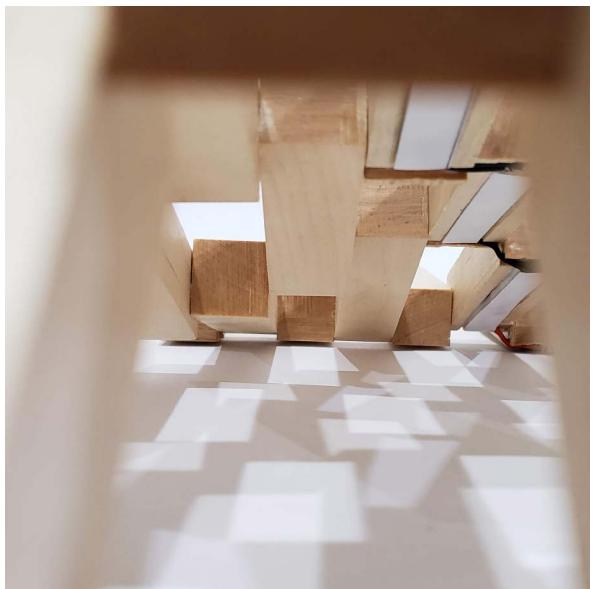
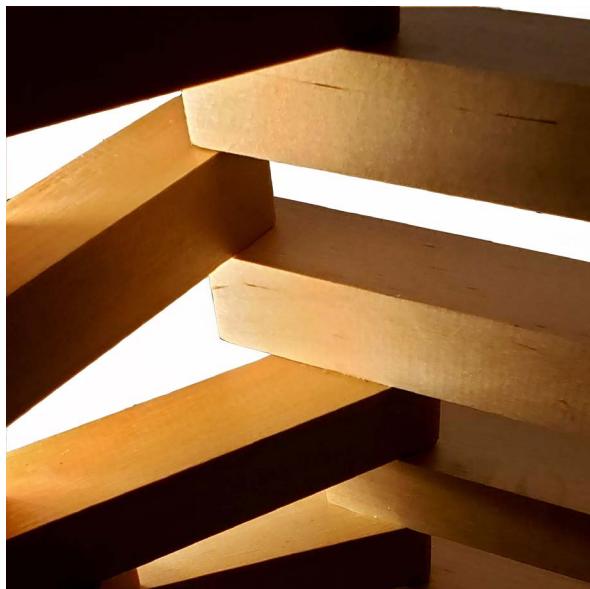
The lighting effects of Kengo Kuma's wooden facades and Tom Eckert's stone sculptures of 'fluid' objects were influential to my approach to exploring how my lamp's form may affect light diffusion and user interaction.



Early iterations of Shroud were generated computationally using Rhino and Grasshopper. Still, look and feel can only be fully understood through physical models. Between virtual iterations, I built small-scale balsa wood prototypes which helped me understand the impact of lighting and structure.



Building the full-scale model was my first foray into woodworking. I learned a lot about joinery that I am excited to apply to future projects. If I were to revisit Shroud, I would explore ways joinery could emphasize the tension between the lamp's static state and the way it emulated a more flexible textile.



E-CLAVES



A simple instrument enhanced by electronics for dynamic learning and play



Electronic Claves is a rhythm game that can be played solo or with another person. Guided by a bi-directional rhythm display, players can sync up their controllers to a rhythm and make use of surfaces in their space to bring the beat to life.

The game can be a tool to improve one's sense of rhythm or a meditative way to pass time. To improve the coordination between their two hands or between two players, users may practice any two-measure drumming pattern and adjust the game speed.

PROMPT

Create a 1D game and a custom human-interface device (HID) for controlling it.

SKILLS

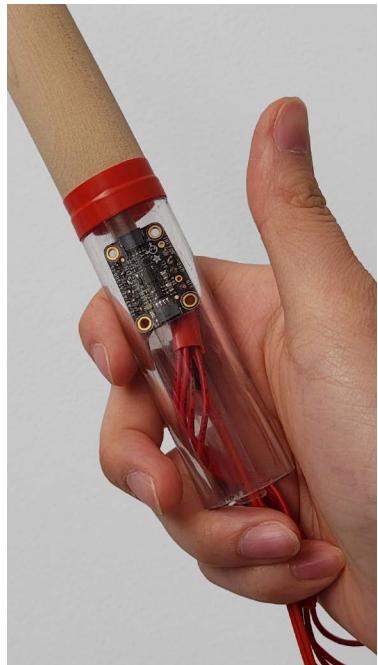
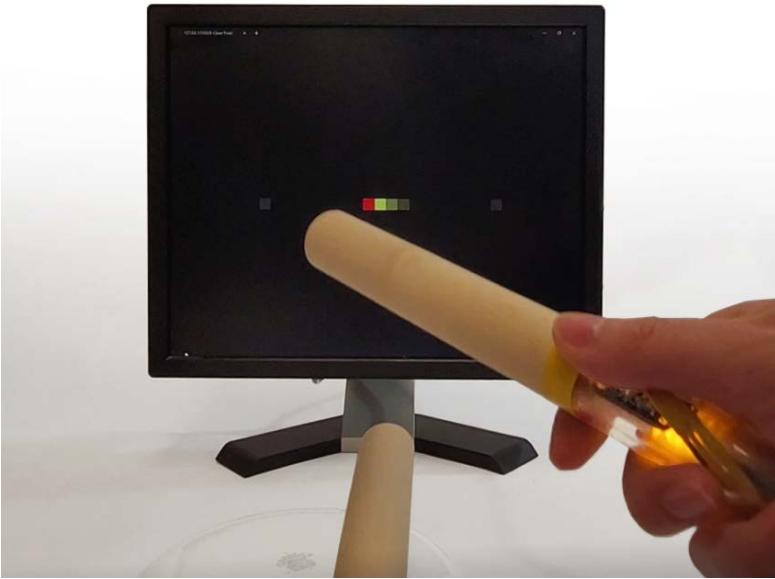
- Electronics (Arduino)
- Coding (javascript, HTML)
- Interaction Design



In addition to being casing for electronics, the controllers can stand alone as percussive instruments. During my iterative process, I explored several durable materials for percussive sound-making (PVC, wood, and polycarbonate).



Condensing this game's information into a 1D interface forced exploration into different dimensions (color, orientation, and rhythm) within the interface. The demo can be played at tinyurl.com/ClaveDemo with the "s" and "k" keys.



User testing surprised me with new interpretations of gameplay. Though I planned for the game to be single-player, the simplicity of the final interface opened up the possibility of playing with two players or allowing players the freedom to make percussive sounds with their environment.



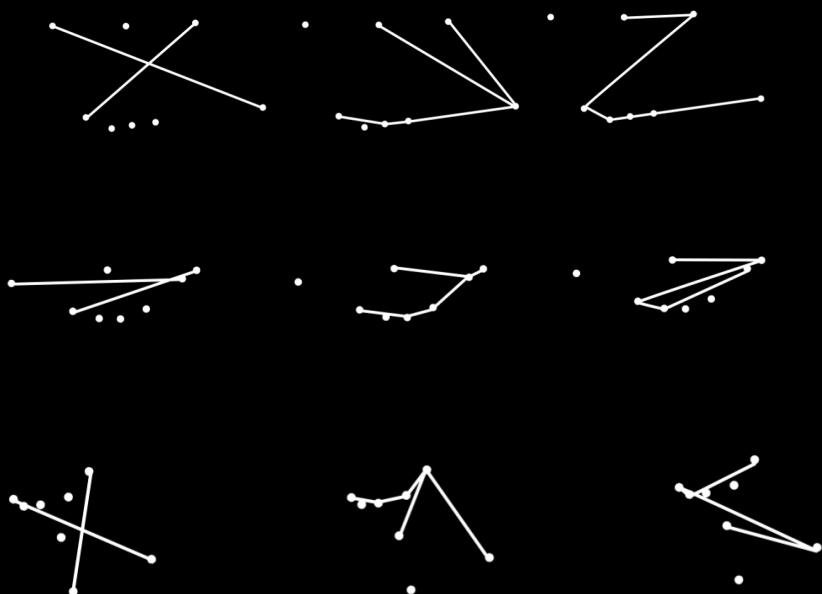
CROSSTYPE



Experimental type generated by the crosswalk on 77 Massachusetts Avenue and the movement of passer-bys



A sample of CROSSTYPE at 1PM on a brisk fall afternoon.



(Left) The transformation of letters X, Y, and Z as pedestrians travel across the street.

CROSSTYPE was started during my class about Visual Communication with Bo Won Keum. I am continuing to record this street to create more variations that will represent different times of day and different times of the year.

Making this dynamic typeface has been an unexpected journey into data visualization. By isolating the movements of individuals within this grid, I have been able to observe collective changes in behavior with respect to time.

THANKS FOR READING

