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portfolio

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hello

My name is Melissa Stocco and I am a new graduate from the Industrial Design program at Humber College. I have a background in research and digital media, having previously studied at the University of Waterloo.



empathetic



intuitive



creative

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SWIFT CABIN

SPONSORED TEAM PROJECT



AWARDED 1st PLACE PRIZE

The primary focus of this project was to **redesign the cabin interior and create four areas** where the client, a tier one supplier of automotive plastic components and systems in North America, can manufacture and assemble innovative design solutions for the target user. The goal for this project was to create opportunities that emphasize the client's plastic content that can be manufactured in this market and further benefit the OEMs.

The focus of this design is surrounding residential and commercial Parcel Delivery Trucks. The solution uses primary and secondary research to guide design decisions, functionality, and accordances.





Participant observation at a carpet delivery company was conducted with 3 Drivers. A survey was also conducted with 24 respondents.

"You're essentially pulling up your full body weight each time you step into the van".

"I need to be able to access my stuff not have it stored across the van from me and out of reach."

PAIN POINTS

- Ineffective AC due to doors opening often
- Lack of effective storage options
- Small control panel screen
- Lack of knee room
- No where to eat or store food

OPPORTUNITIES

- Personal storage
- Multiple outlets
- Being able to go from the seat to the cargo space



EFFICIENCY

Drivers commented on **barriers with repetitive, manual user movements** such as opening/closing the door or putting on/taking off their seat belt. Drivers also mentioned how the organization of packages could use improvement.



COMFORT

17/24 respondents said they wanted **improvements in HVAC control**. Drivers wanted more effective space to move, put their items, eat, and have necessary controls and features closer within their reach from the driver's seat.

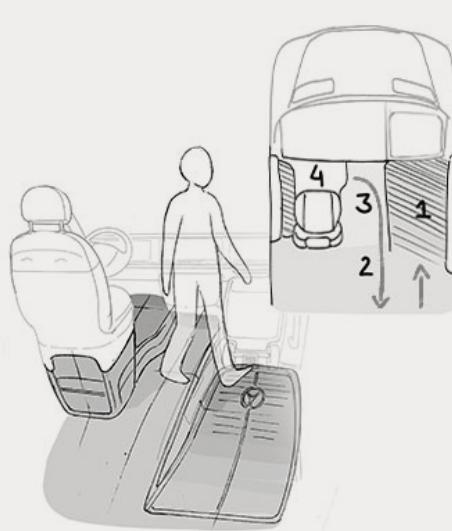


SAFETY

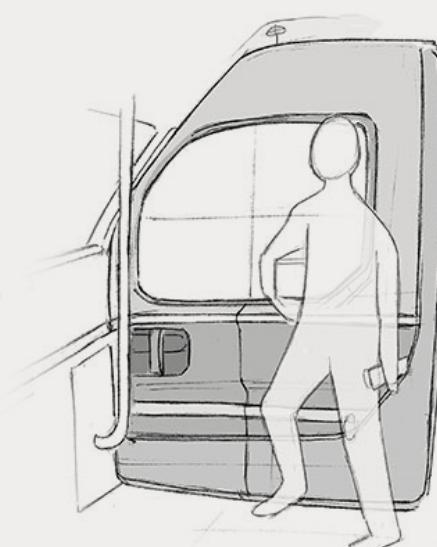
Many users mentioned **visibility and blindspots** as being a concern when maneuvering the van. Users mentioned the high step in/out of the van is hard on their knees and have experienced injuries from these repetitive motions.



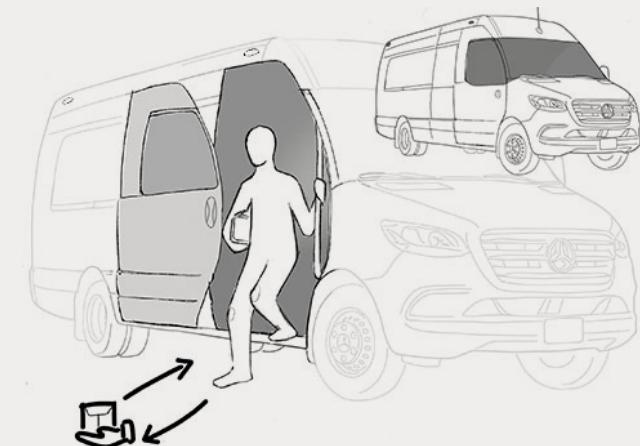
1. Driver gets out of seat



2. Driver uses ergonomic stairs and ramps to grab packages



4. Driver uses knee strip to automatically open door

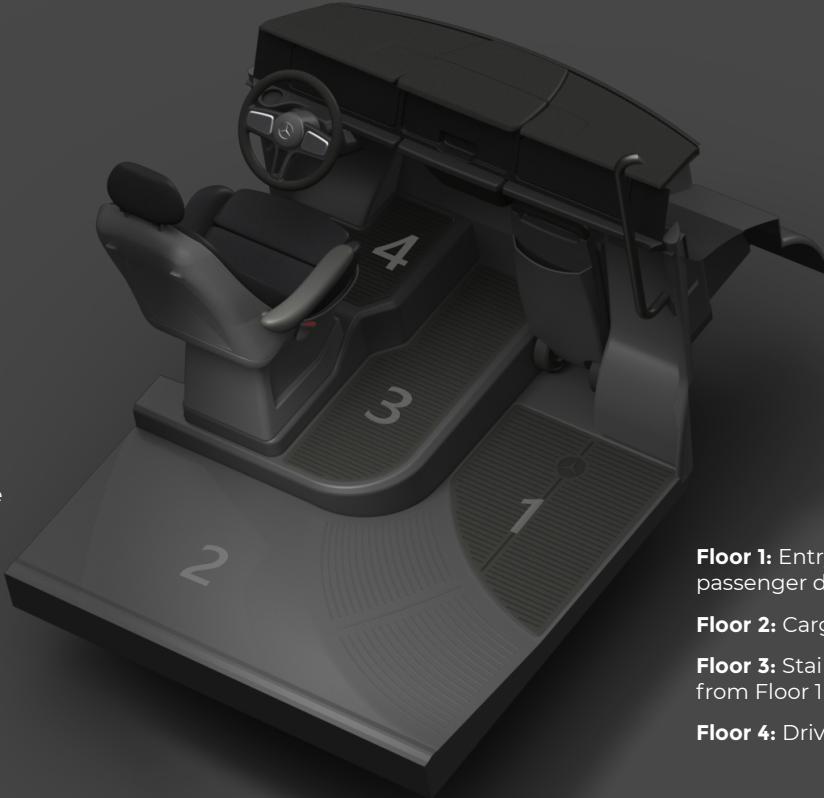


5. Driver's exits the vehicle with 3 points of contact, delivers, and returns



— Non-slip mats line high-traffic areas in the vehicle

Floor 1 is slightly slanted towards door to help drainage

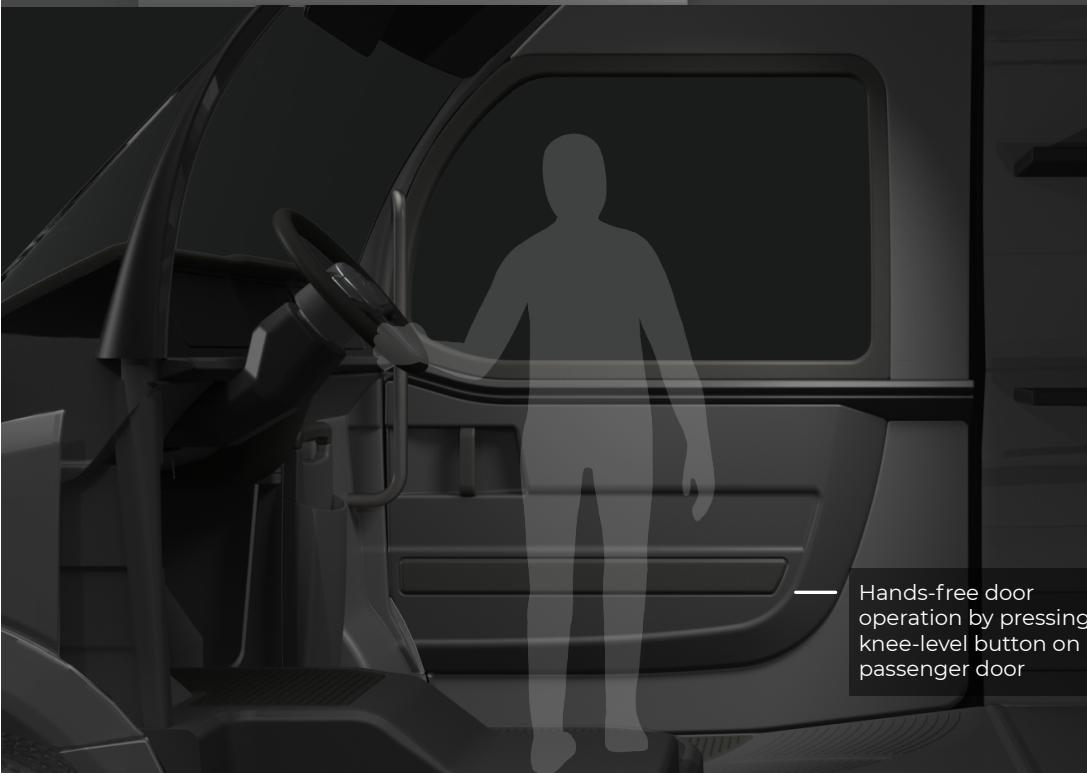


Floor 1: Entry / exit out passenger door

Floor 2: Cargo space

Floor 3: Stair to driver's seat from Floor 1

Floor 4: Driver's foot rest



— Hands-free door operation by pressing knee-level button on passenger door

1

TIER FLOOR & DOOR

Redesigning the floor and doors to optimize the way the driver maneuvers inside and exits the vehicle

2

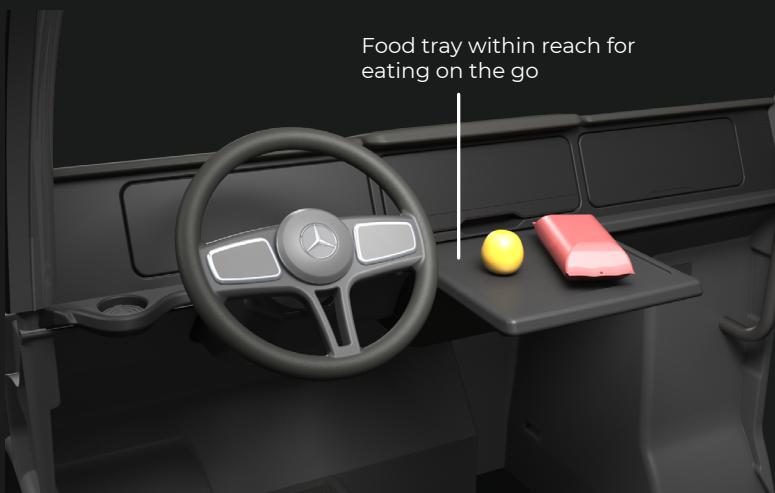
READY DASH

A driver-focused system that brings the controls to the driver and creates innovative visibility



Panoramic overhead screen provides 270° view behind van so drivers do not need to take their eyes off the road to check blind spots

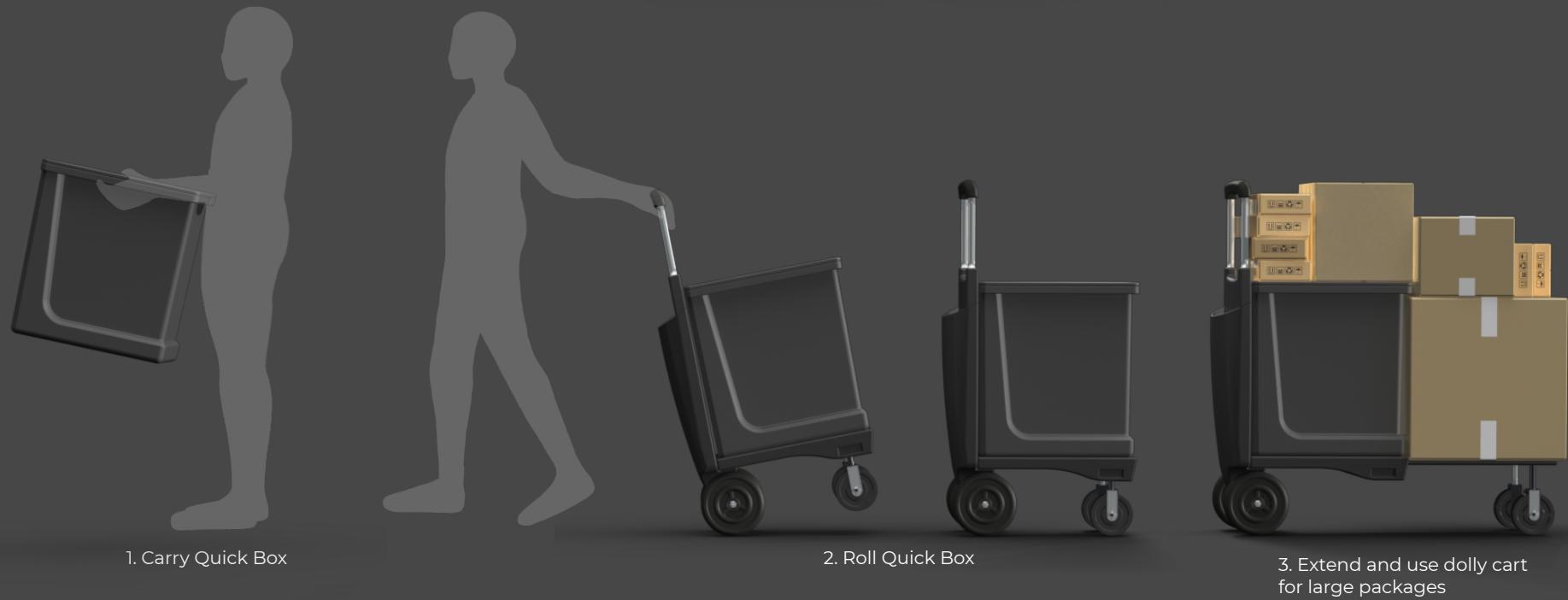
The pull out control panel is easily reachable and remains in view at all times. Navigation and deliveries are displayed here



Food tray within reach for eating on the go



Cooler for food storage to preserve drivers' lunch for long work days





4

FLOW SEAT

Adapting to user behaviour and adding onto existing vehicle structure to form an HVAC “air blanket” around the seat



rhythm

fitness for seniors

INDIVIDUAL PROJECT

Rhythm is a smart and gamified system that provides a convenient way for seniors to strength train to maintain muscle mass. Rhythm reduces barriers by providing a safe and fulfilling way to exercise, be social, and creative.



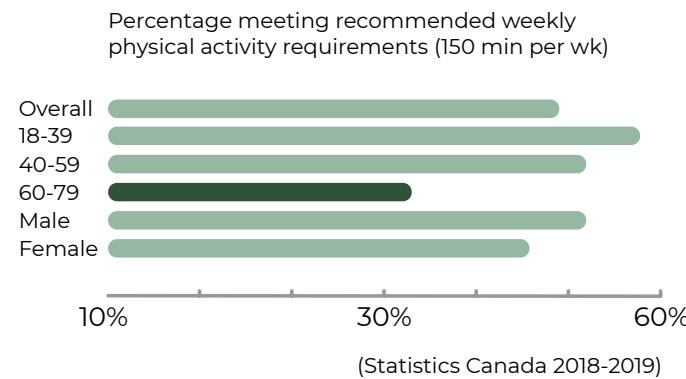
THESIS AWARDS

*BEST THESIS PROJECT
BEST IN SHOW
DESIGN EXCELLENCE
VISUAL PRESENTATION
MOTION PRESENTATION
TOP THESIS MARKS*

BACKGROUND RESEARCH

Sedentary lifestyles are increasing among senior adults, which can reduce their functional mobility, decrease their quality of life, and increase their risk of falls and losing their independence. After the age of 30, muscle mass can reduce by 3-5% every decade without regular exercise. Physical activity has a range of health benefits that help prevent falls and other health risks. Exercise was found to be 5 times more effective than other types of interventions for falls.

how may we help seniors maintain functional mobility?



primary user
65-85 yr old
sedentary senior

PRIMARY RESEARCH RESULTS

Initial Survey N=33
Follow-up Survey N=21
Interviews N=6

INSIGHTS:

- **Social Time:** Seniors want to connect with others
- **Fun/entertainment:** Some seniors find exercise boring
- **Functional mobility:** Want to maintain mobility and independence
- **Poor weather:** Impacts exercise routines due to rain/snow
- **Creativity:** Seniors want to feel fulfilled from their extracurriculars

"I never liked exercising in the first place. I never felt it brought me benefits that I appreciated. Once my workout partner was no longer available, I tried some solo activities but gave up."

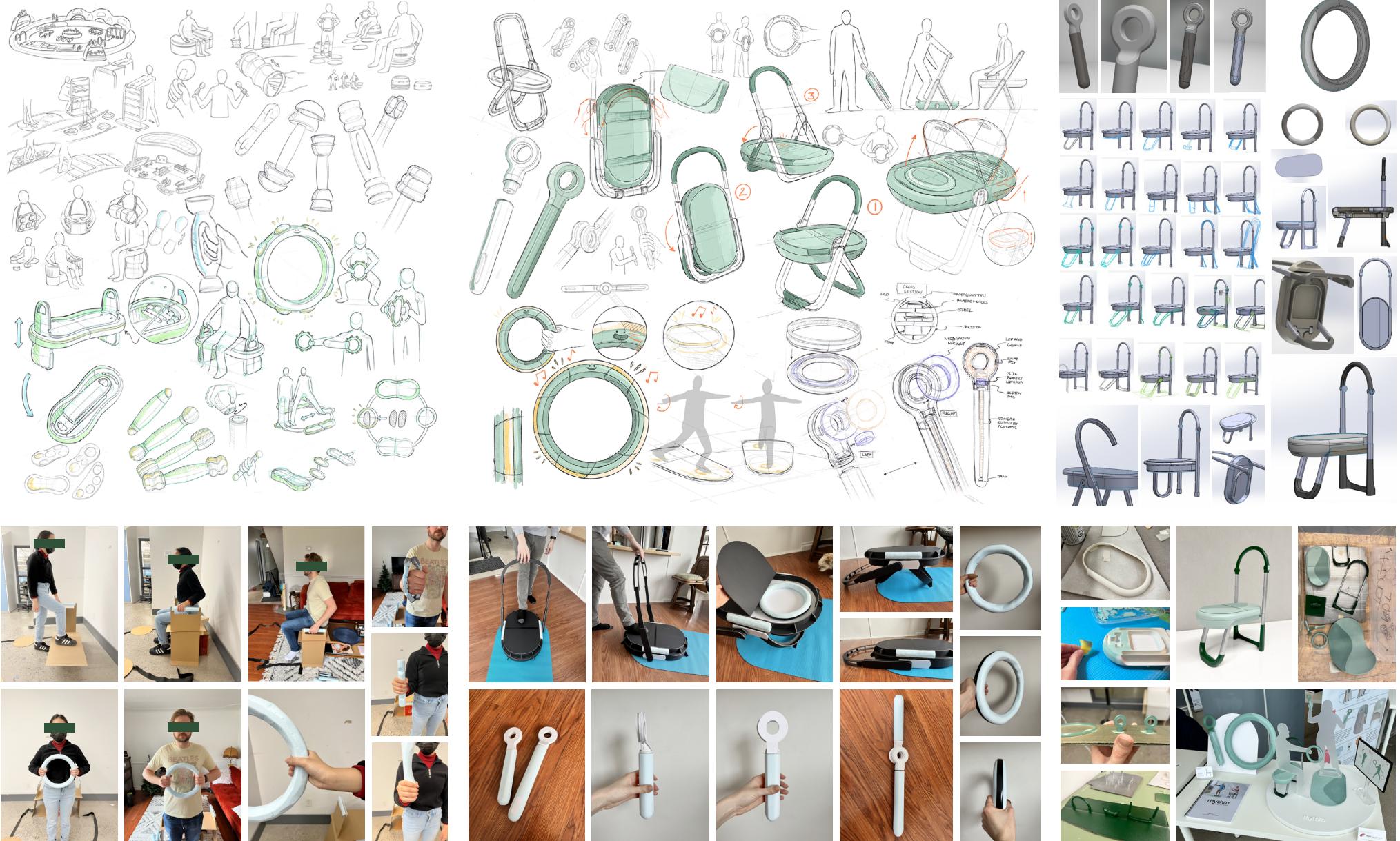
"To be honest, I've always hated doing exercise for the sake of exercise. I've always enjoyed participating in either sports or activities."

"The dance allows you to be creative. In movement. Garden, it's the garden bed would be like my canvas or my palette. And I could put in different annuals, different colours."



User observation of a senior workout class

DESIGN DEVELOPMENT



A variety of ideations were developed to solve the problem statement, including an indoor track for seniors, park, and a ladder-style aid for exercising. The chosen concept, a family of musical fitness equipment, was ideated further and a preliminary ergonomic study was conducted.

The design continued to be revised and refined based on feedback from my subject matter advisor and supervisor. A 1:1 scale model highlighted ergonomic issues primarily with the bench and confirmed dimensions for the handheld devices and mat. At this stage, the folding mechanism and assembly were being developed.

In the final design phase the detailing, ergonomic considerations, and aesthetic of the equipment was refined in CAD. The final bench design supports the user while sitting or standing, in addition to folding away for storage.

RHYTHM FITNESS SYSTEM

Rhythm emits music, lights, and haptic feedback to inspire movement and exercise. The devices provide feedback to the user as they work through the exercise challenges cast to the television from the app. The set includes four products.



HOW IT WORKS



DUMBBELL MARACAS

Weight training for seniors. The detachable weights are interchangeable from 3, 5, and 7lbs.



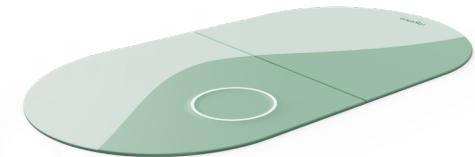
TAMBOURINE RING

The fitness ring weighs 1lb and is flexible for pilates-style resistance exercises.



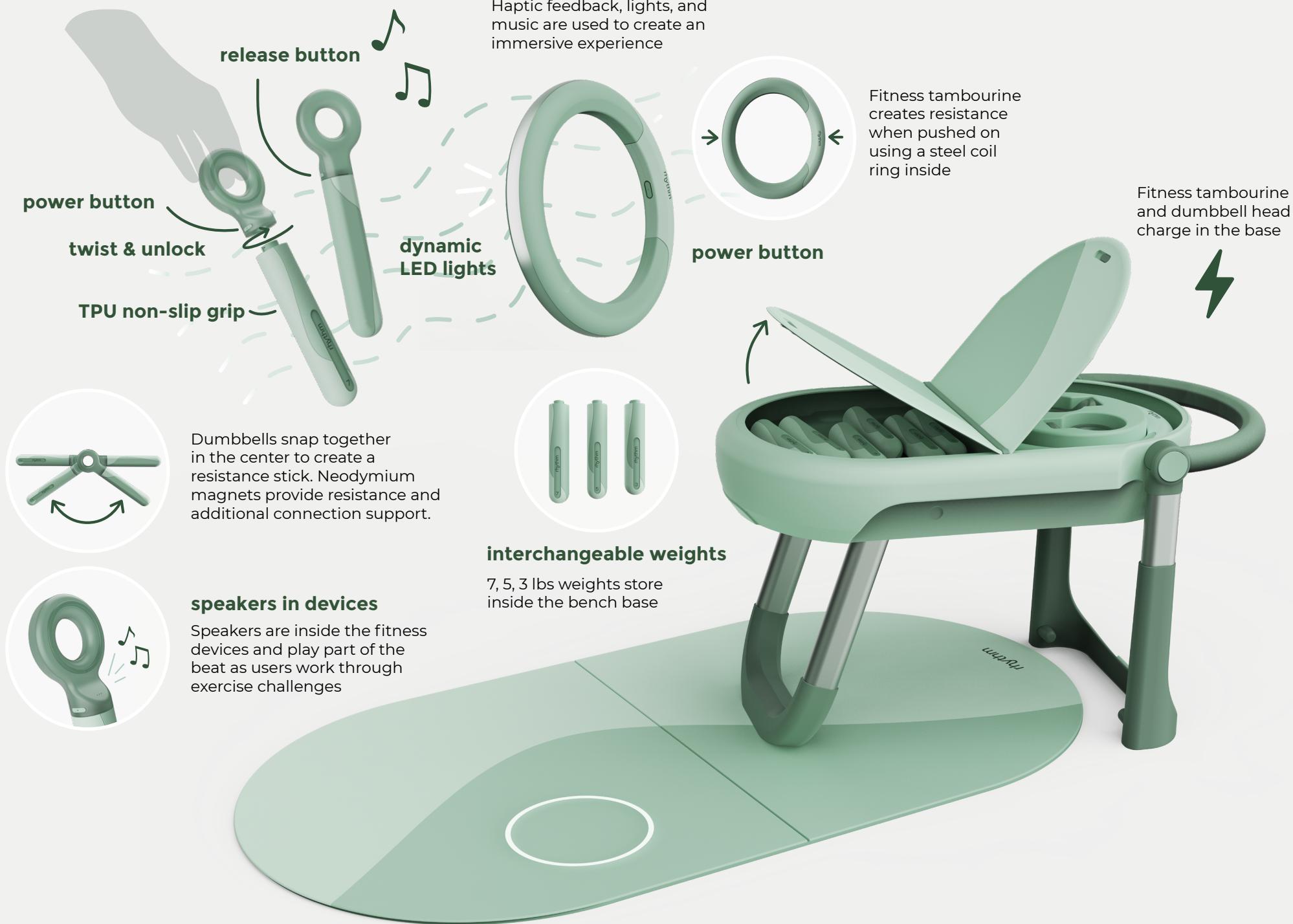
RHYTHM BENCH

Stores and charges the included fitness equipment and provides support for sitting or standing exercises.



DRUM SET MAT

The mat uses robotic fibers and lights to create a 3D effect for displaying visual information.





store



stand



step





UMBRA CANVAS

DISPLAY ROOM DIVIDER

SPONSORED TEAM PROJECT

 **UMBRA AWARDED 3rd PLACE**

Due to the shift to online/remote work many users are spending more time in their homes. **Users need their spaces to be more flexible to accommodate their work and home lives.** Canvas provides separation and functionality without sacrificing beauty and aesthetics. The room divider offers privacy, light-filtering, display/storage and personalization.



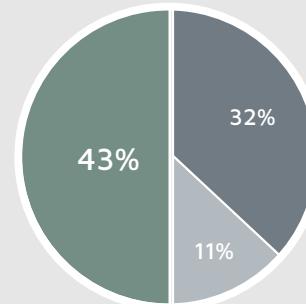
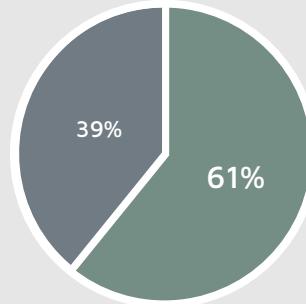
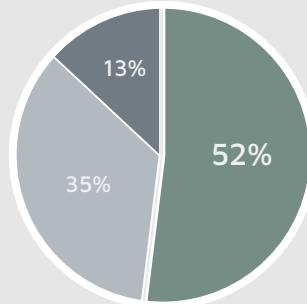
MARKET RESEARCH

Our research found that current room dividers were too large for many living spaces. Based on our research our goals were to design a divider that offered privacy, was flexible to fit different living spaces, and could display/store items.

"[wall dividers are] typically ineffectual or awkward to fit."

"It would be nice if more dividers ... [could] stand without needing to be positioned in a zig-zag shape."

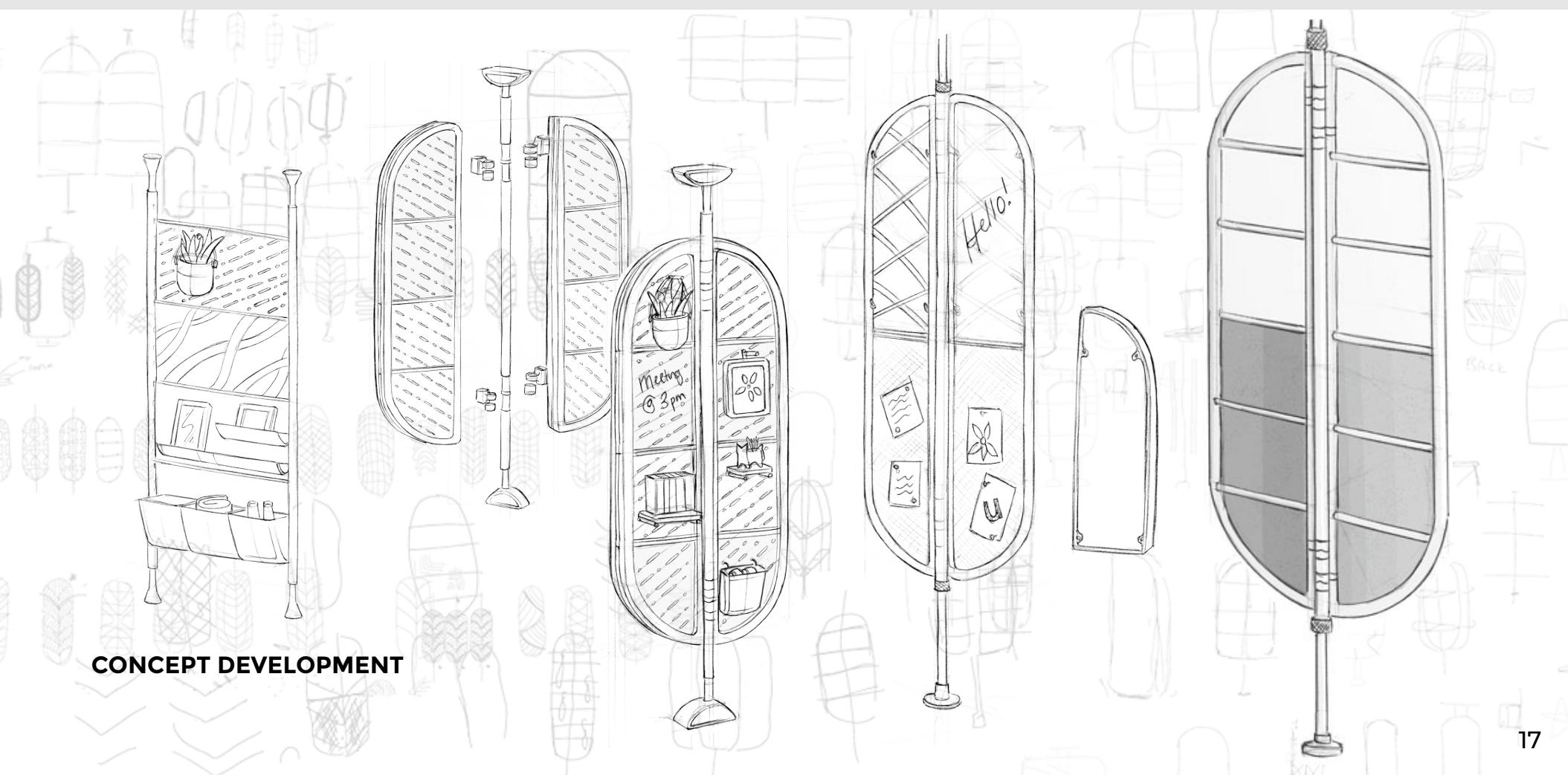
"Great for separating spaces, hiding unprofessional background, and gaining privacy."



Would you put holes in your wall/ceiling to mount items?

Would you like more storage in your hallways?

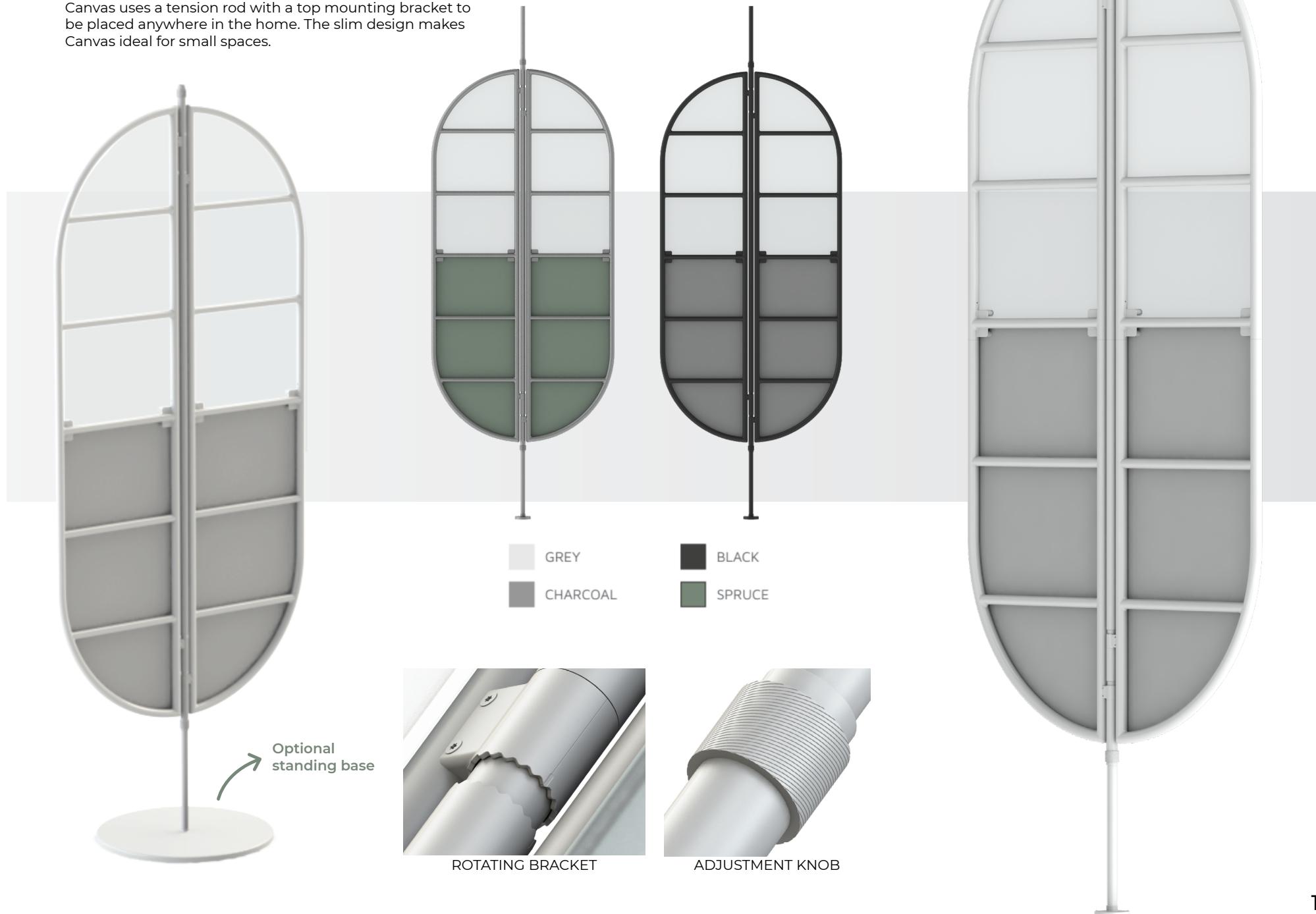
Would you be interested in a room divider that filters light?



CONCEPT DEVELOPMENT

FINAL CONCEPT

Canvas is not only a room divider, but a space for users to personalize their home by displaying and storing items. Canvas uses a tension rod with a top mounting bracket to be placed anywhere in the home. The slim design makes Canvas ideal for small spaces.



CUSTOMIZED DISPLAY

The wire-side or display side of Canvas allows users to **showcase items**, such as plants or picture frames. They can also utilize Canvas to store small items like shoes by hanging baskets or containers to hold them.

SEPARATION

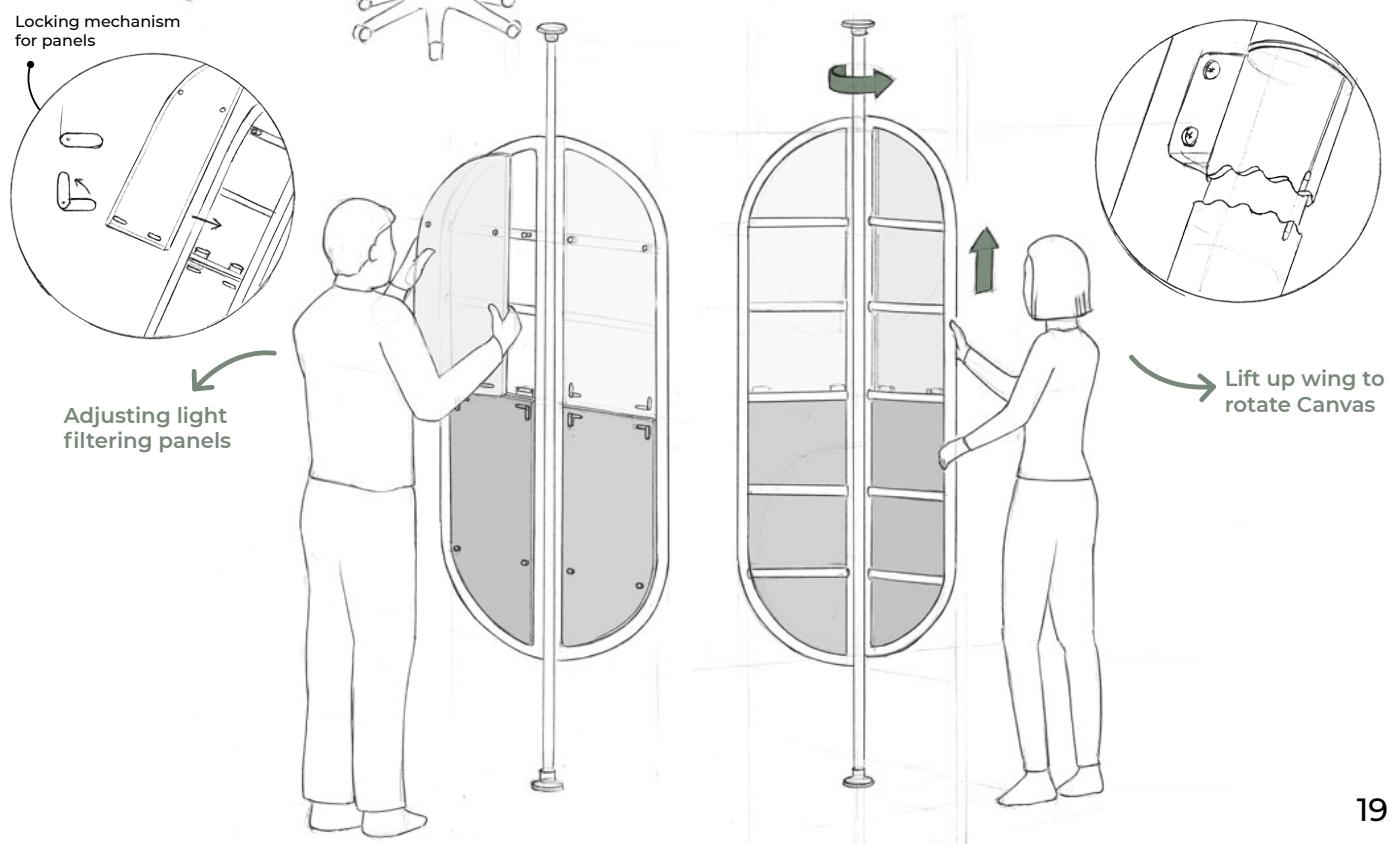
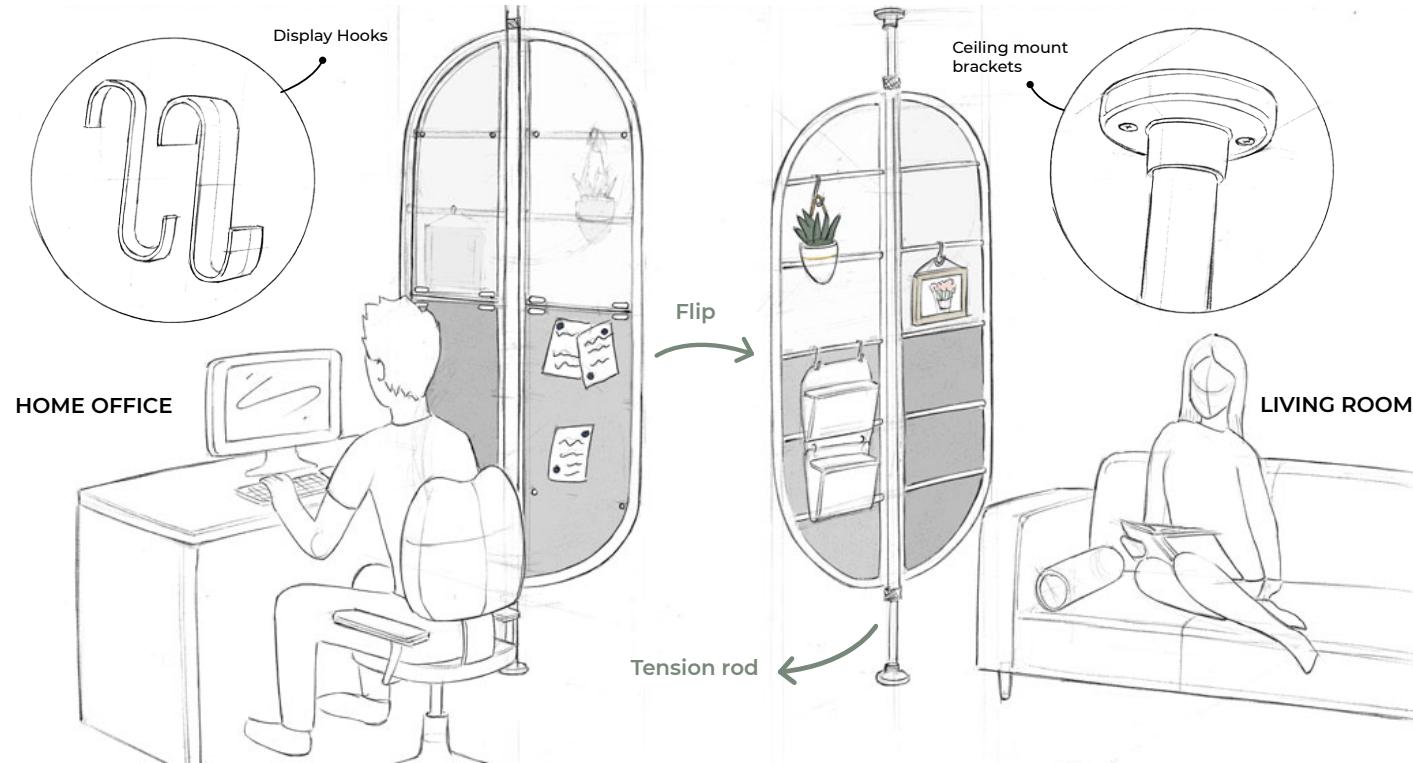
Canvas can provide separation in any area of the home, but has unique features for home offices. The panel side or work side of the divider allows users to write down notes, as well as display papers and photographs. The two opaque panels are magnetic and the two translucent panels can be used as a whiteboard. The wire side is the display side which integrates into the rest of the home.

LIGHT-FILTERING

Canvas includes **two opaque and two translucent panels**. This allows users to adjust where natural light filters through Canvas. This can be useful to adjust lighting for computer or TV screens.

FLEXIBILITY

Canvas rotates so it can fit into a variety of different locations around the home, such as wall corners. The rotation mechanism also allows users to open and close the divider to increase or decrease separation. Canvas can also be used in hallways against a wall for storage of coats and other items. In addition, Canvas uses a tension rod to reduce its footprint in the home and makes it ideal for small living spaces.

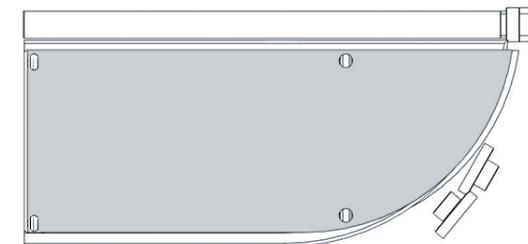
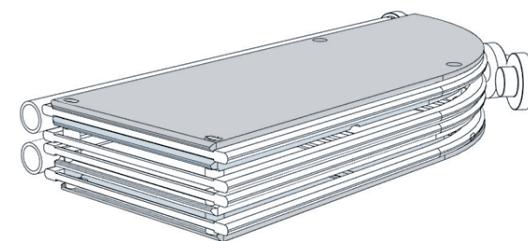




1:1 SCALE MODEL | BENT PVC PIPE, CARDBOARD, DRAFTING PAPER



PACKING & ASSEMBLY



FROSTED ACRYLIC | X2
OPAQUE MAGNETIC PANELS | X2
TENSION MOUNTING ROD | X1
MOUNTING BRACKETS | X2
OPTIONAL FREE-STANDING BASE | X1
WIRE WINGS | X2
ROTATING BRACKETS | X2
THIN HOOKS | X10
THICK HOOKS | X5

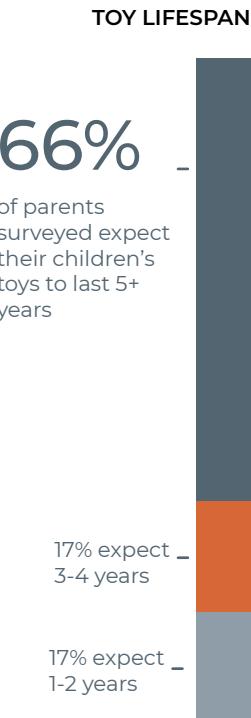


ryde

INTRODUCTION

The Ryde balance bike has an eye-catching and playful design. **Children can use their imagination and creativity to add chalkboard designs** onto the blue front panel and the wheels of the bike. The form is functional and economical since it allows for various adjustments to the bike to grow with the child. Finally, the design uses natural materials.

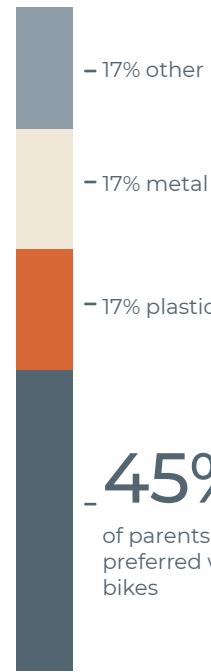
TEAM PROJECT



66%

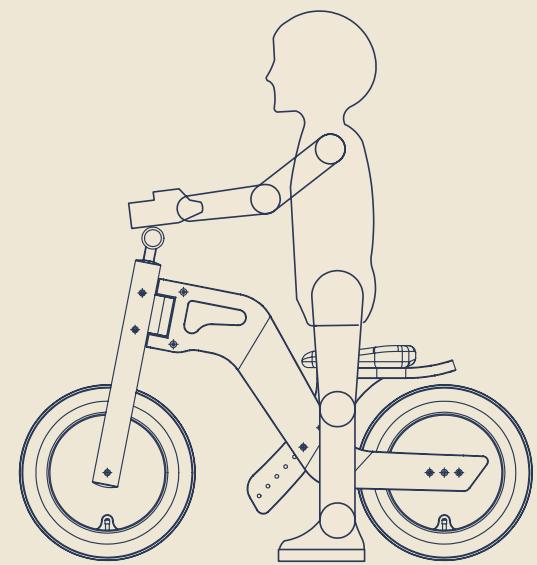
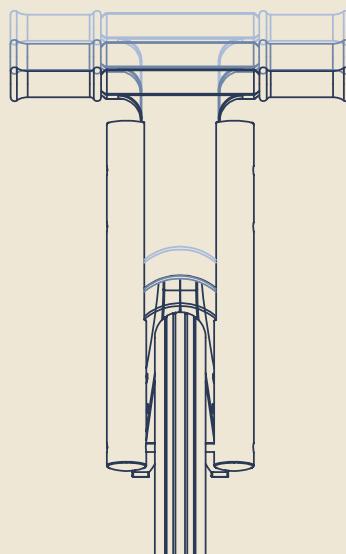
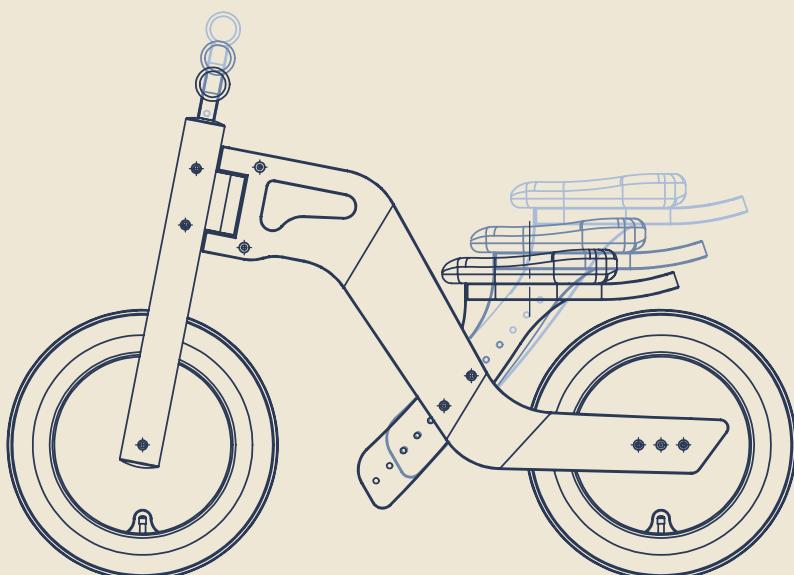
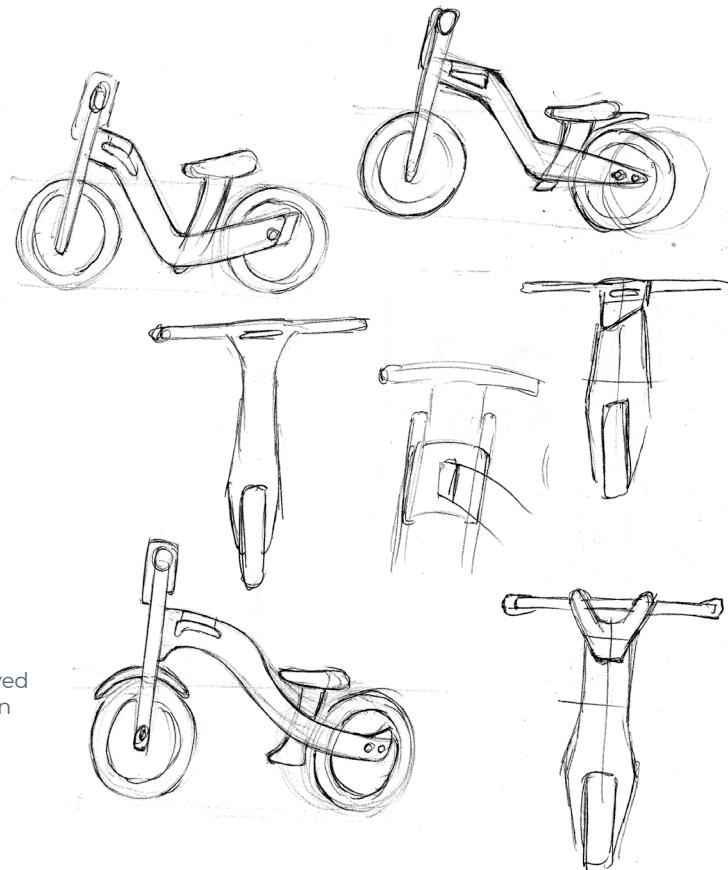
of parents surveyed expect their children's toys to last 5+ years

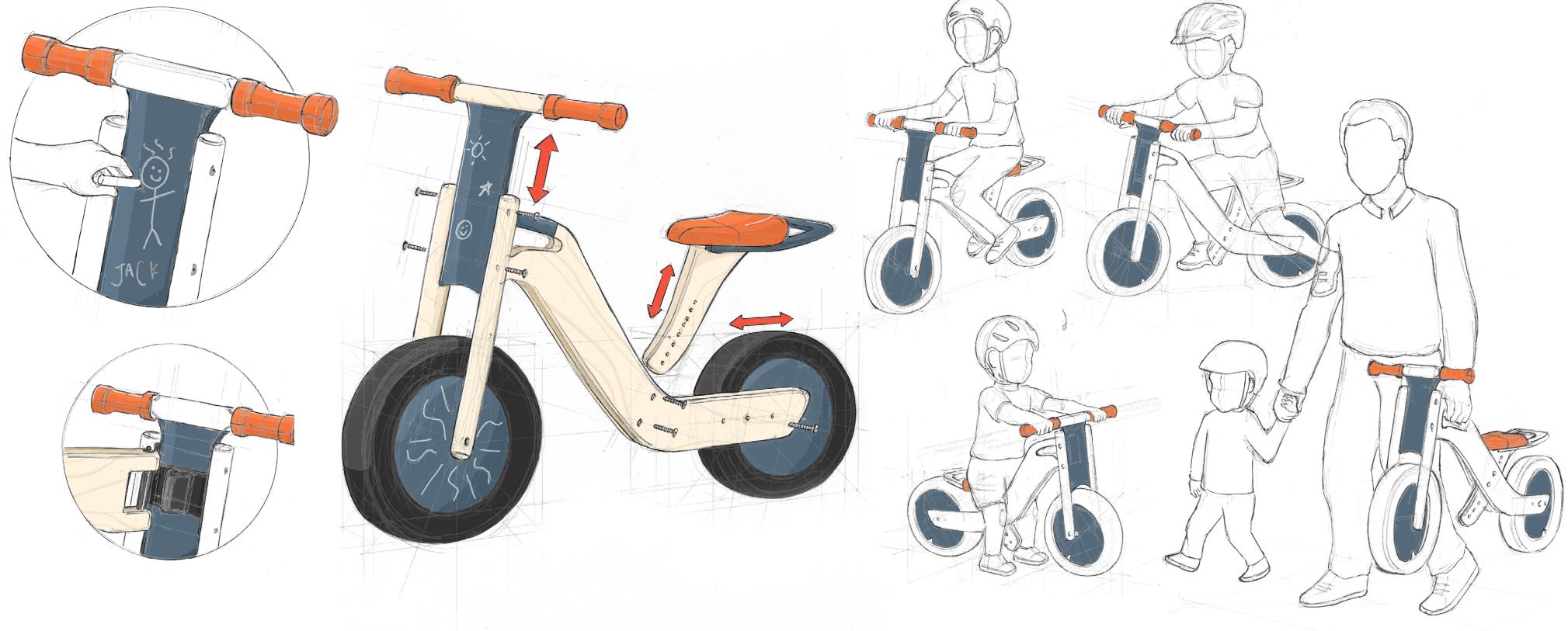
MATERIALS



45%

of parents surveyed preferred wooden bikes





FEATURES

ADJUSTABILITY

The handle bars, saddle, and wheelbase are adjustable to allow the bike to grow with the child.

STEERING

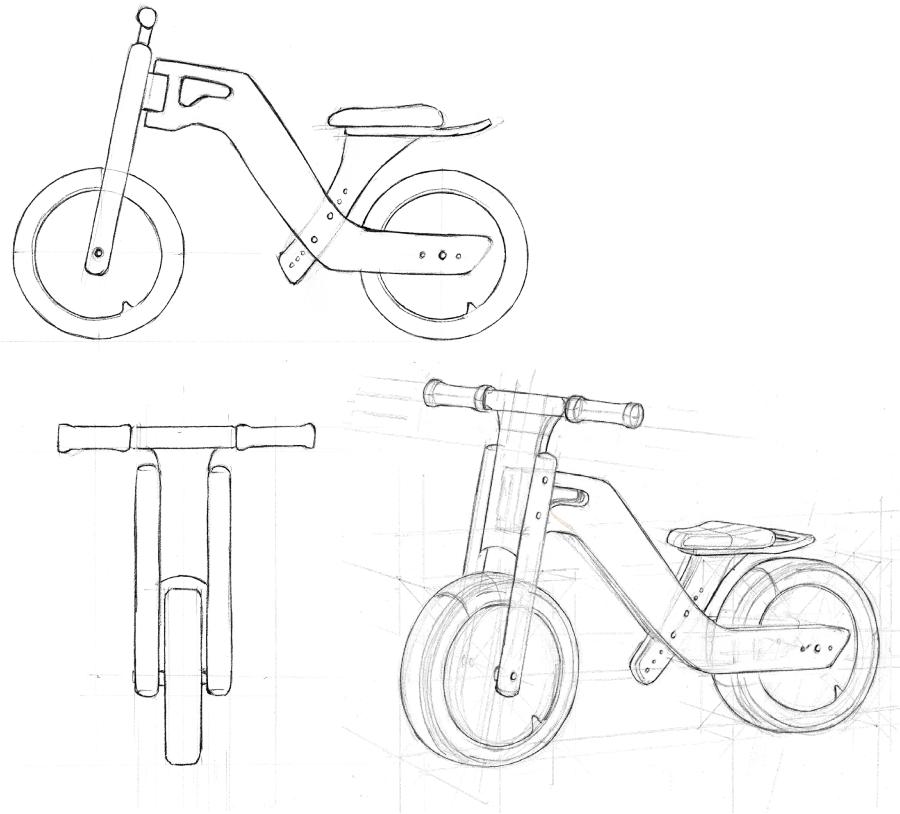
The bike is able to steer and uses a pin and hole system with an attached bracket on the front forks

PERSONALIZATION

The blue chalkboard paint on the front panel and wheels of the bike allows the child to customize their bike.

SUSTAINABILITY

The bike is made of quality materials. The frame of the bike is birch veneered plywood and the handle wraps and seat are made of sustainable leather. The wheels are recycled rubber.



motion

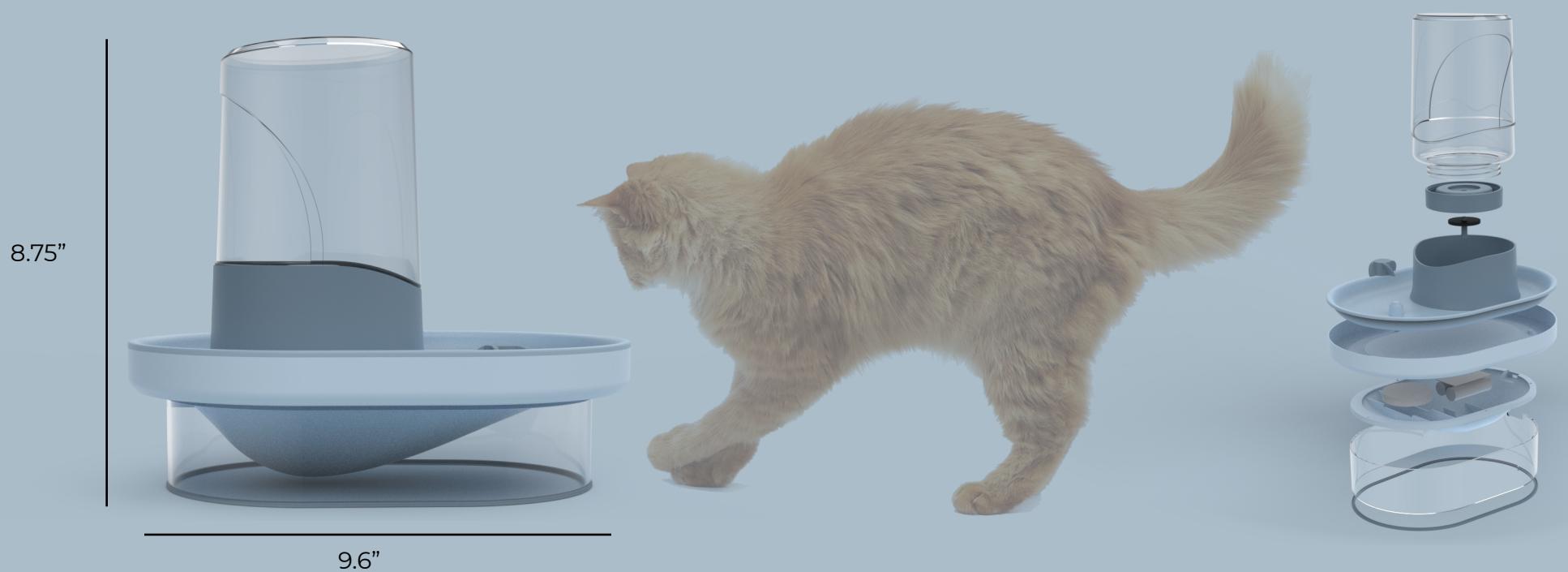
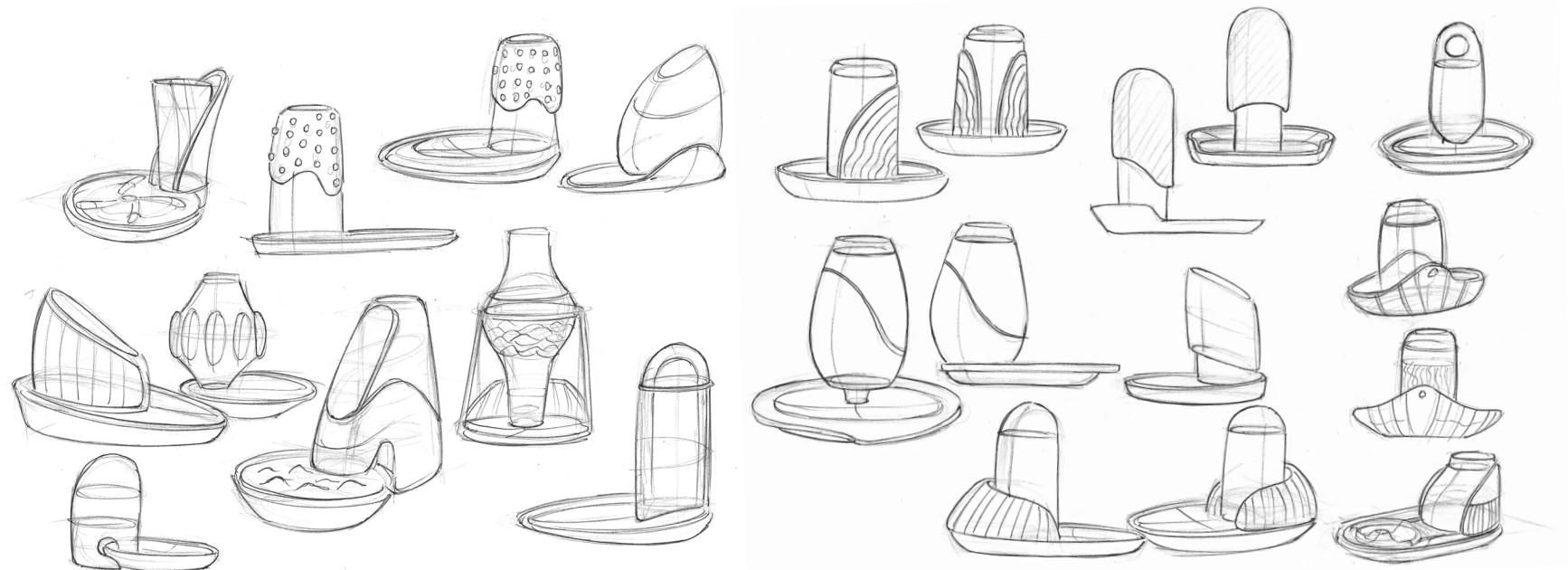


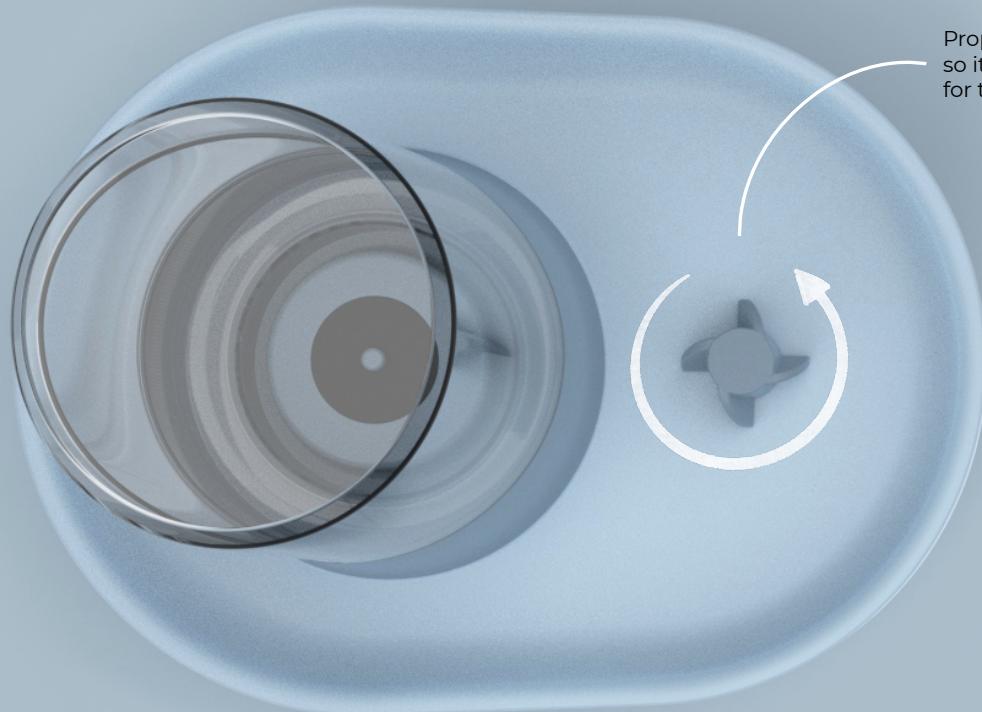
INDIVIDUAL PROJECT

Cat water dispenser that is gravity fed and provides motion to the water through a propeller. The internal electronics are completely separated from the liquid to reduce damages to the motor. The unique floating design provides interest to the user and has potential to be placed on a table or desk rather than the floor. App integrated to turn on the propeller at times that works for the user

PAIN POINTS:

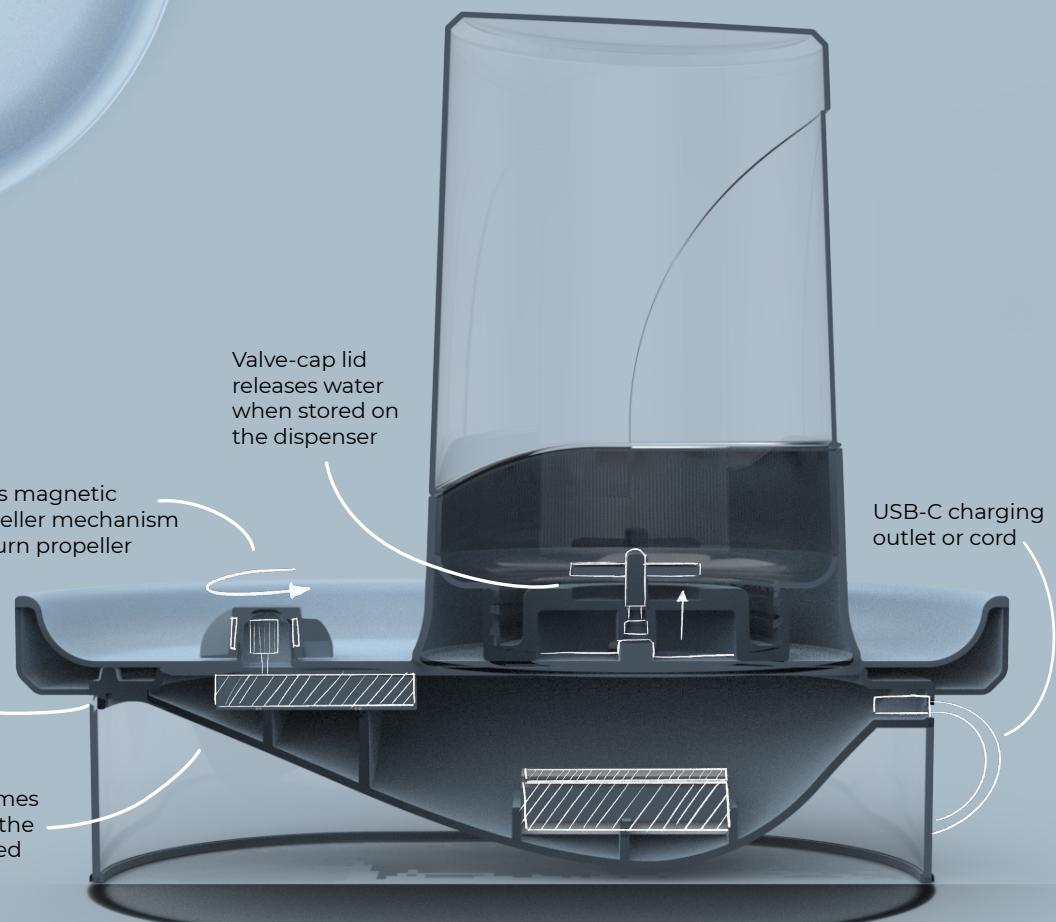
- Cat fountains are hard to clean
- Fountains need to be cleaned regularly
- Filters don't always work and have to replace them
- Cats get whisker fatigue
- Pump needs to shut off when the water level gets too low
- Expensive
- Fountains are too loud

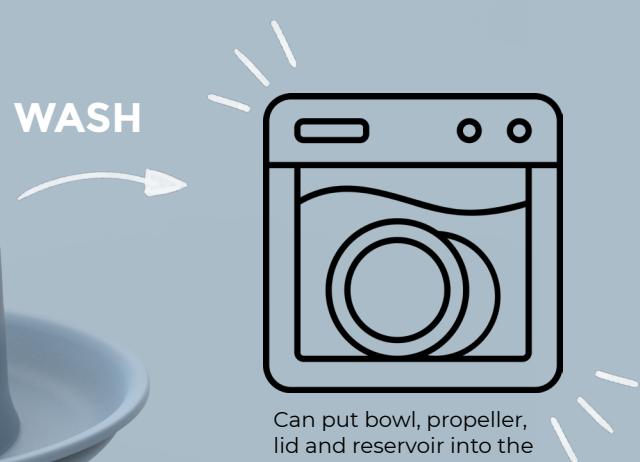
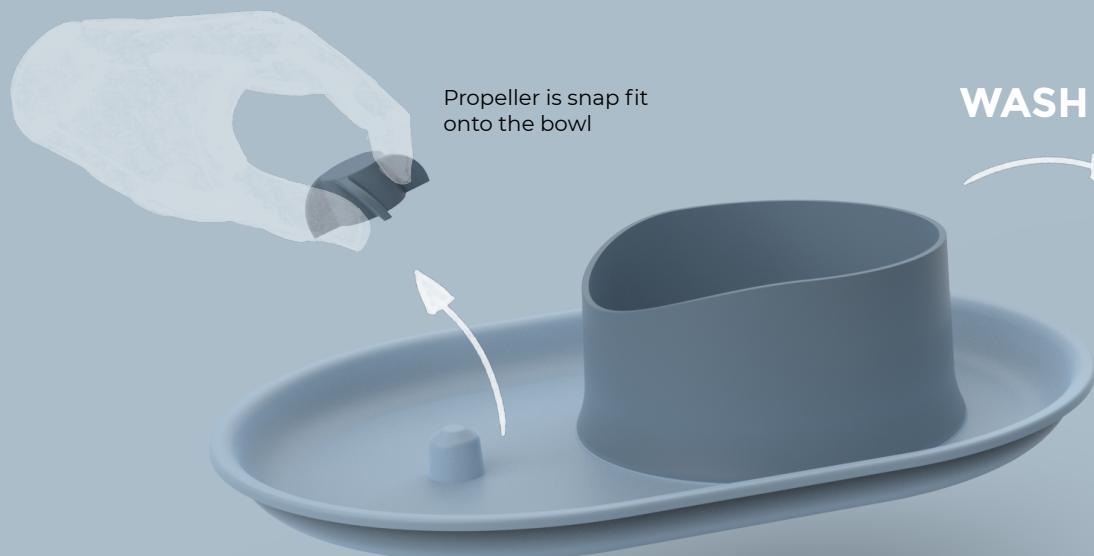




Propeller turns the water so it is always in motion for the cat to enjoy.

Cats can play with the propeller, which will stop moving if it is caught due to the use of magnets





ACTIVE HEATING PAD

INDIVIDUAL PROJECT

The Active heating pad is **designed to conform to women's curved bodies**, allowing natural body movements while still staying in the correct position. The pad targets the pelvic region, the area where most menstrual pain is experienced. The design language was chosen to resemble active leisure wear, making the product feel more comfortable and less like a medical device.

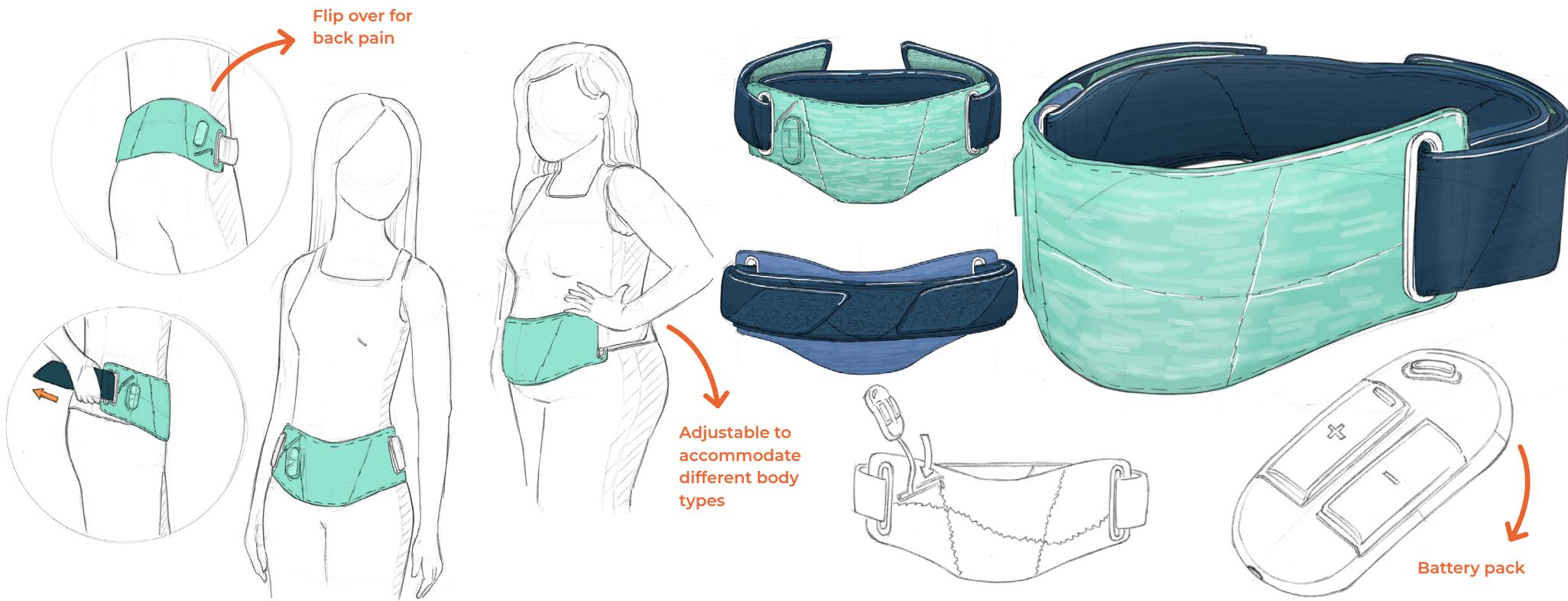


9/10 report menstrual pain negatively impacts their **quality of life**.

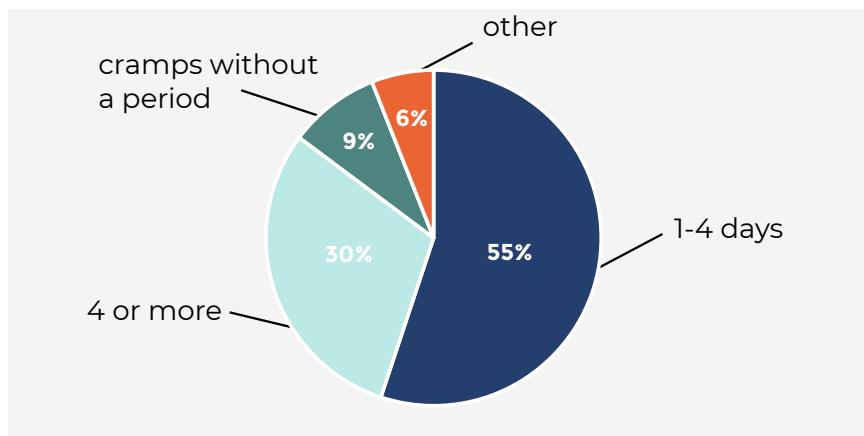


94% use heated applications to ease menstrual cramps.

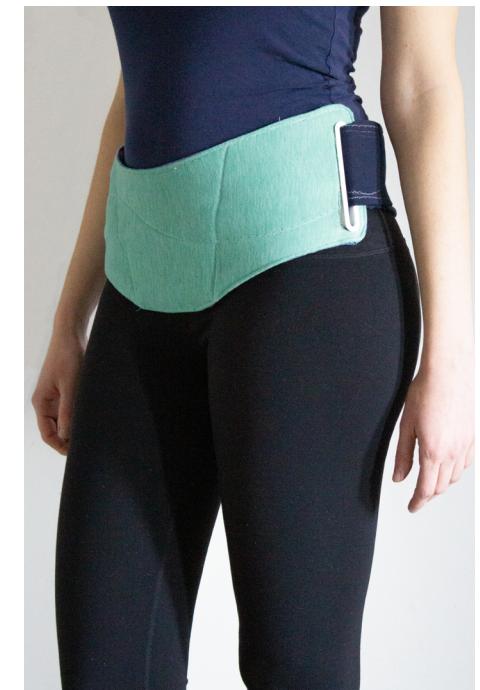
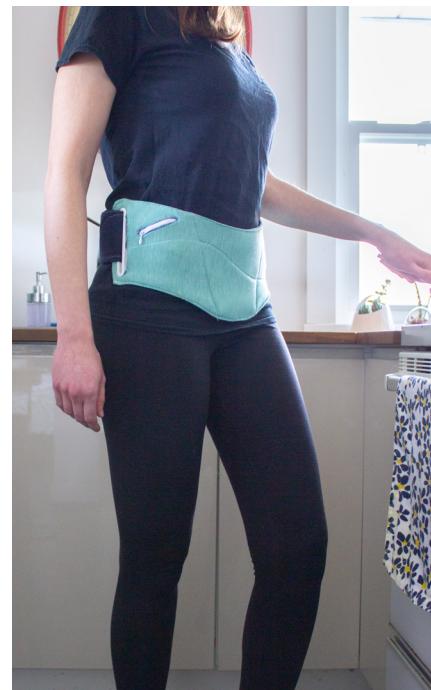


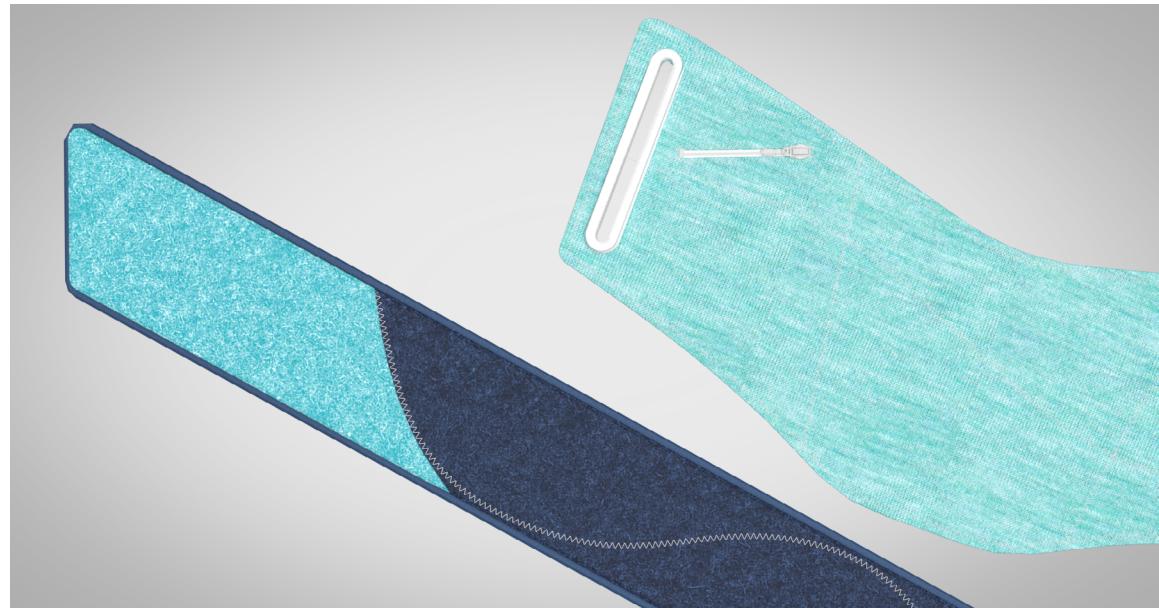


Average number of days respondents (n=456) reported having menstrual pain:



84% were interested in a **wearable heating pad** around their waist







1. TIGHTEN STRAPS

Users pull the strap to tighten the heating pad to secure it in place.



2. CONCEAL

Heating pad is not bulky and can be concealed under clothing.



Battery pack is connected to a cord in the front pocket

HEAT ZONES

Loops allow users to create a heating cycle that changes the temperature, helping to reduce battery drain

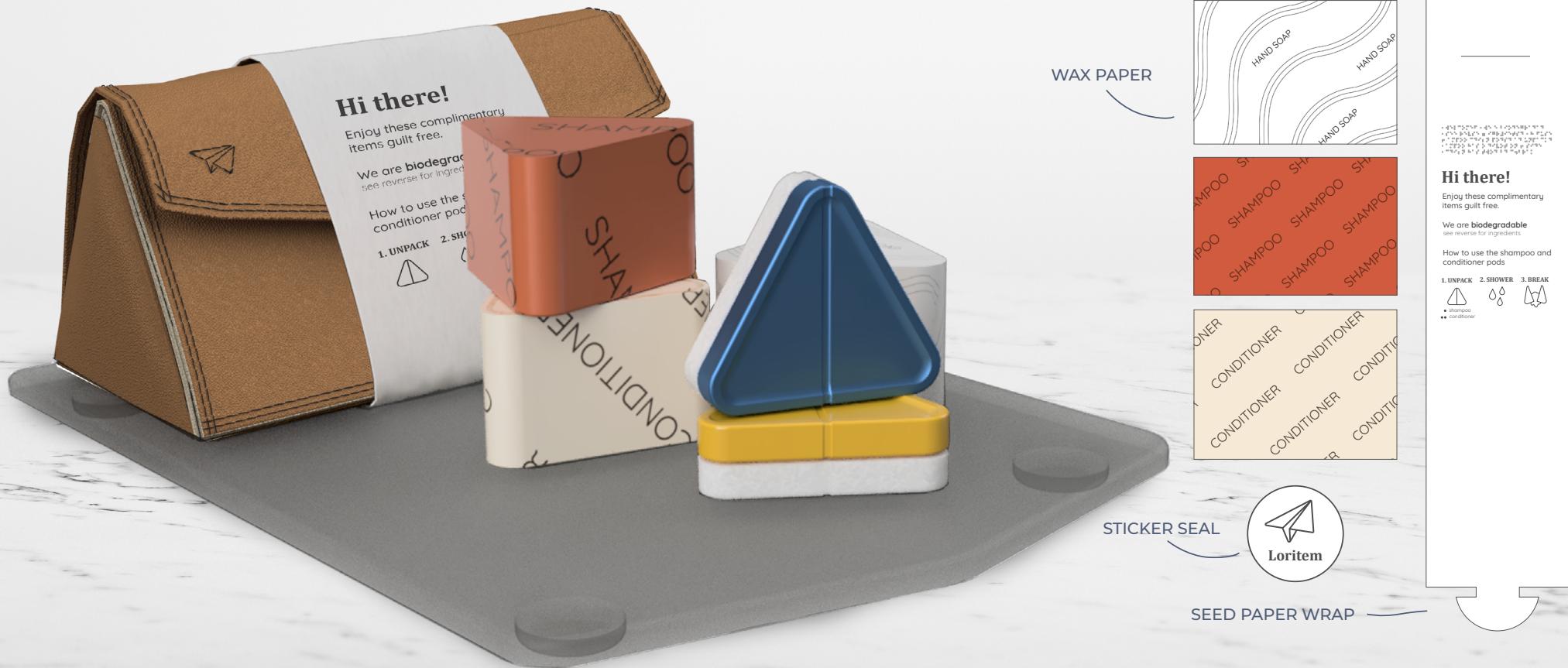
COMPANION APP

The companion app tracks period cycles, cramp pain and other statistics. The main function is temperature control.

LOOPS

CYCLE TRACKING

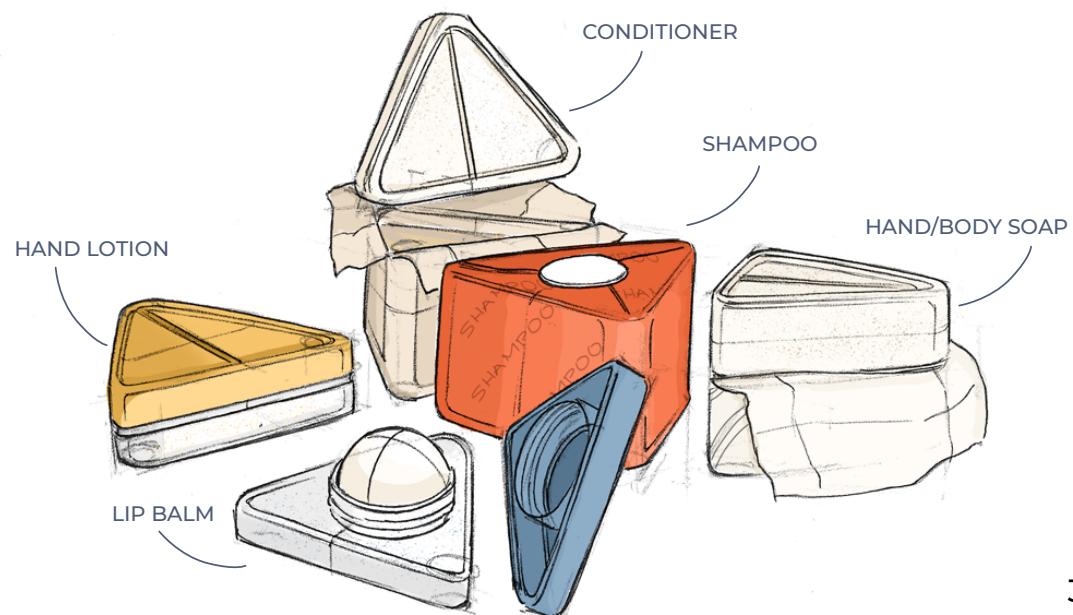
STATISTICS & INSIGHTS

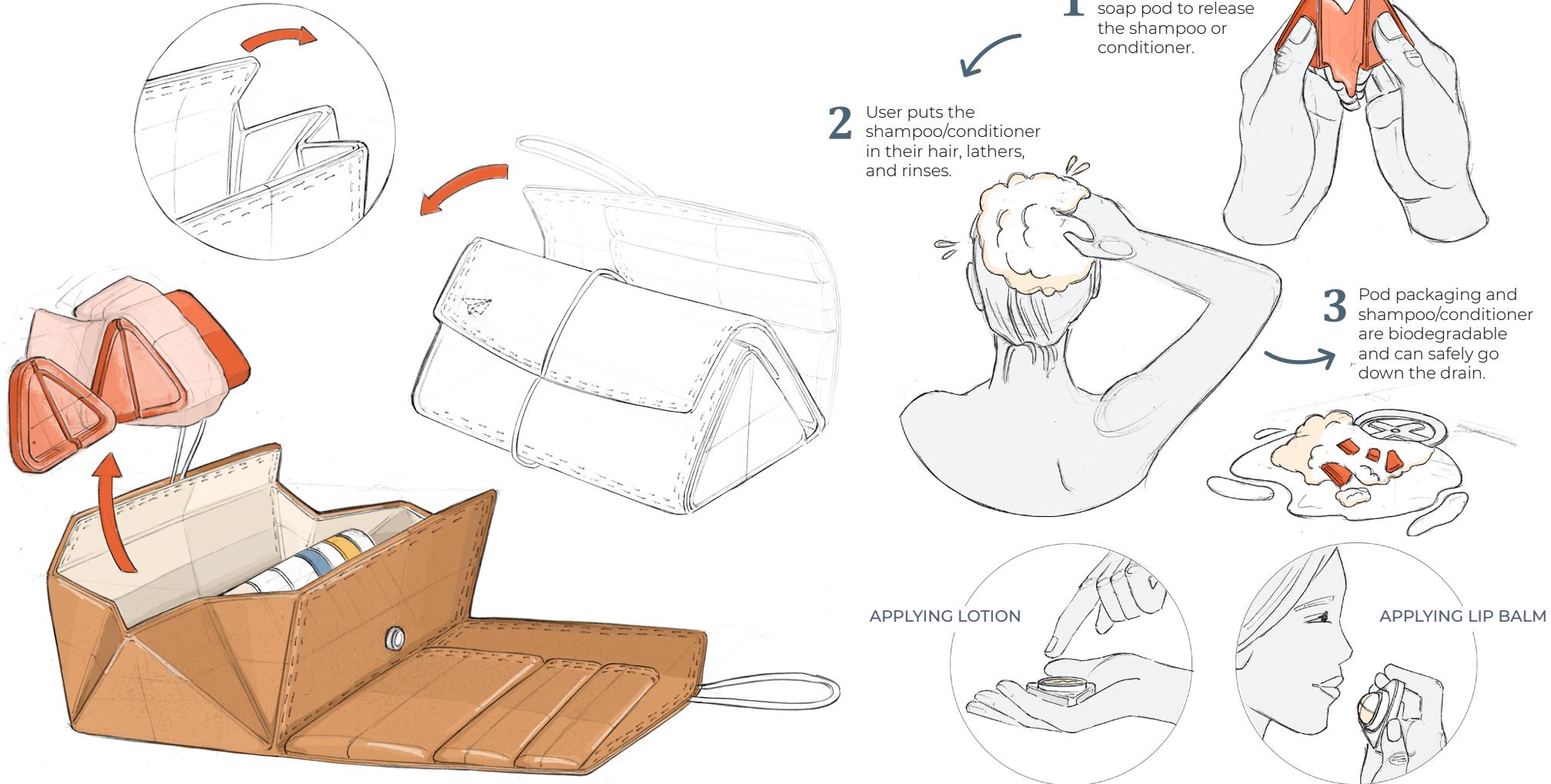


Loritem

TEAM PROJECT

Loritem is a rapidly-renewable and sustainable system of **toiletries designed for 4-5 star hotels**. Loritem includes a set of plant and bio-based shower and beauty items, as well as a complimentary, multi-pocketed cosmetics bag. This system will solve the issue of disposable plastics for toiletries in hotels, while continuing to provide customers with high quality complimentary items. Boasting a material makeup of 100% rapidly renewable and 100% biodegradable Loritem will allow customers to fully enjoy their hotel stay without the guilt of single-use, plastic packaging.





MISSION

To provide hotel chains and their customers with a **low environmental impact solution for disposable toiletry** items, while still providing them with high-end complimentary items that will appeal to their customer-base.

IMPACT

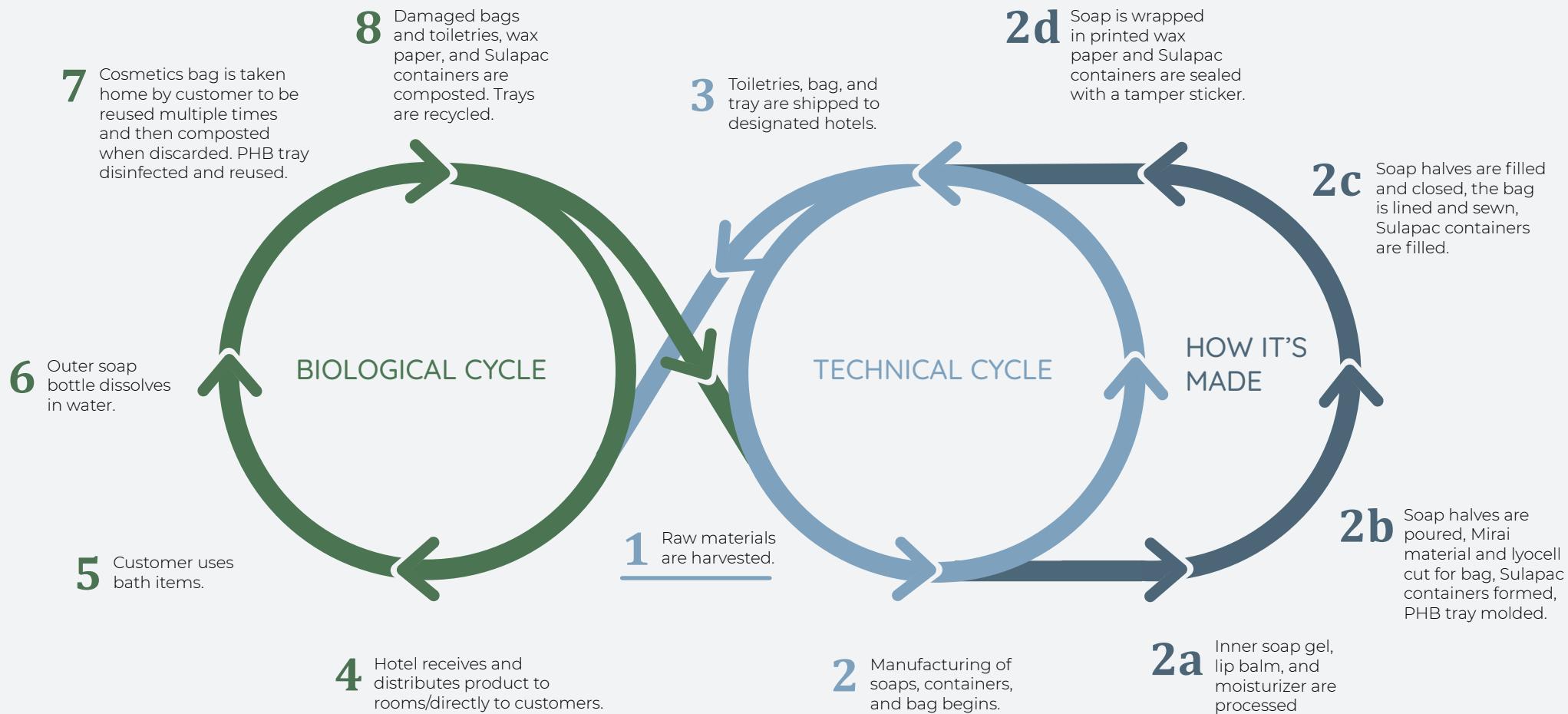
Approximately **200 million toiletry bottles are used each year by a single large hotel chain**. Loritem eliminates plastic complimentary items intended for single-use purposes. Instead, the provided items are compostable and have a low environmental footprint.

ACCESSIBILITY

Loritem allows hotel guests to **easily differentiate products through the use of unique colours**. The welcome label **includes braille** and the pods have divots to differentiate between shampoo and conditioner for the visually impaired.

SHIPPING

Densely packed toiletries while shipping reduces cost and fuel consumption in transport, while allowing hotels to still acquire high quantities of product. A 12 x 10" box fits 210 pod packs or 420 soap bars/sulapac containers. 64 boxes fit on a single 48 x40" pallet.



MATERIAL LIST

Pods + Soap Bar

- Plant & biomaterials
- Wax wrapping
- Algae ink (Text)
- Soy ink (Color)
- Bio-sticker

Bag

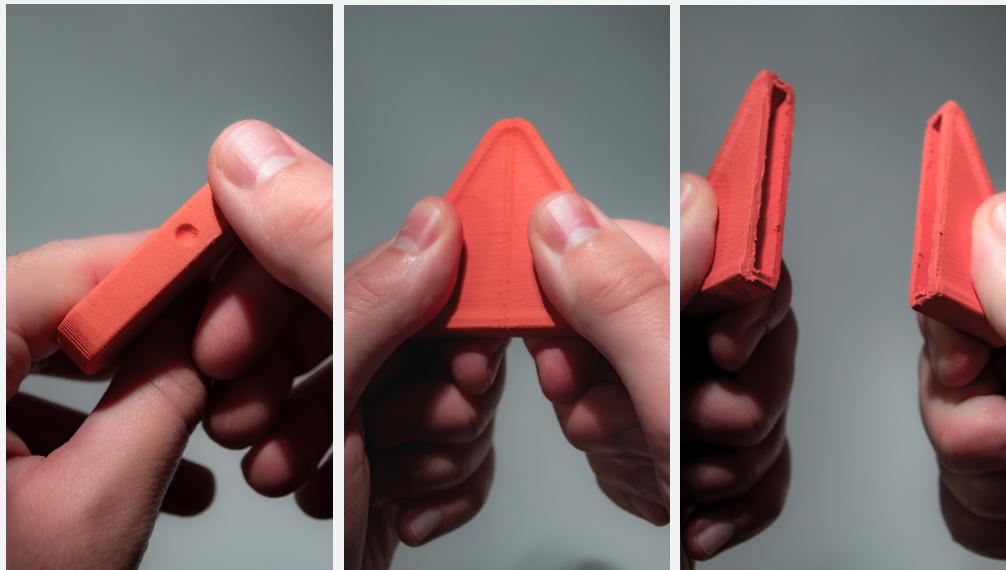
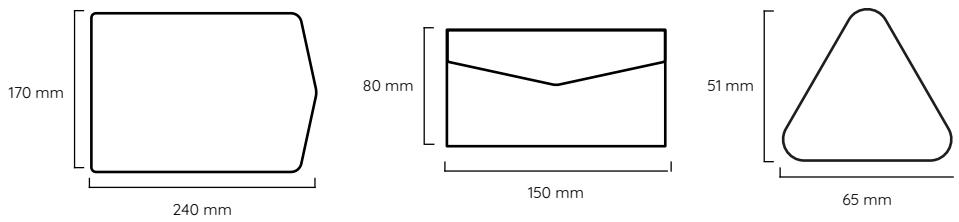
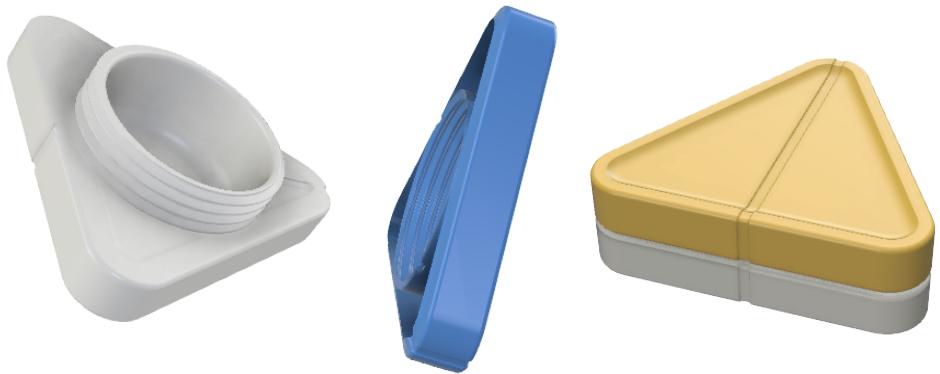
- Mirai - Biomaterial Leather (Outer)
- Lyocell (Liner)
- Viscous thread
- Eco-elastic
- Sulapac button
- Seed paper info wrap
- Algae ink (Text)

Display Tray

- PHB (AirCarbon)
- Shipping
- Recycled corrugated cardboard (VHK)

REUTILIZATION SCORE

$$\frac{\left(100\% \times 1\right) + \left(100\% \times 2\right)}{3} = 100$$



thank you

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