

Hannah Bartolomea

Human-Technology Liaison
Product Designer

 hannahbartolomea.com
 hannah_bartolomea@berkeley.edu
 818-917-2150
 [linkedin.com/in/hbartolomea](https://www.linkedin.com/in/hbartolomea)

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Human-Technology Liaison | Product Designer

Summary

I am a Product Designer, but consider myself primarily a human-technology liaison. I use research and design-based framework to create technologies that both understand and address human needs.

Education

Master of Design

University of California, Berkeley

Expected Graduation: December 2022

Highlights:

- Elected Academic Officer
- Lead User Experience Designer for Virtual Bauer Wurster @ UC Berkeley XR Lab

B.A. Psychology, Minor Digital Culture

Barrett, the Honors College at Arizona State University

Graduation: May 2021

Highlights:

- Honors Thesis: "Dress Your Shape" | Browser plugin that matches peoples with clothing styles that flatter their shape from any online store
- Study Abroad | Florence University of the Arts

Skills

- Adobe Suite
- C#, Python, HTML, CSS, Java
- Working within constraints
- Working within constraints
- Figma
- AR/VR Design
- Communicating design thinking
- Rapid Prototyping
- Unity
- Project Planning
- Cross-platform design
- Interactive Figma
- Journey Mapping
- Teamwork
- Prototyping

Interests

- Propogating my plants
- Making surprising toys with arduino
- Hiking (especially by the beach)
- Crocheting and sewing

Professional Experience

Product Design Intern

June 2022 - Aug 2022

10k, Dynamoid — Oakland, CA

- Solved complex design problems by iteratively improving wireframes, storyboards, and 16 low-fidelity prototypes—resulting in an interactive VR MVP, 12 high fidelity mock-ups, and a 14-page detailed design guide
- Spearheaded team meetings in VR to unite remote and in-person workers, resulting in strengthened cross-functional team relations and a positive work environment
- Upgraded user testing by refining surveys, provisioning 15 Oculus Quest headsets, anticipating and solving potential technical issues—resulting in specific design recommendations for improvement

Product Designer

Feb 2019 - May 2021

Meteor Studio XR Engineering Lab, ASU — Tempe, AZ

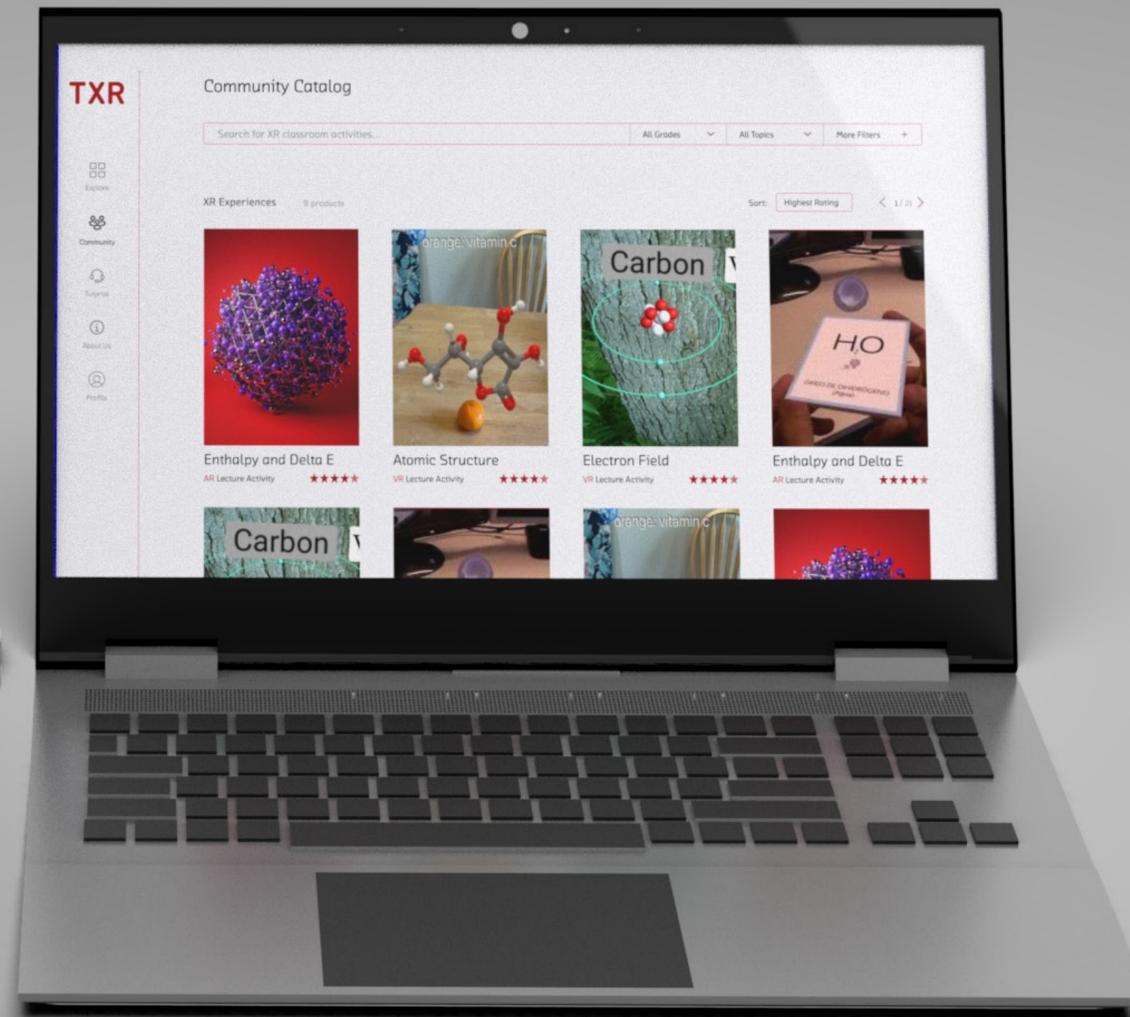
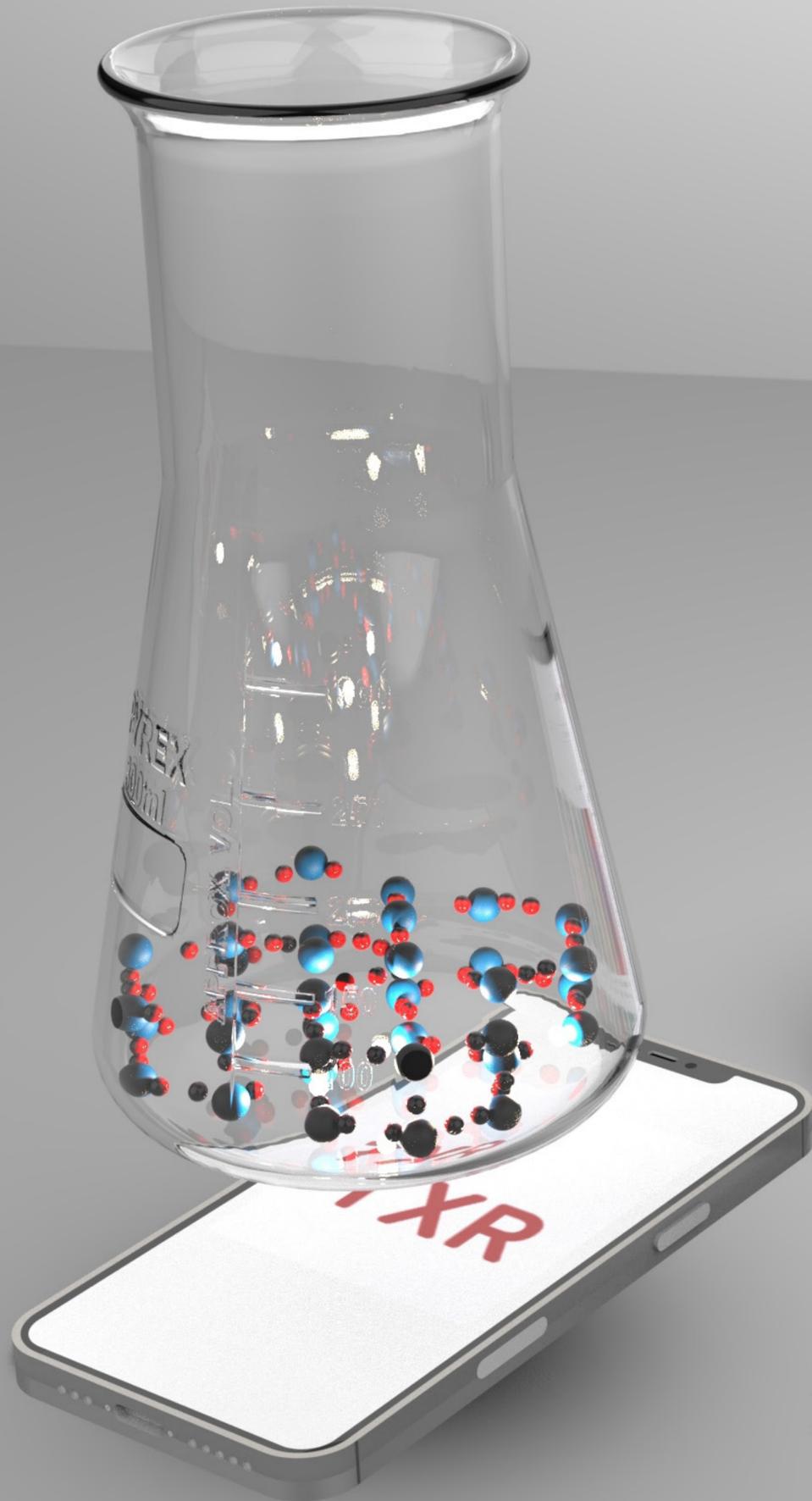
- Founded, established, and led a design team of 13—resulting in end-to-end designs for 8+ mixed reality experiences, 650% team growth in 2 years, and investments from Samsung and Proctor and Gamble
- Crafted a style guide to communicate consistent guidelines to 47 designers and developers to be used on marketing materials, company website, and applications, ensuring features launch at the highest quality
- Crafted a style guide to communicate consistent guidelines to 47 designers and developers to be used on marketing materials, company website, and applications, ensuring features launch at the highest quality

Usability Research Assistant

Aug 2018 - May 2021

Embodied Games for Learning Lab, ASU — Tempe, AZ

- Presented updates as team representative in weekly meetings with 5 executive-level stakeholders, including the Director of XR Initiatives of Arizona State University
- Conducted, streamlined, and co-organized user testing for 150 participants resulting in an understanding of best learning practices
- Designed, developed, and implemented an online interactive learning experience to teach 8,000 students about COVID prevention tactics resulting in a decrease of virus dissemination across campus



TeachXR (in progress)

Date: 2022

Tools Used: Figma, Unity, Vuforia, User Interviews, Literature Review

For my Master of Design thesis at UC Berkeley, I built a desktop tool that enables high school chemistry teachers to implement and customize XR activities as a medium for classroom storytelling.

This project speculates that if there were a tool to support teachers with implementing XR technologies in their classrooms, then teachers could explain microscopic science concepts in a way that is easy for students to understand. That hypothesis is tested through a case study of Aaron Glimme, a chemistry teacher at Berkeley High School.

(This project is still a work in progress, to be completed mid December. I have outlined the work so far, but stay tuned for results!)



Virtual and augmented reality has improved students' science learning by enabling 3D visualization of complex, abstract 3D topics.



Dáskalos Chemistry Application (2019)

How might we enable high school teachers to use XR for storytelling?

This project speculates that...

With support using XR technologies,
teachers could improve students' learning
of complex science topics.

Initial research was collected through a literature review to better understand the problem space and current solutions.

A case study is conducted to evaluate the hypothesis in a real-world context. The focus of the study is Aaron Glimme, a high school chemistry teacher at Berkeley High School.

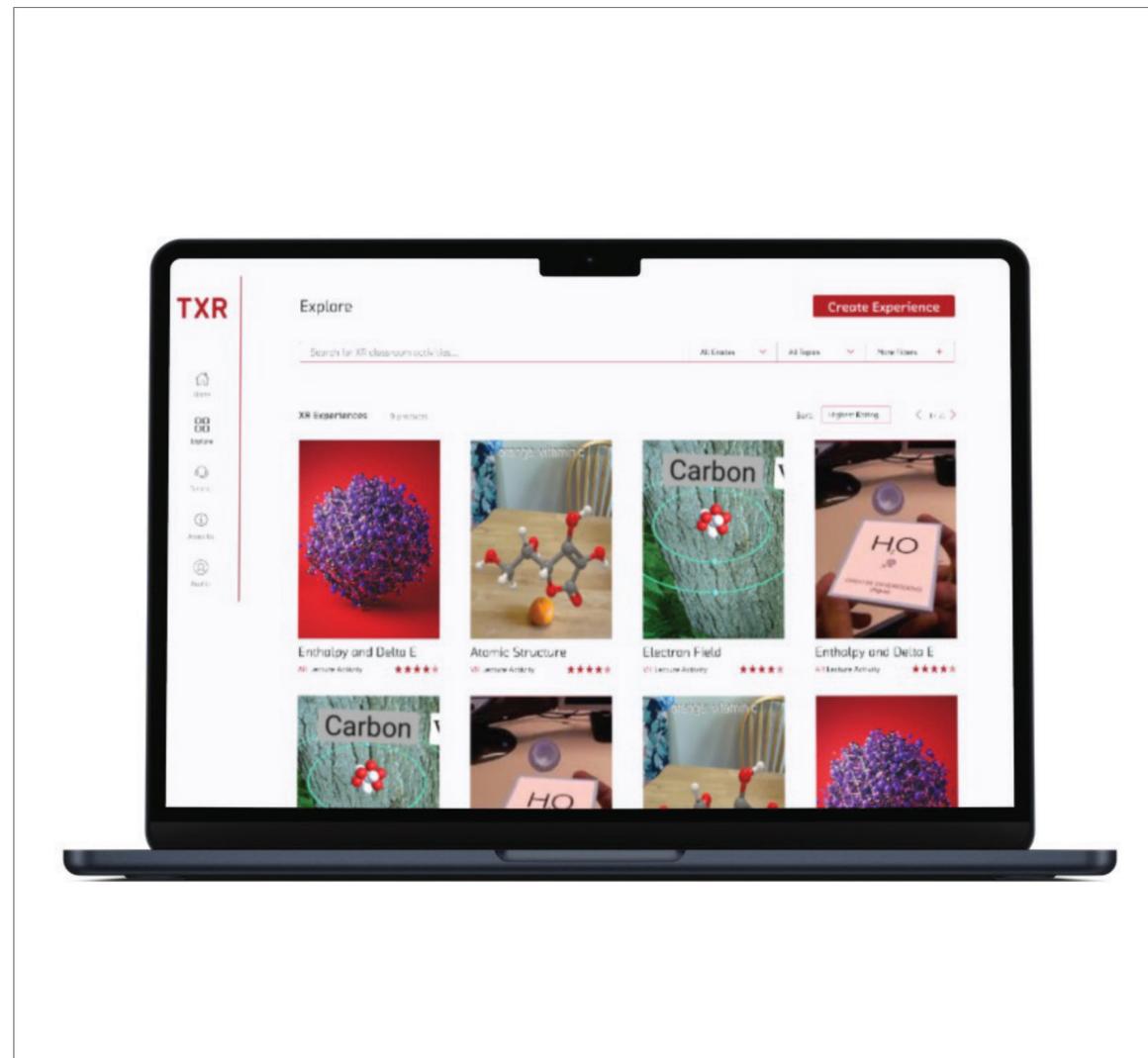
Key discoveries.

- 1 Students differ based on learning pace not style
- 2 Teachers prefer varying levels of customization
- 3 XR should show the invisible, not replicate reality

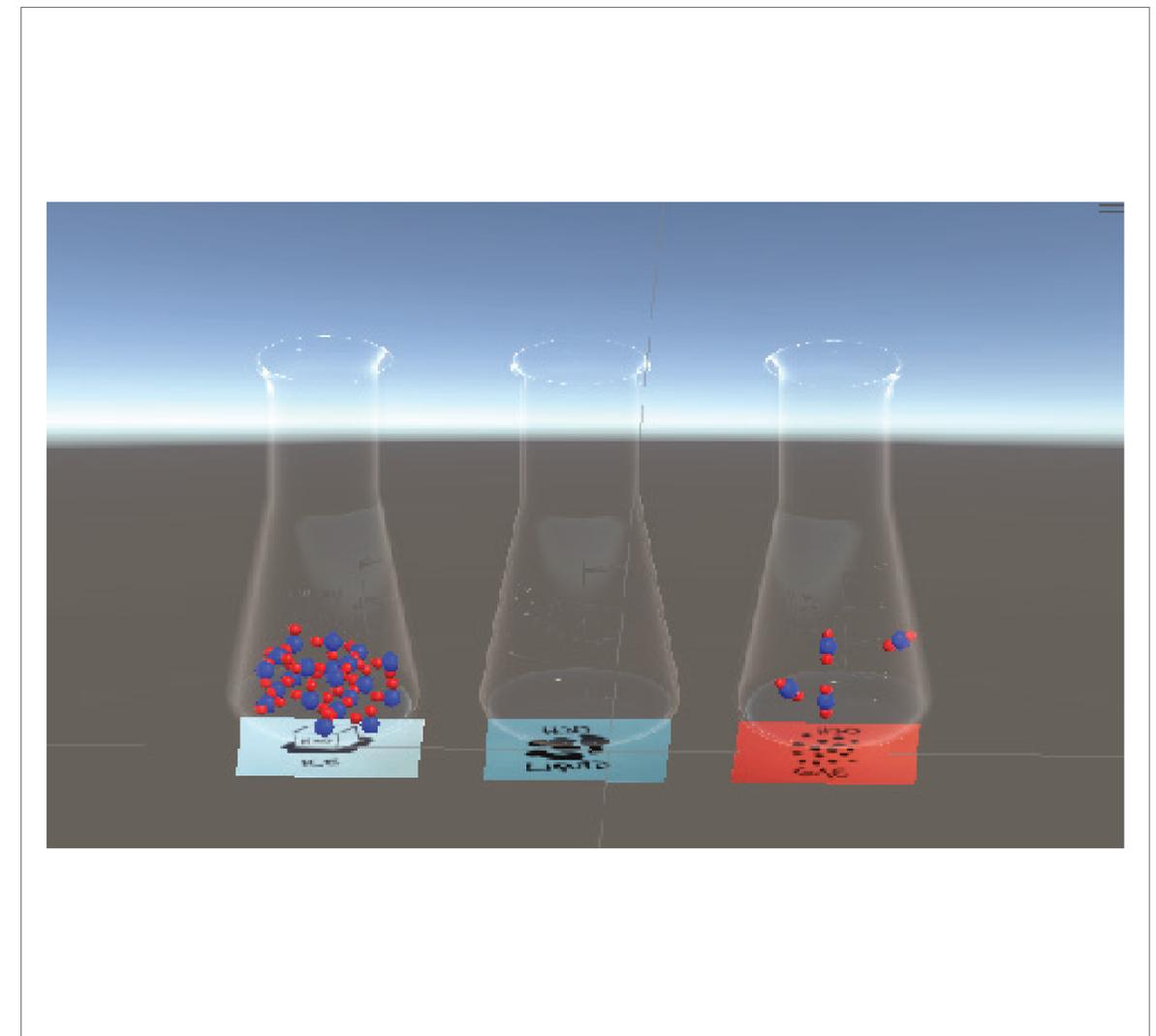


Establishing Goals.

1 Create a desktop tool that enables teachers to implement, customize, and share XR storytelling experiences

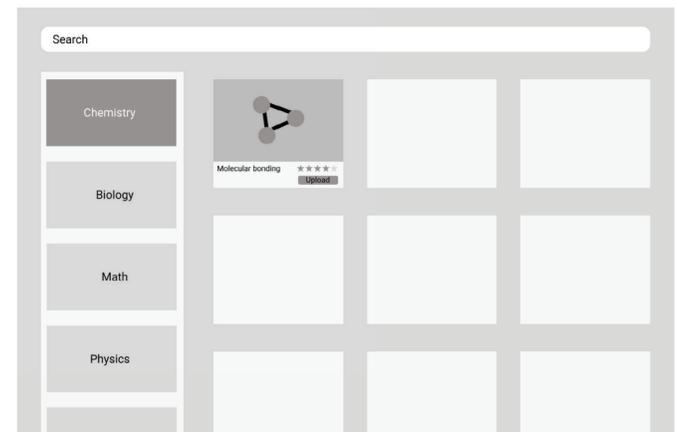


2 Build an AR experience about enthalpy with Aaron as an example output of what could be built with TeachXR

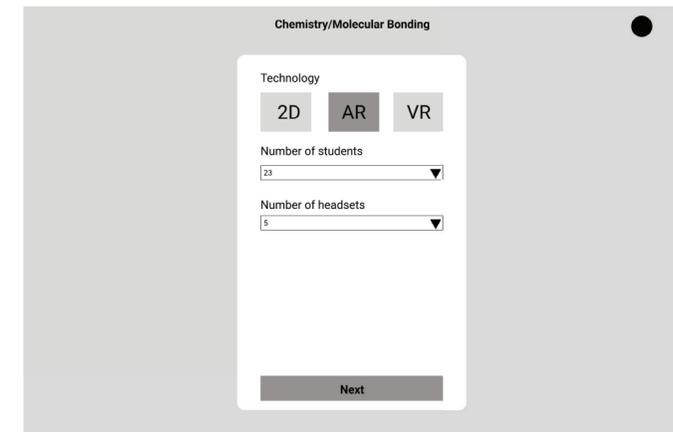


Designing a low-fidelity desktop tool.

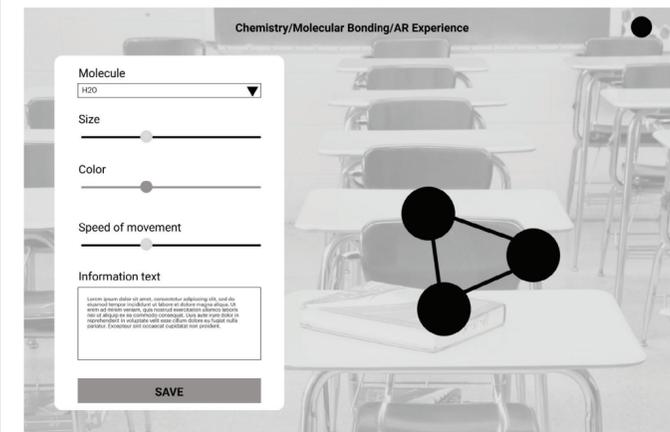
1 Search/Teacher Community



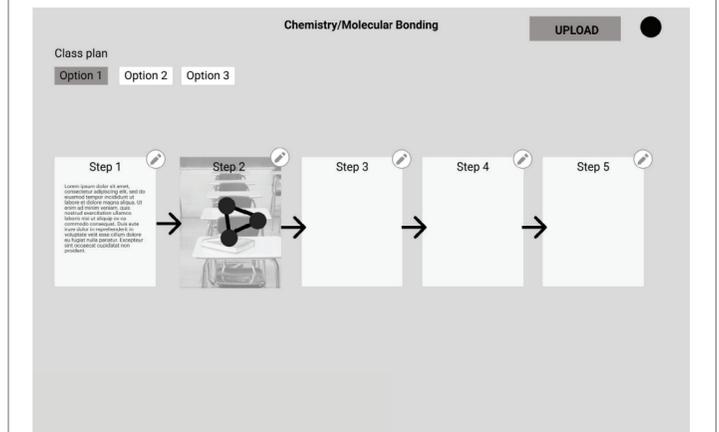
2 Class Settings



3 XR Experience Editor



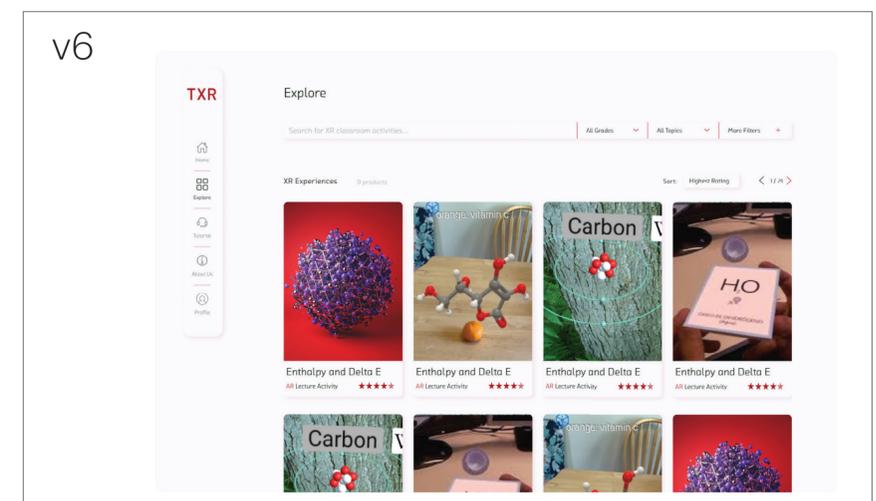
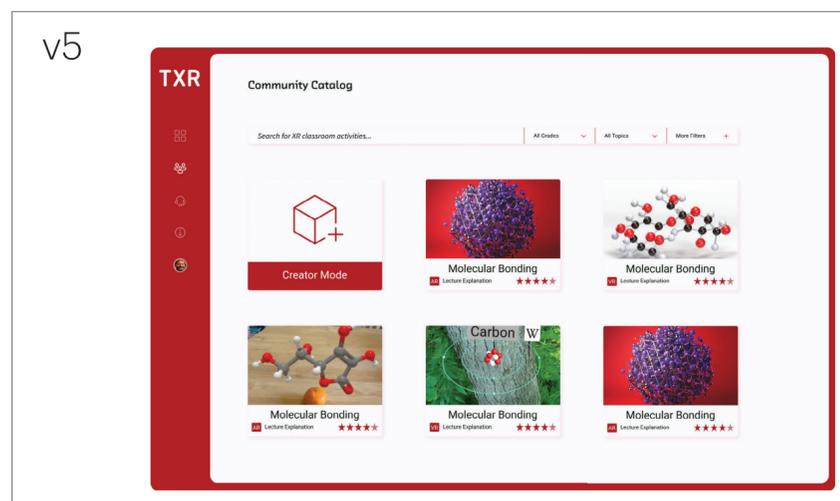
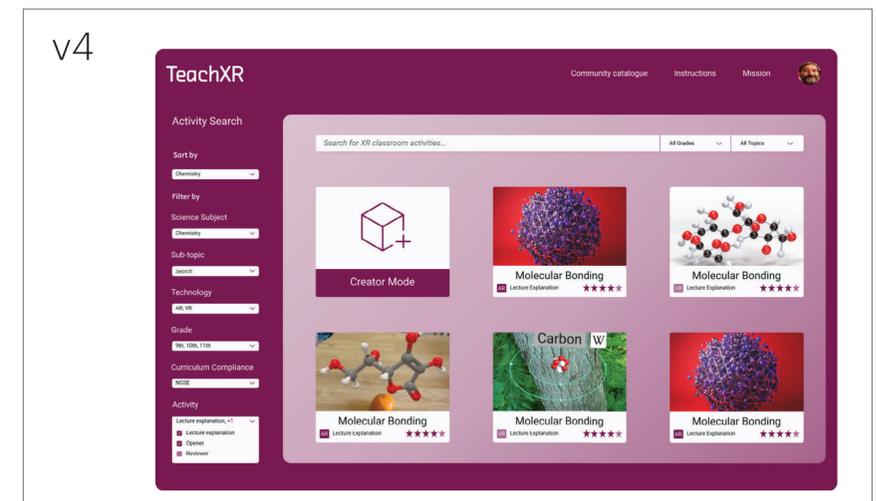
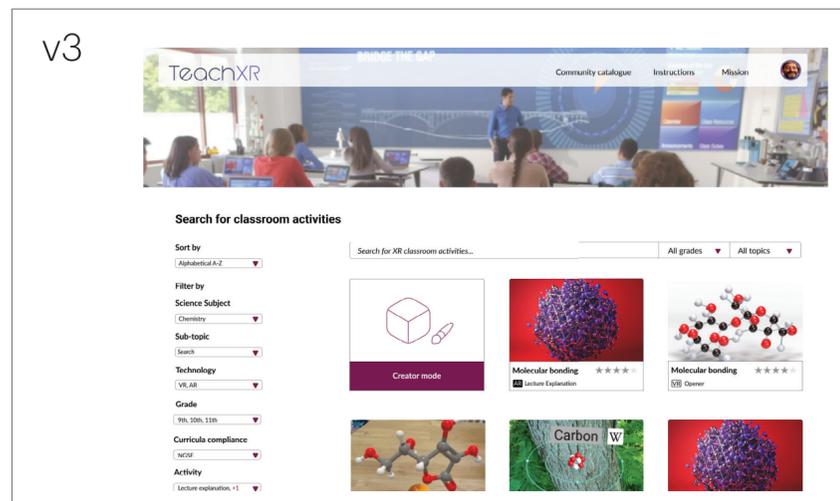
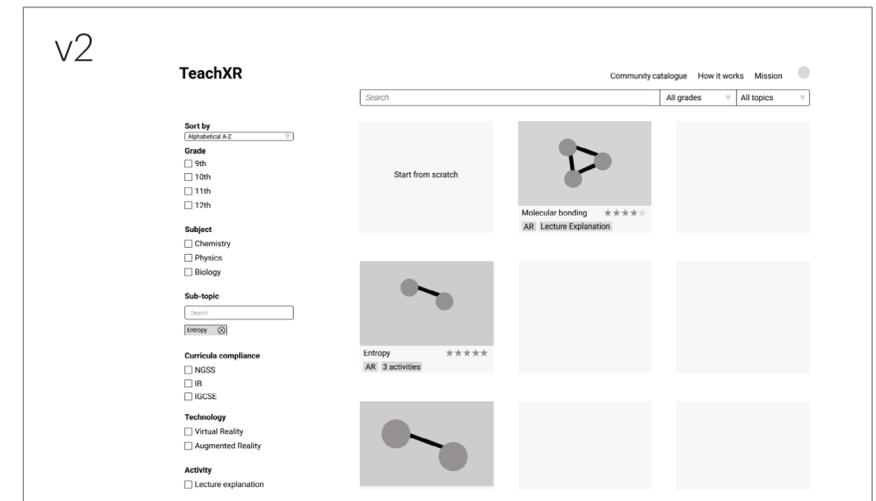
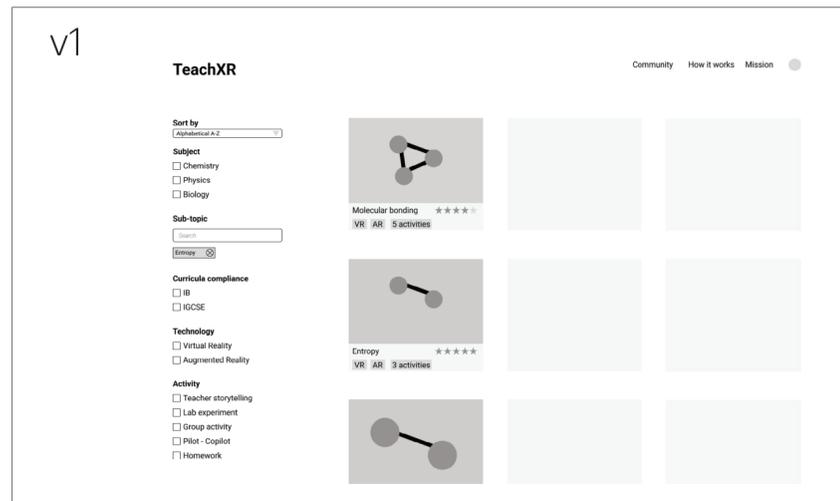
4 Class Instruction Editor



Increasing fidelity.

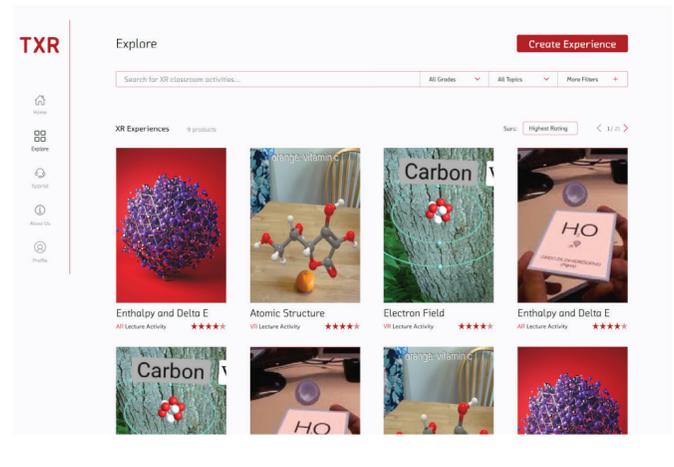
I designed several iterations of desktop tool in Figma. Each iteration was led by feedback from Aaron, other high school chemistry teachers, and experts in the XR ed-tech space. These images illustrate iterations of the search/explore page.

The most significant changes involve: search filtering, simplifying XR customization tools, and redesigning navigation to increase familiarity.

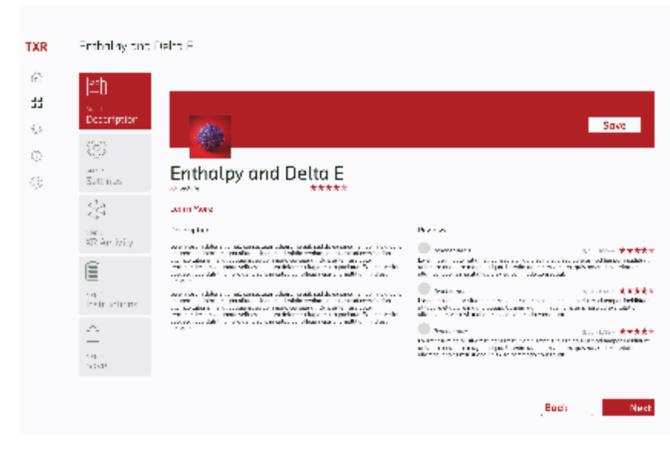


Final desktop tool design.

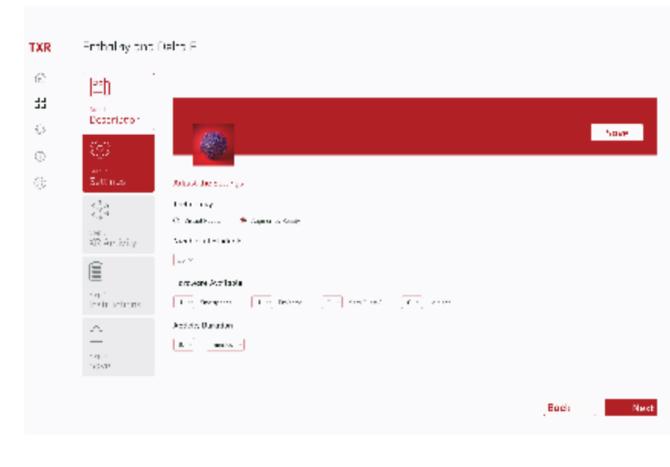
1 Explore



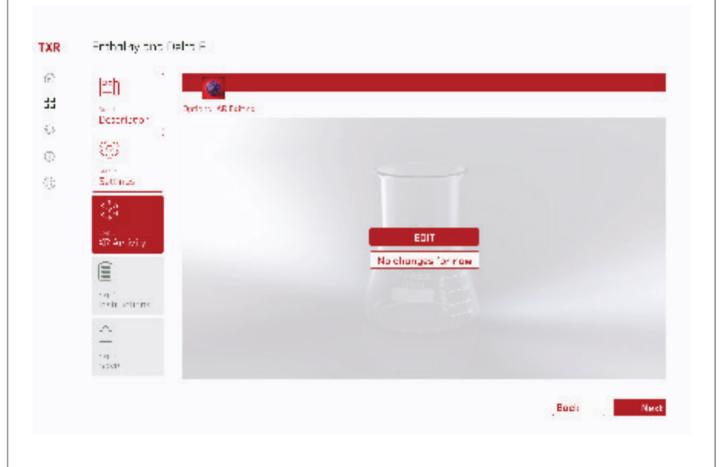
2 Description



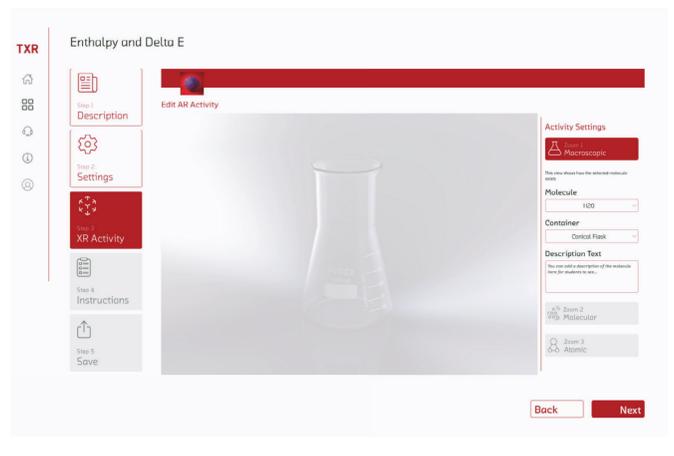
3 Settings



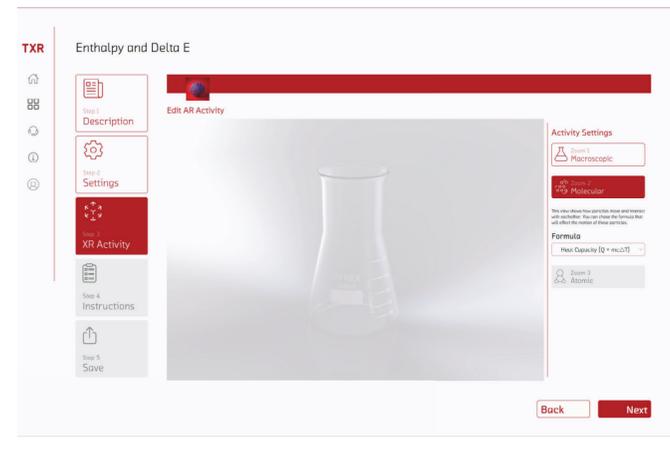
4 Optional XR Edit



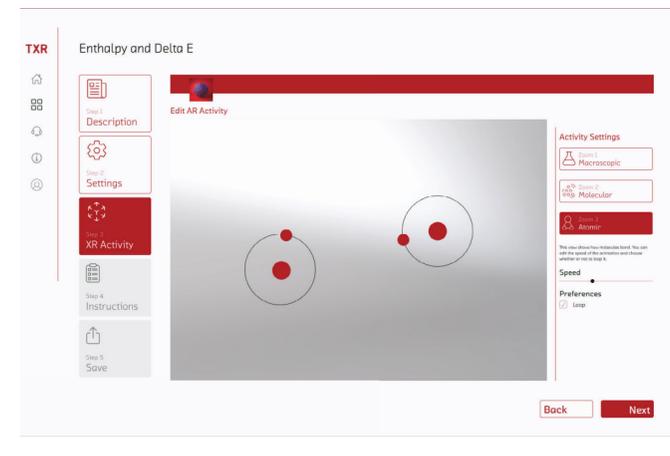
5 Edit Macroscopic View



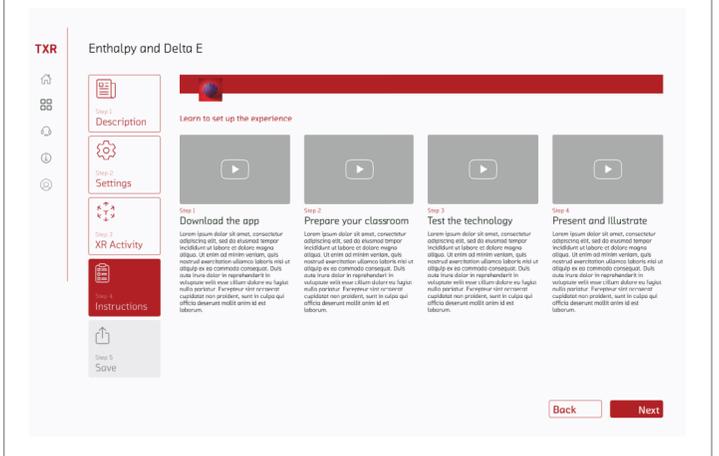
6 Edit Molecular View



7 Edit Atomic View

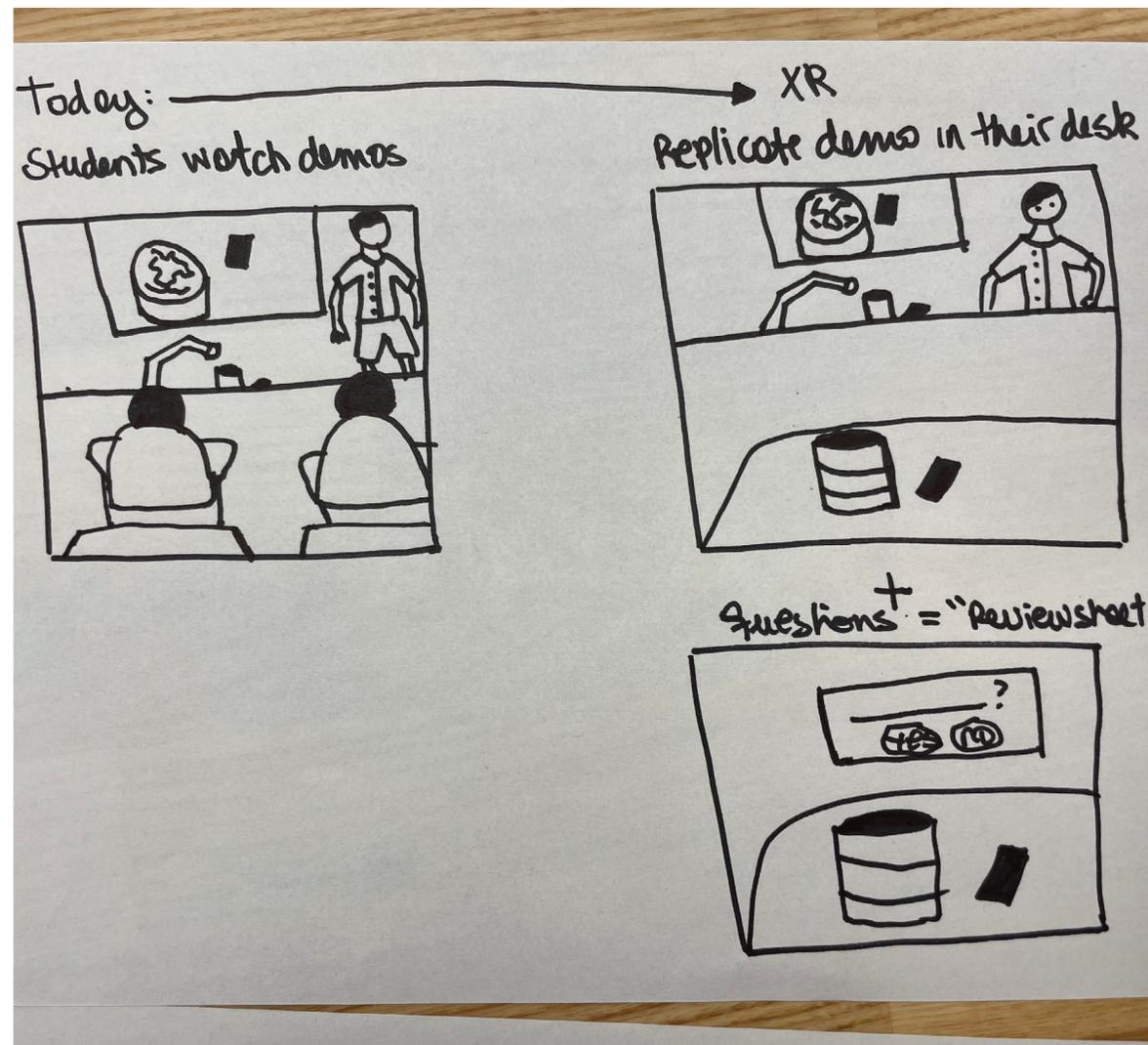


8 Instructions

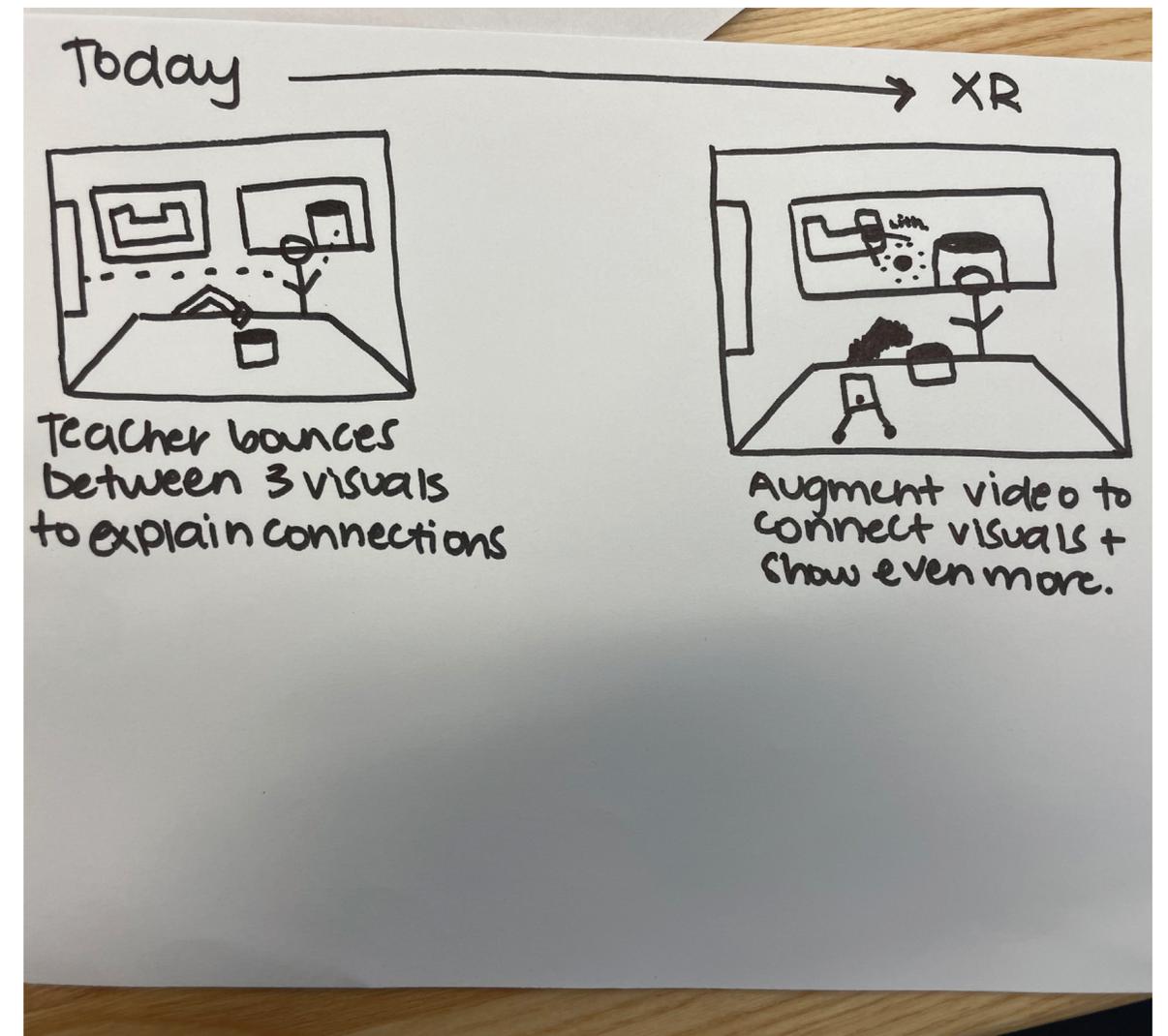


Sketching possible solutions for the Aaron's AR experience.

1 Problem: Students in the back struggle to see lab demo
Solution: Replicate demo at students' desks



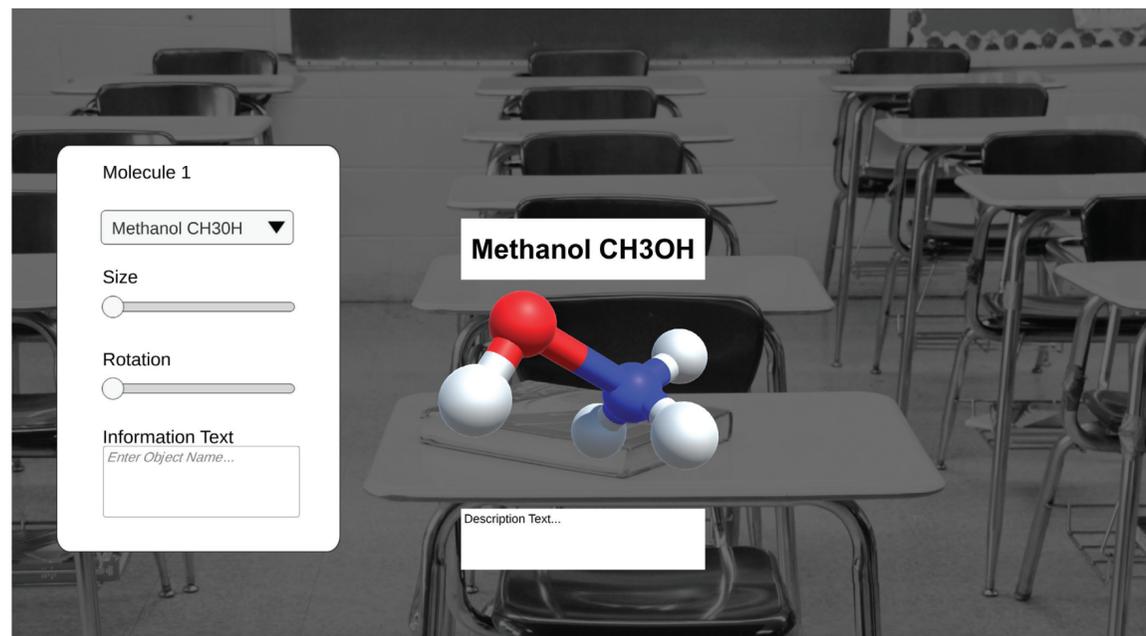
2 Problem: Teacher struggles to explain invisible concepts
Solution: Augment invisible concepts atop live demo



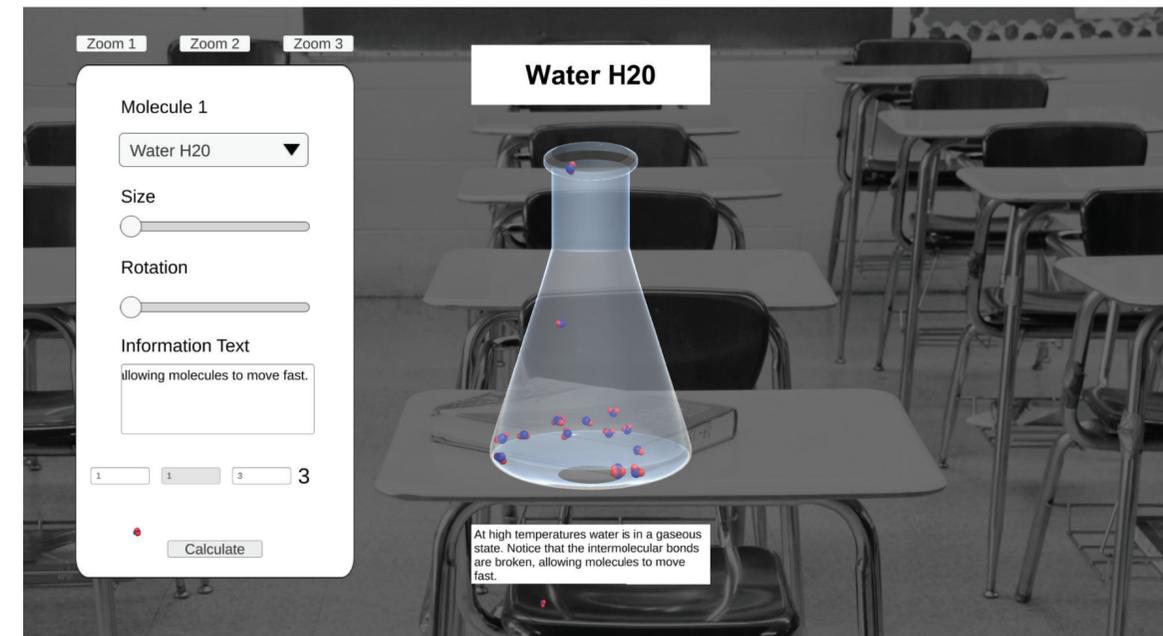
Testing technical feasibility given time constraints.

Can I build an interactive XR creator tool on Unity that meets Aaron's needs in just 2 weeks?

1 Allows teachers to edit molecule type, size, rotation, and description text

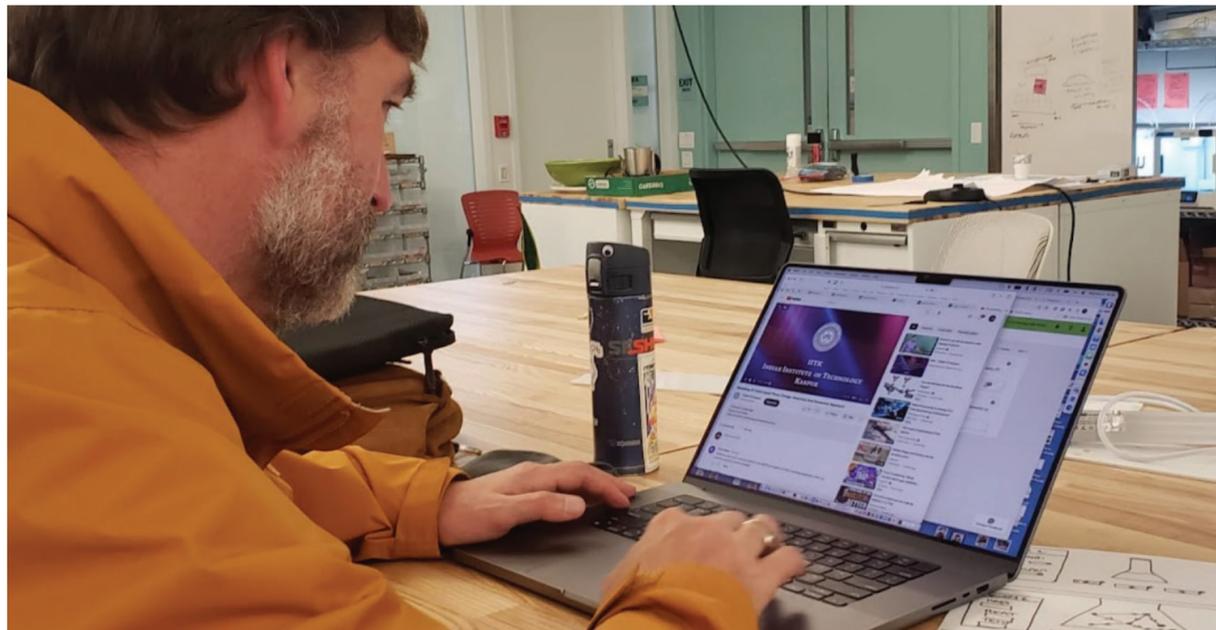


2 Allow teachers to edit 3 zoom levels and animate molecule using formulas (heat capacity formula in this example)



Yes, I can!!

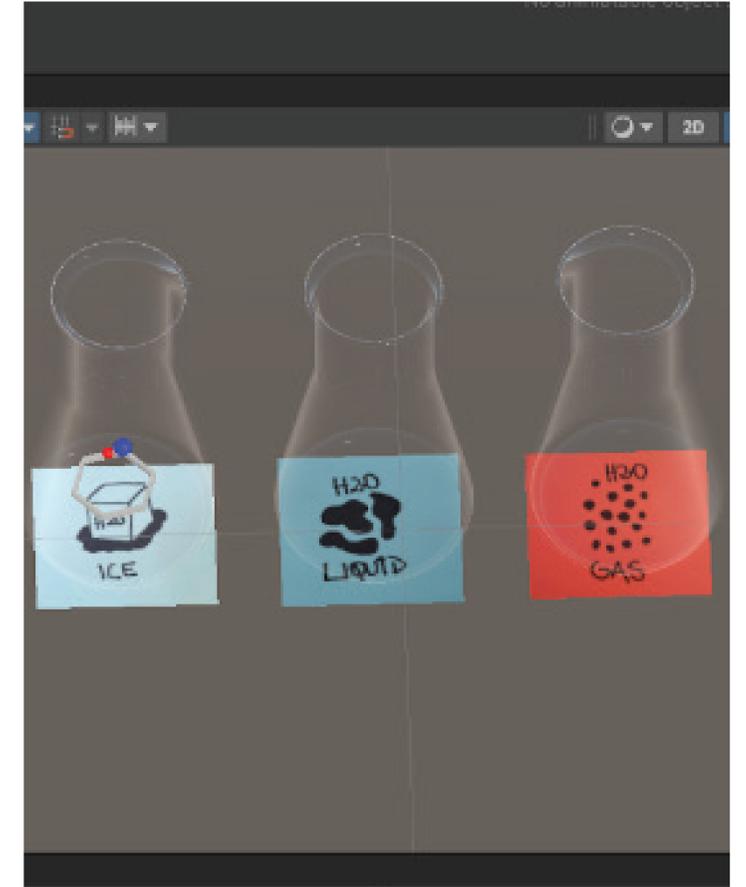
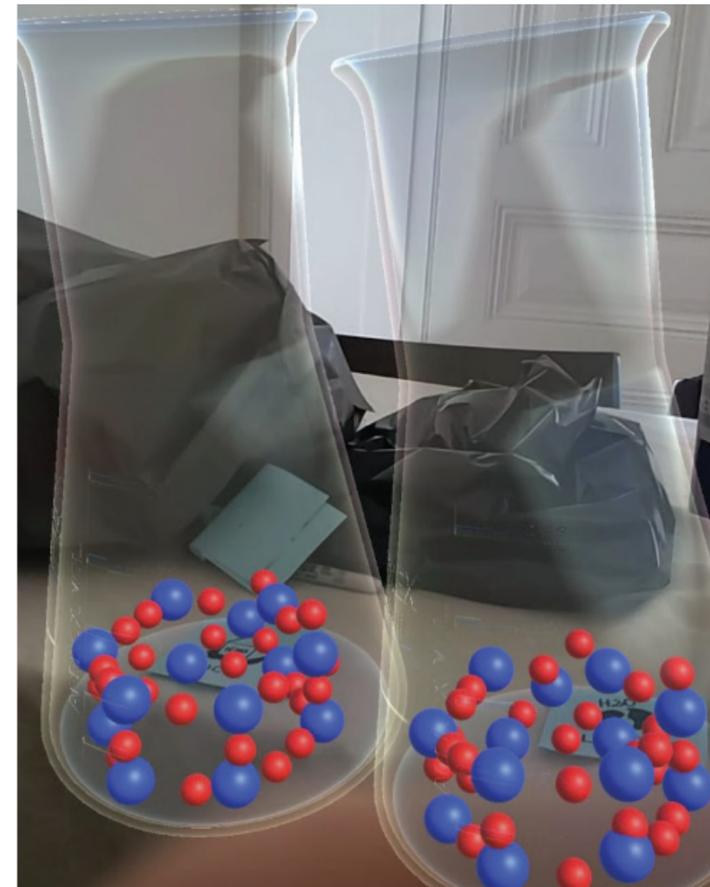
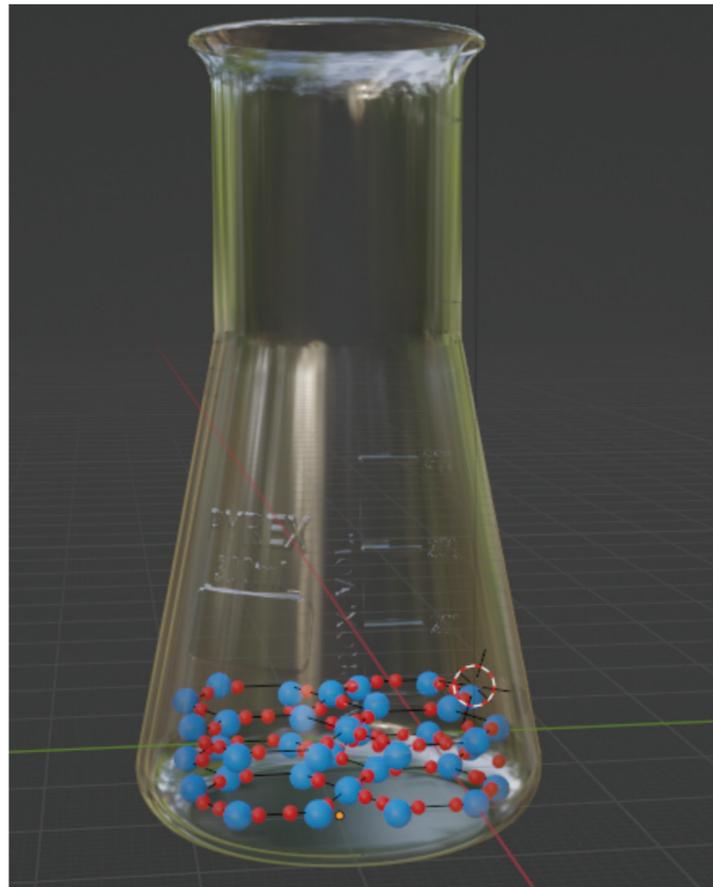
Aaron's time to create!



Aaron referenced the creator tool that I built in Unity to talk us through how he would design an AR experience for explaining enthalpy to his class.

Creating Aaron's AR Experience.

Animations were designed in Unity and built in AR using Vuforia.



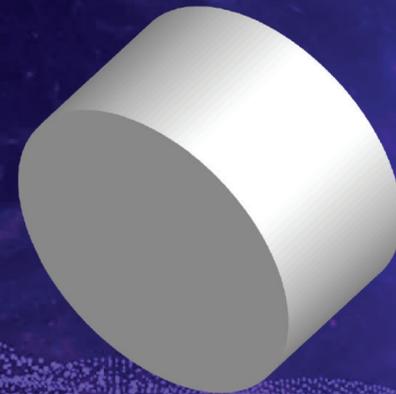
Stay tuned for final results!

I will observe Aaron using the AR
experience to teach his class enthalpy on
Friday, December 2, 2022.

I look forward to sharing results with you soon...

Nucleus

The "brain" of the cell



More

Citation

Authors

Definition

▶

The nucleus is a membrane bound structure that contains a cell's hereditary information and controls its growth and reproduction.

It is the command center of a eukaryotic cell and is usually the most notable cell organelle in both size and function.

Pull Up to Close

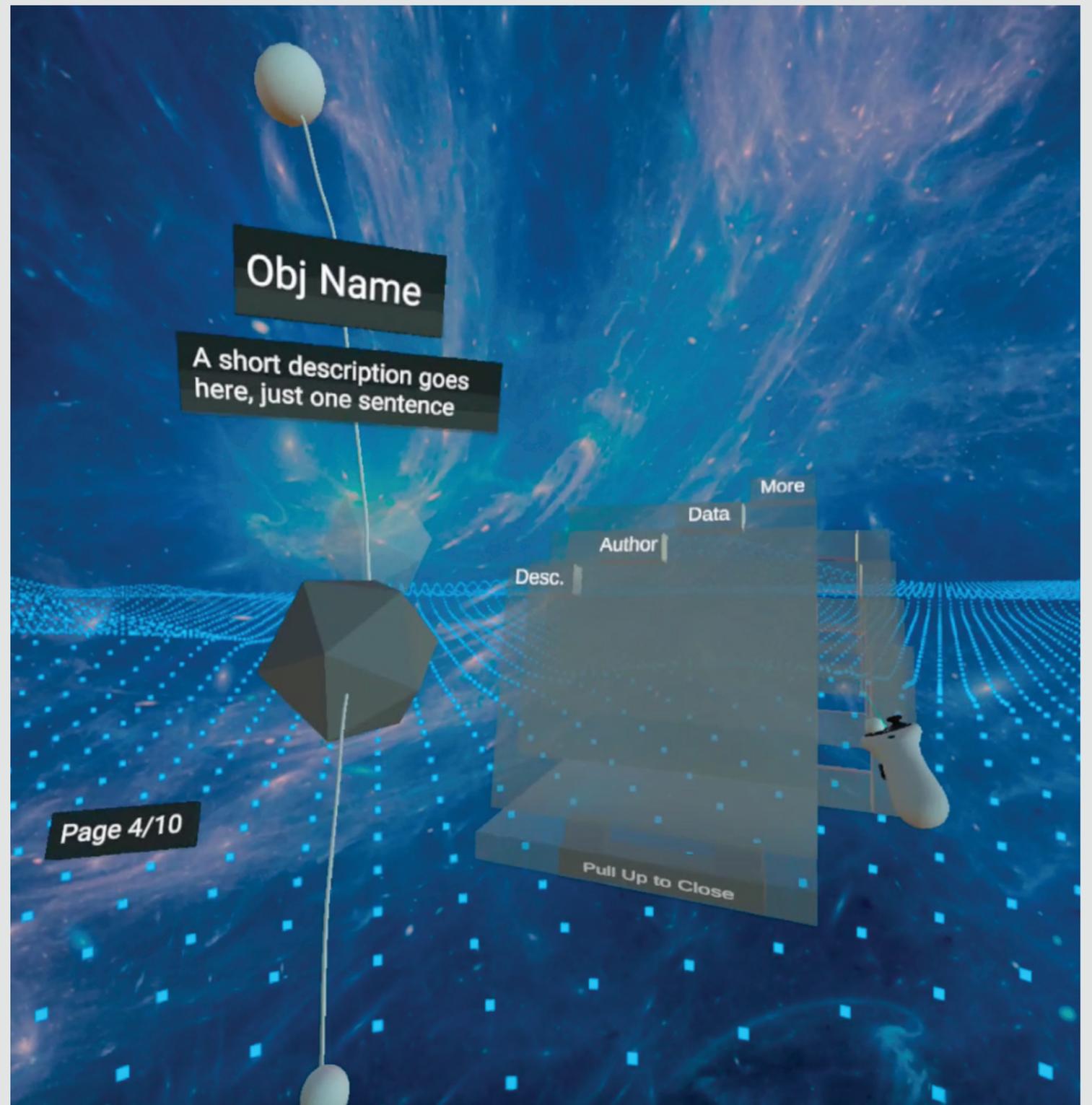
10k

Date: 2022

Tools Used: Unity, Blender, Illustrator, Photoshop, Shapes XR

I spent this summer as a product design intern for 10k where I increase efficiency by weighing production time vs. complexity tradeoffs. I achieved this using constant rapid prototype and iteration loops.

A key feature of 10k is ability to zoom into data points that contain massive scales, and explore the systems that make up that point. When I started at 10k, the zoom experience was disorienting and nauseating—my job was to design a new interaction to reduce nausea.



10k is a VR app to visualize the relative scale of datasets.

A key feature of is ability to zoom into data points that contain massive scales, and explore the systems that make up that point.



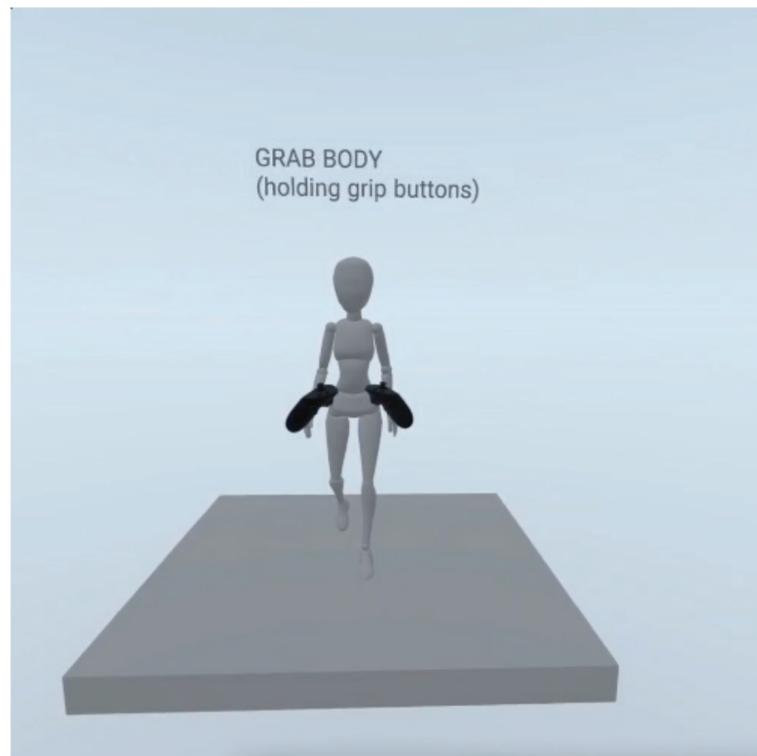
Eames, Powers of Ten (1977)

But the zoom is disorienting and can cause nausea.

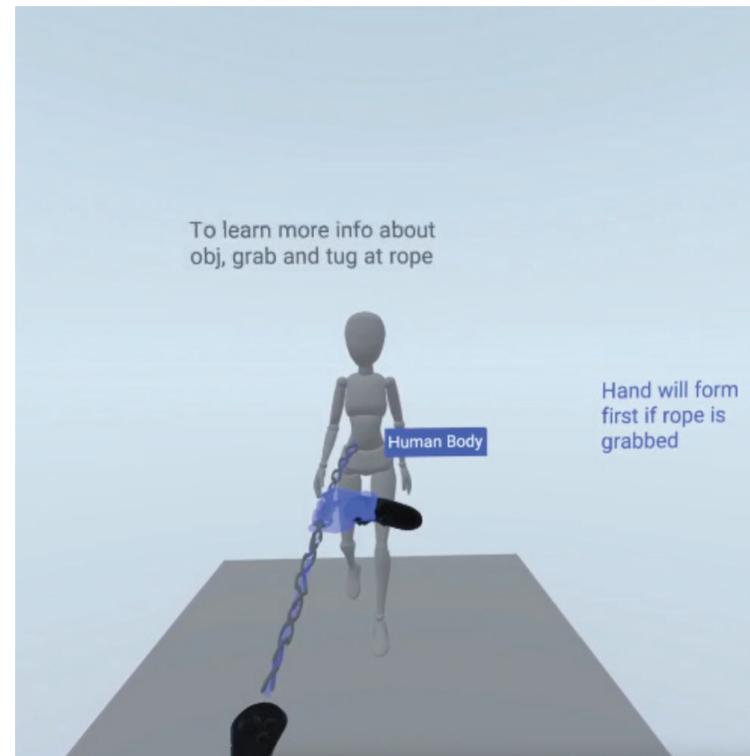
How might we improve the zoom experience to reduce nausea?

Prototyping three possible solutions.

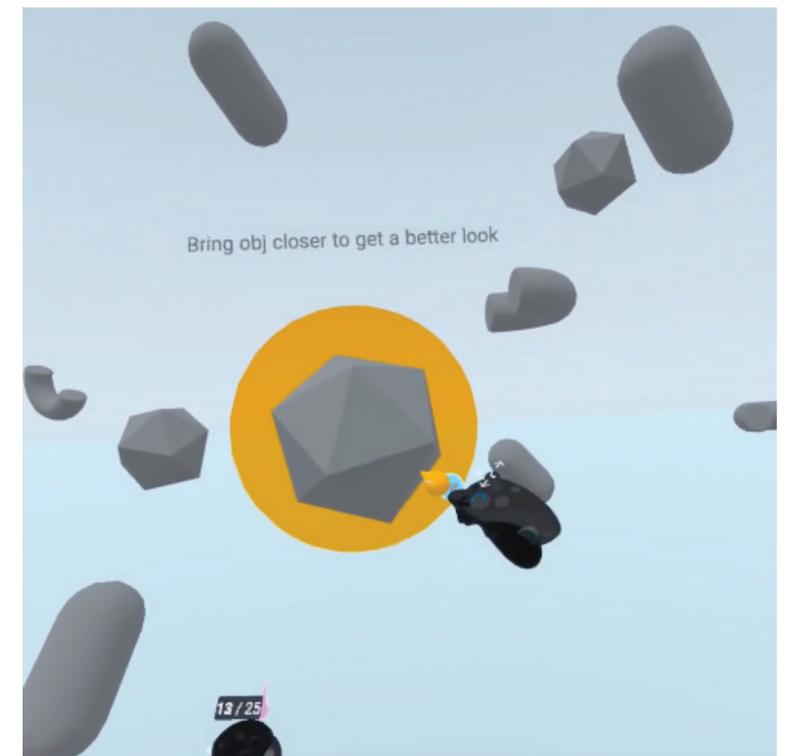
1 Pull inward by gripping with both controllers to enter object



2 Grip and pull rope for info and continue pulling to enter

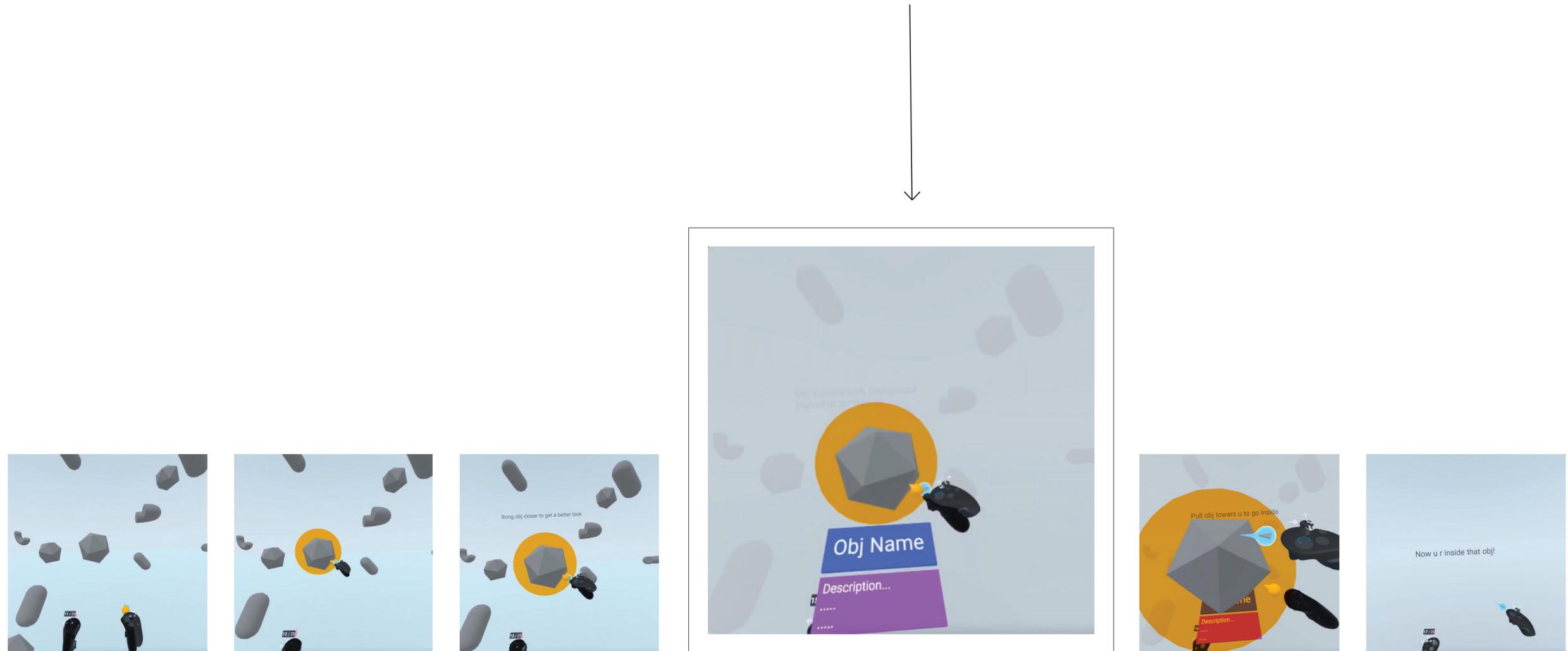


3 Grab object using grip button for info, bring objects closer to enter



Discovering focus mode.

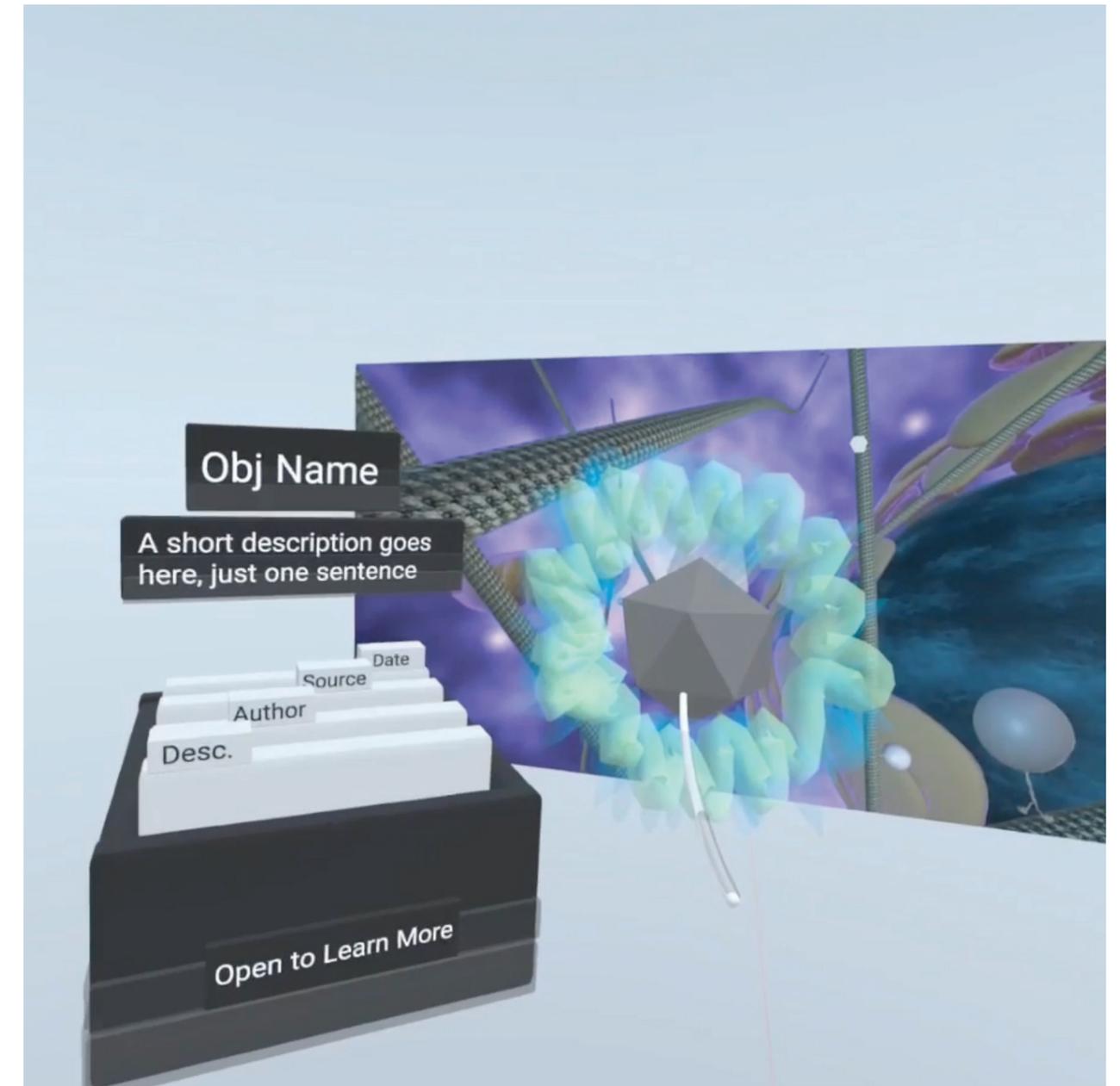
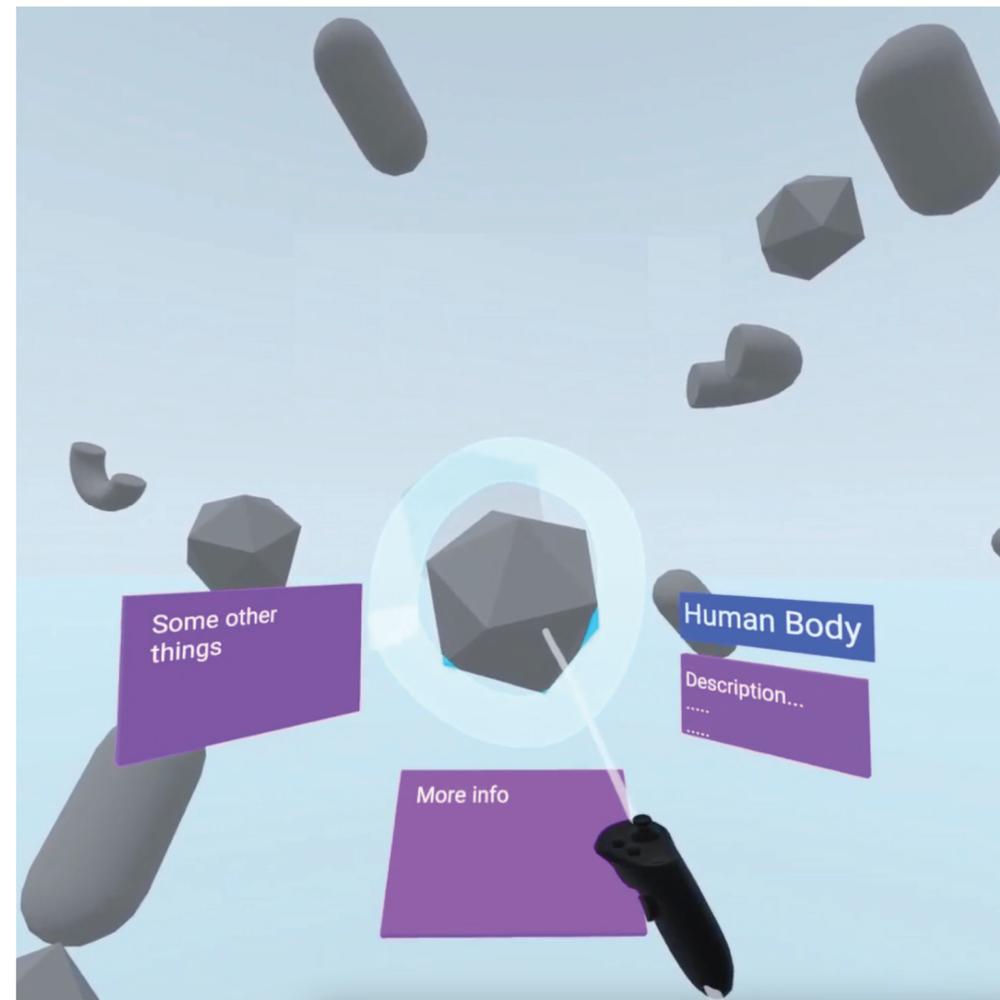
During discussion, my team was drawn to the Grab solution, and this screen in particular.



We saw an opportunity to show more text info and orient users before zooming, which may reduce nausea.

Organizing text information.

I rapidly iterated and found that cognitive overload would be a concern when visualizing more text.



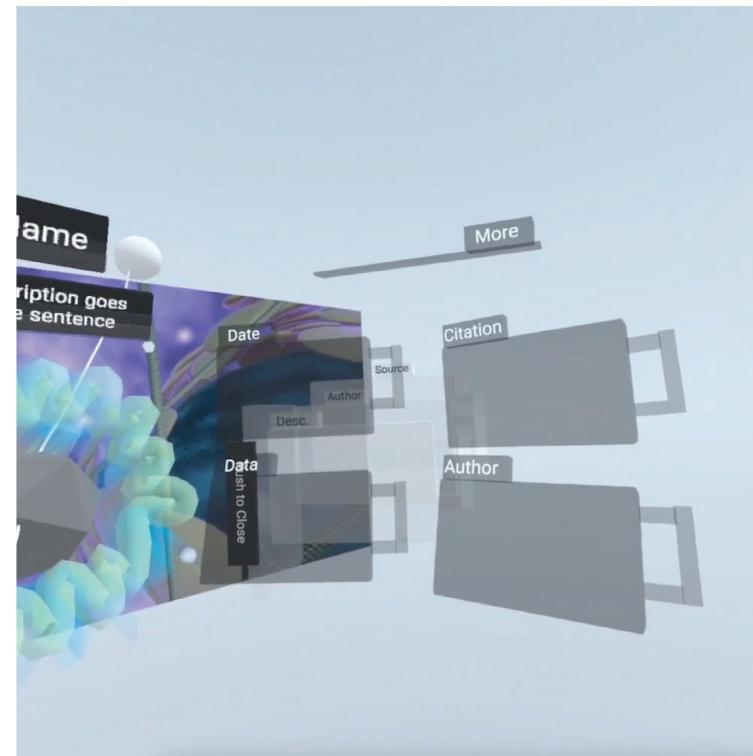
After receiving feedback on several ideations, I decided to organize text in a file cabinet—enabling people to pull out specific files of text to read.

Three rapid iterations based on feedback.

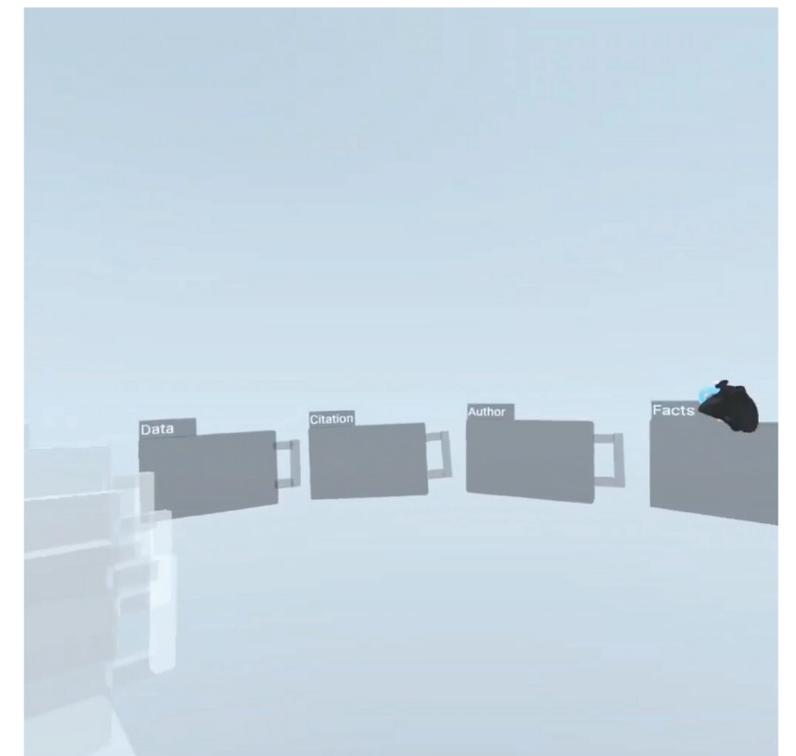
1 Pull cabinet out and grab top of file to place it in the scene



2 Open/close from side + Open "More" in a grid of meta files

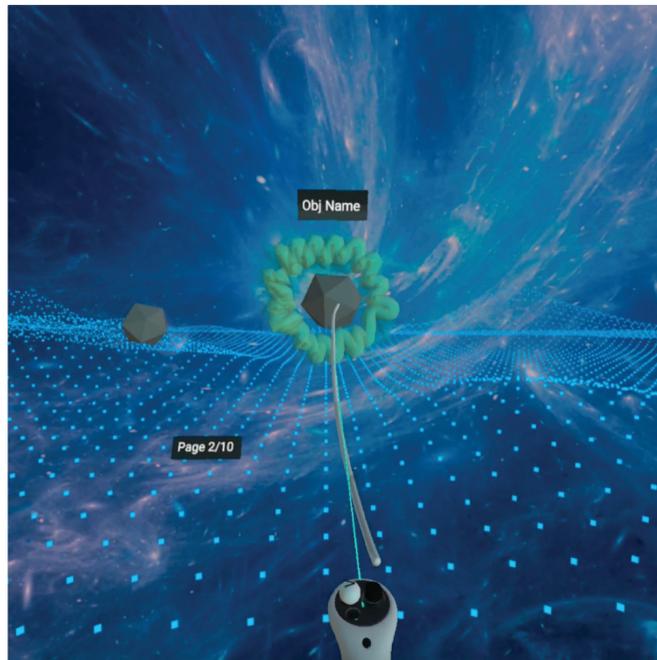


3 Open/close on rotation + Open "More" files on a curve

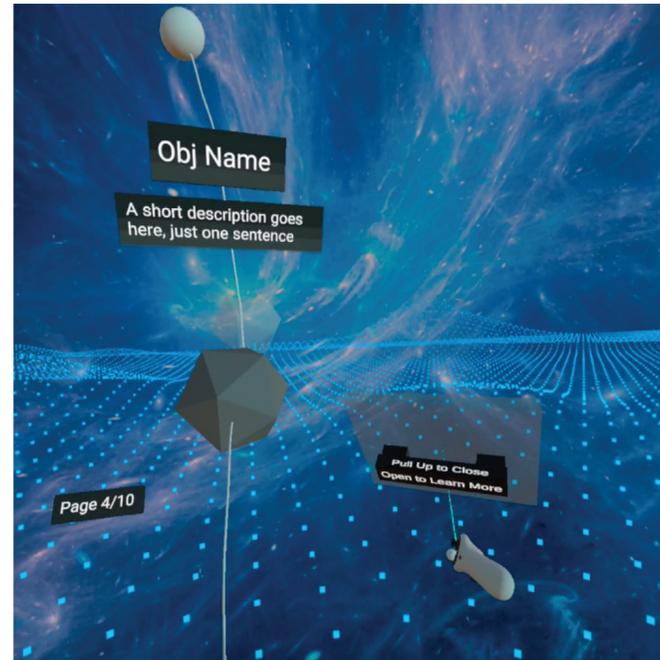


Building an interactive Unity prototype.

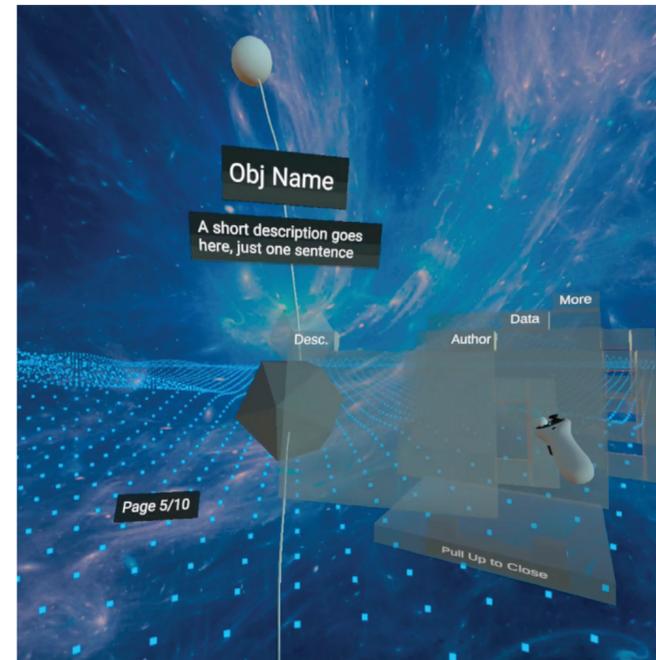
1 Hover to highlight object and pull to enter focus mode



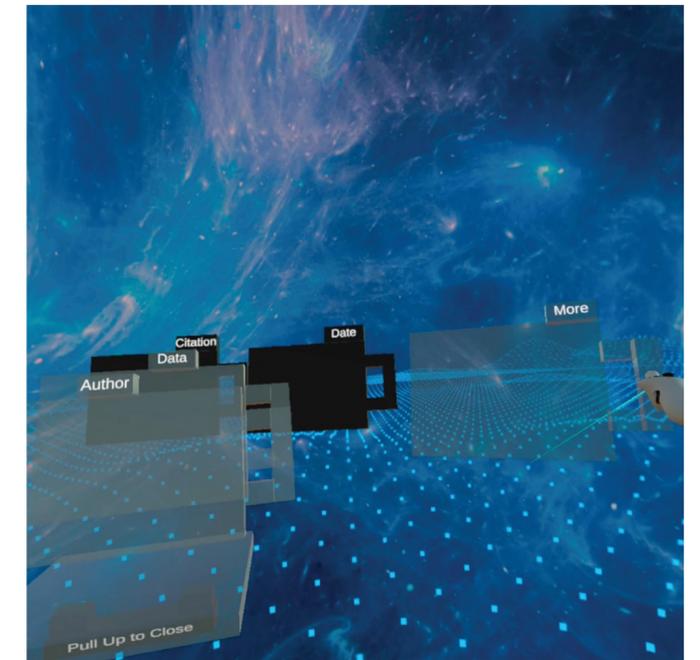
2 Open file cabinet to access more information



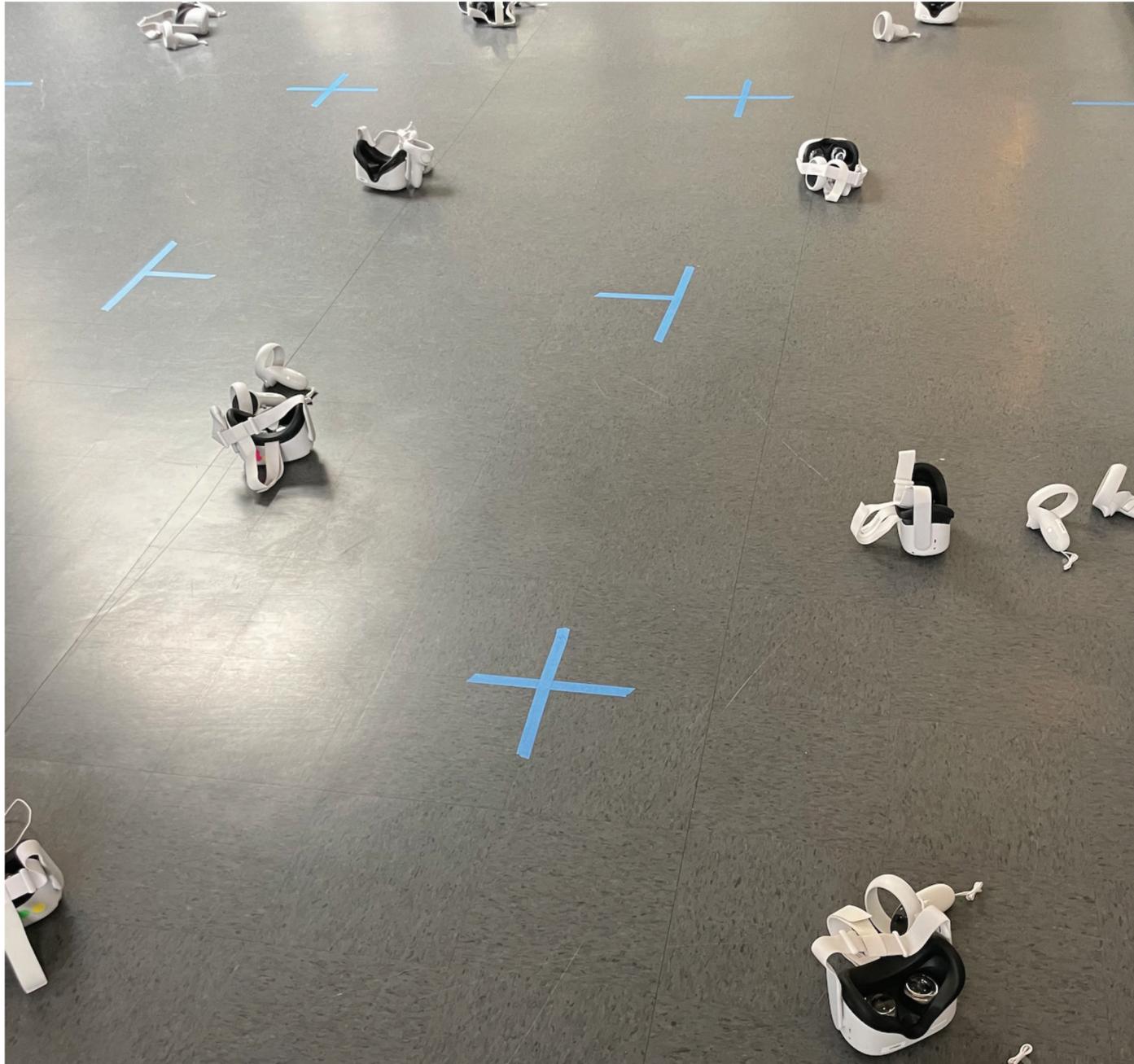
3 Grab and place files to explore information



4 Grab and pull "More" file on to see m



UX testing at Lawrence Hall of Science camp.

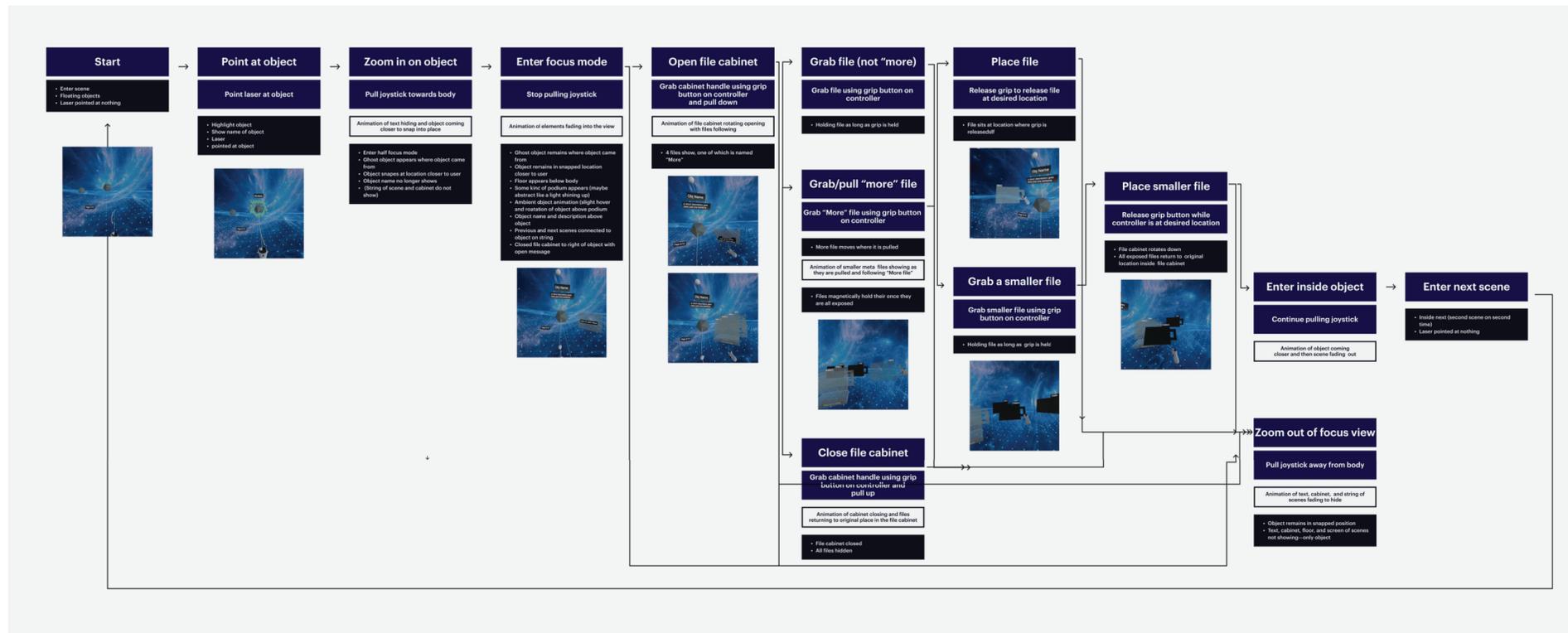
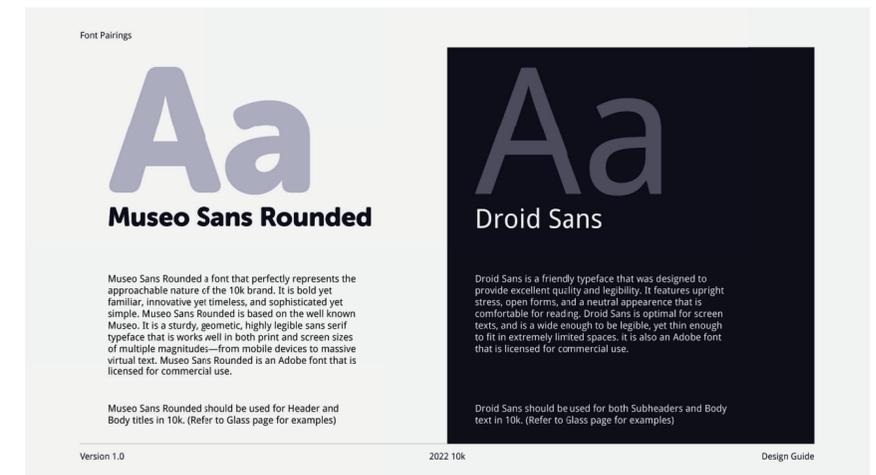
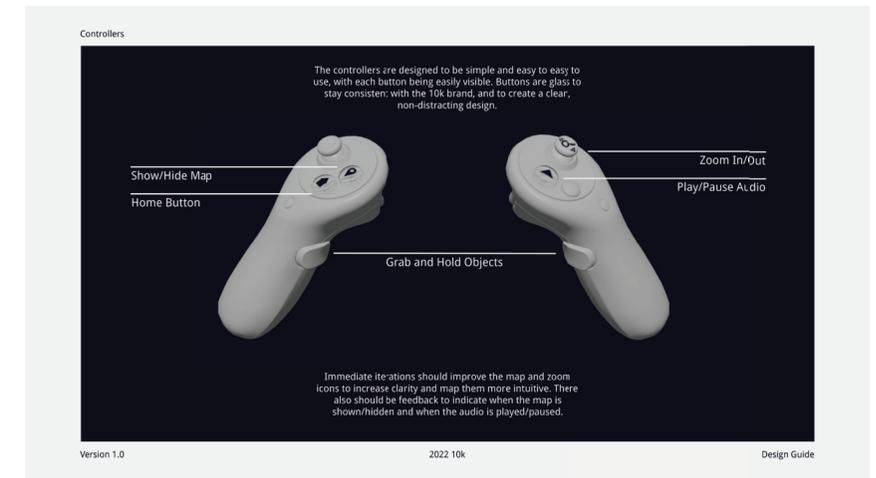
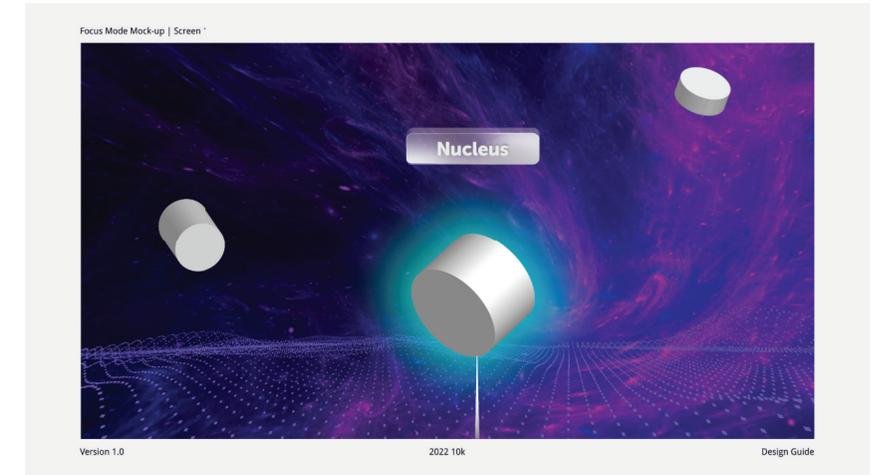


Results showed that focus mode did reduce nausea and that the file cabinet is an efficient method of organizing text—specifically users appreciated the ability to customize which information to show.

Areas for improvement emerged including: ability to skip over focus mode and necessity of a floor under user.

Documenting discoveries.

I documented findings and direction for future 10k designers/ developers to ensure that my work could make a lasting impact. The two main outputs are 1. a comprehensive user journey map to lead future development and a 2. detailed design guide to illustrate how those concepts might be implemented.

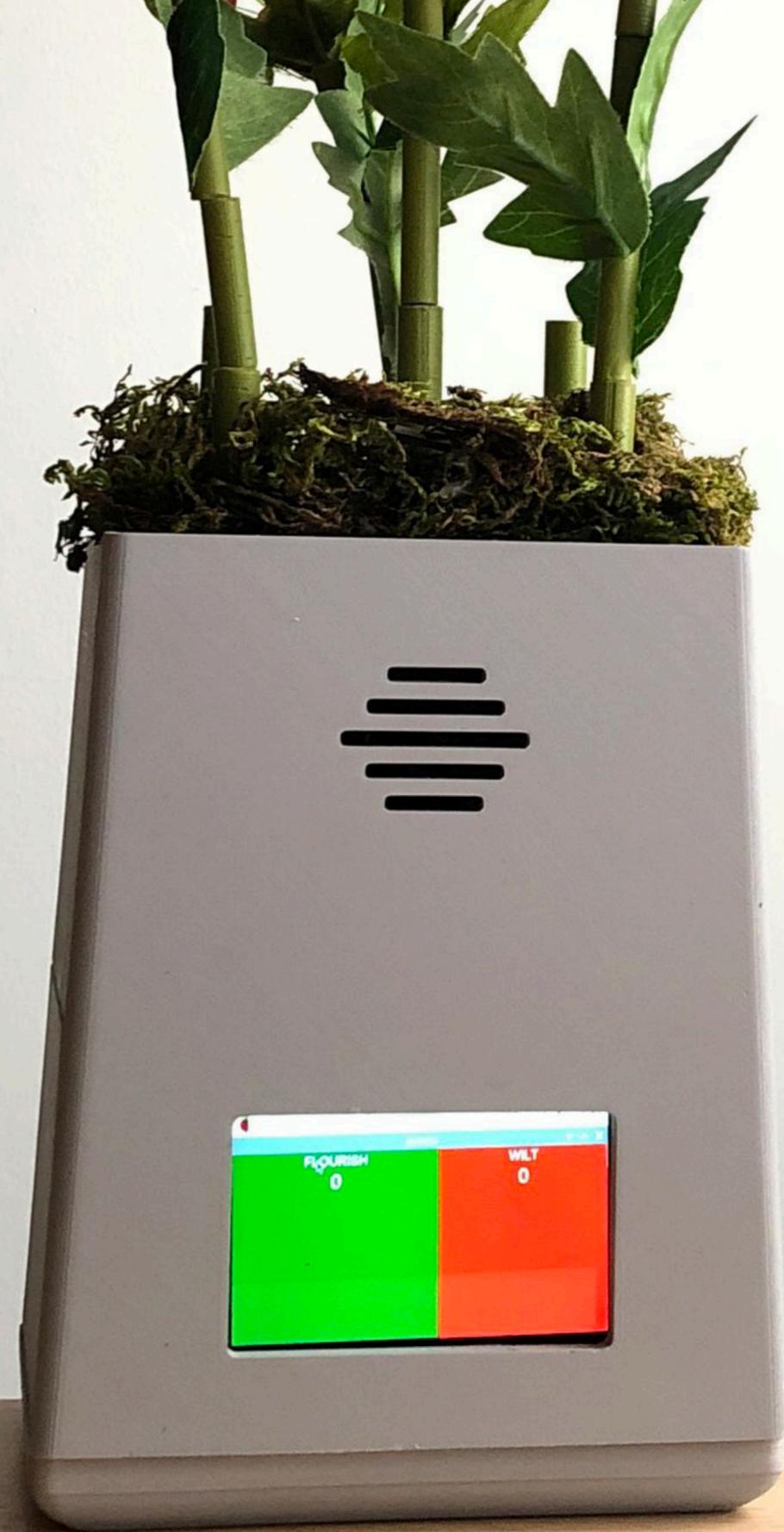


Bonus shoutout to my awesome team at Dyanmoid!

I had a great summer full of incredible growth, and I could not have done it without these great people.

(Us meeting in Spatial VR on my last day for “goodbye party”)





Cultivate

Date: 2021

Tools Used: Raspberry Pi, Python, Figma, Fusion 360, 3D Printing

I created Cultivate as a speculative design project to stimulate discussion about gender inequity in the workplace. I learned to design for unexpected purposes by applying a sophisticated design process and complex programming to such a controversial topic, .

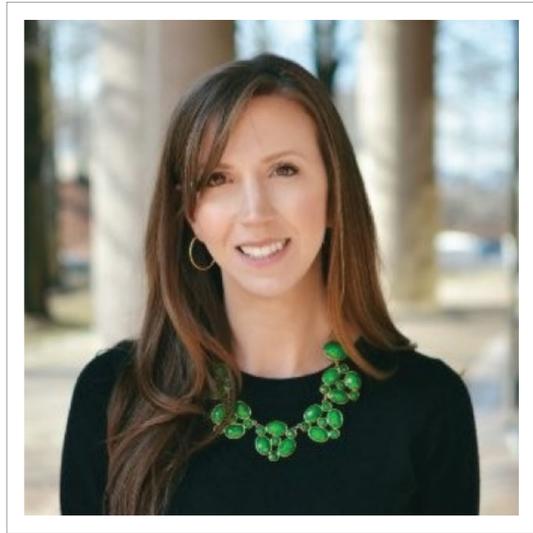
The final product is a whimsical 3D printed desktop plant that using a raspberry pi to analyze language sentiment and provide real-time feedback via wilting and flourishing of leaves.



Women are targets of microaggressions and biases at work.



"I am afraid to say, 'Hey, I don't feel fully included'"



"I overthink and practice to avoid female stereotypes."



"We all see a problem, but no one is doing anything."

How might we support a more inclusive work environment?

Ideating possible solutions.

Ambient Support

③ ACTION FIGURE



- listens to conversations
- identifies issues w/ inequality
- lights up to speak & teach lessons for equality@work

The purpose of this product is to listen to conversations in the room and recognize problems in communication. When the figure recognizes problem areas, it will light up and speak to educate the person/team on how they can do better.

Ambient Inclusivity Analysis

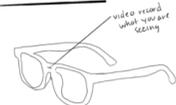
② Inclusivity Reactant Plant



- Plant can hear conversations in room & determine levels of inclusivity
- at low inclusivity plant wilts
- at high inclusivity plant flourishes

The purpose of this is to assess the level of inclusivity at work. The plant would be able to listen to conversations in the workplace and will provide a visual of how inclusive the space is. The plant will flourish in high levels of inclusivity, and wilt at low levels. This can give everyone in the space a better idea of how their actions are interpreted without women needing to directly confront the problem.

Glasses

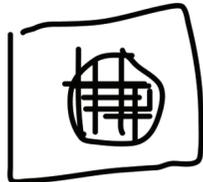


"Capturing what we see has the power to many lens of perspectives. By allowing someone to see a different perspective we can open new views into the world we see."

Wearable Clip



"If aware of when we are not treated positively could be of the first steps in enhancing yes. With just a signal our we can stop and change our undings."



Analyzer - analyzes what's said in the room to track microaggressions
Put inside room

Wearable Support

① Call for Support Bracelet



- Press when you need support
- can notify other women (or men) on team

The purpose of this is to provide a way for women to find support at work. If they are in a meeting, or a conversation, or just struggling with an assignment they can press the button on their bracelet to notify a person (coworker) who is able to provide support.

Wearable Clip

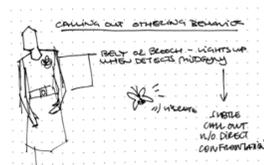


"aware of when we are not acted positively could be the first steps in enhancing yes. With just a signal our we can stop and change our undings."



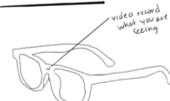
Accountability system that tracks progress in real-time with a push button
To have checks and balances, pocket button to silently track when injustice is happening.

Wearable Ambient Calling Out



Wearable
This sketch to the left is a device that can be worn as a brooch or belt that lights up and vibrates when it detects misogynistic or othering behavior directed at the user. It is a subtle, non-direct confrontation that could be suitable for the workplace setting.

Glasses

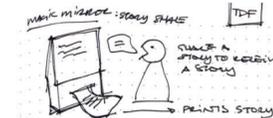


"Capturing what we see has the power to many lens of perspectives. By allowing someone to see a different perspective we can open new views into the world we see."



Computer vision pin that women can have on their clothes
Can assess/track people being inappropriate or rude

Storytelling and Sharing

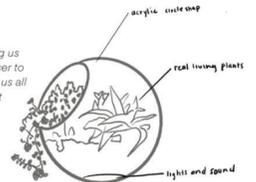


Story Sharing
This sketch illustrates an experience where the user shares their own story of workplace mistreatment and receives a story from someone else in return. This would be a way to tell and share stories more asynchronously. This idea was inspired by this automatic tarot card reader that prints out your reading!

Social Justice Decor

① Desk plant

"Nature has a way of soothing us humans. Incorporating a closer to nature desk plant will inspire us all to stay calm even in the most stressful times"



Narrowing Ideations.

1 Ambient Intervention

2 Wearable Device

3 Reliable Support

Ambient Support

⑤ Action Figure



- listens to conversations
- identify issues w/ inequity
- lights up to speak & teach lessons for equality@work

The purpose of this product is to listen to conversations in the room and recognize problems in communication. When the figure recognizes problem areas, it will light up and speak to educate the person/team on how they can do better.

Ambient Inclusivity Analysis

② Inclusivity Reactant Plant



- Plant can hear conversations in room & determine level of inclusivity
- at low inclusivity plant wilts
- at high inclusivity plant flourishes

The purpose of this is to assess the level of inclusivity at work. The plant would be able to listen to conversations in the workplace and will provide a visual of how inclusive the space is. The plant will flourish in high levels of inclusivity, and wilt at low levels. This can give everyone in the space a better idea of how their actions are interpreted without women needed to directly confront the problem.

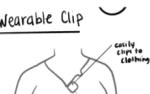
Glasses



video record what you are seeing

"Capturing what we see has the power to many lens of perspectives. By allowing someone to see a different perspective we can open new views into the world we see."

Wearable Clip



can be clip to clothing

is aware of when we are not treated positively could be of the first steps in enhancing us. With just a signal our we can stop and change our undress."



Analyzer - analyzes what's said in the room to track microaggressions

Put inside room

Wearable Support

① Call for Support Bracelet



- Press when you need support
- can notify other women (or men) on team

The purpose of this is to provide a way for women to find support at work. If they are in a meeting, or a conversation, or just struggling with an assignment they can press the button on their bracelet to notify a person (coworker) who is able to provide support.

Wearable Ambient Calling Out

Wearable



calling out other's behavior

body as brooch - vibrates up when detects misogyny

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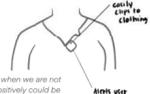
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Accountability system that tracks progress in real-time with a push button

To have checks and balances, pocket button to silently track when injustice is happening.

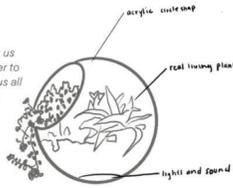


Computer vision pin that women can have on their clothes

Can assess/track people being inappropriate or rude

Storytelling and Sharing

① Desk plant



air purifier, real living plants, light and sound

"Nature has a way of soothing us humans. Incorporating a closer to nature desk plant will inspire us all to stay calm even in the most stressful times"

Story Sharing



magic mirror - story space, TDF, share a story to receive a story, prints story

This sketch illustrates an experience where the user shares their own story of workplace mistreatment and receives a story from someone else in return. This would be a way to tell and share stories more asynchronously. This idea was inspired by this automatic tarot card reader that prints out your reading.

Rapid Prototyping.

1 Ambient Intervention— detect/react to sentiment analysis in real-time



2 Wearable Device— notify trusted colleagues when support is needed

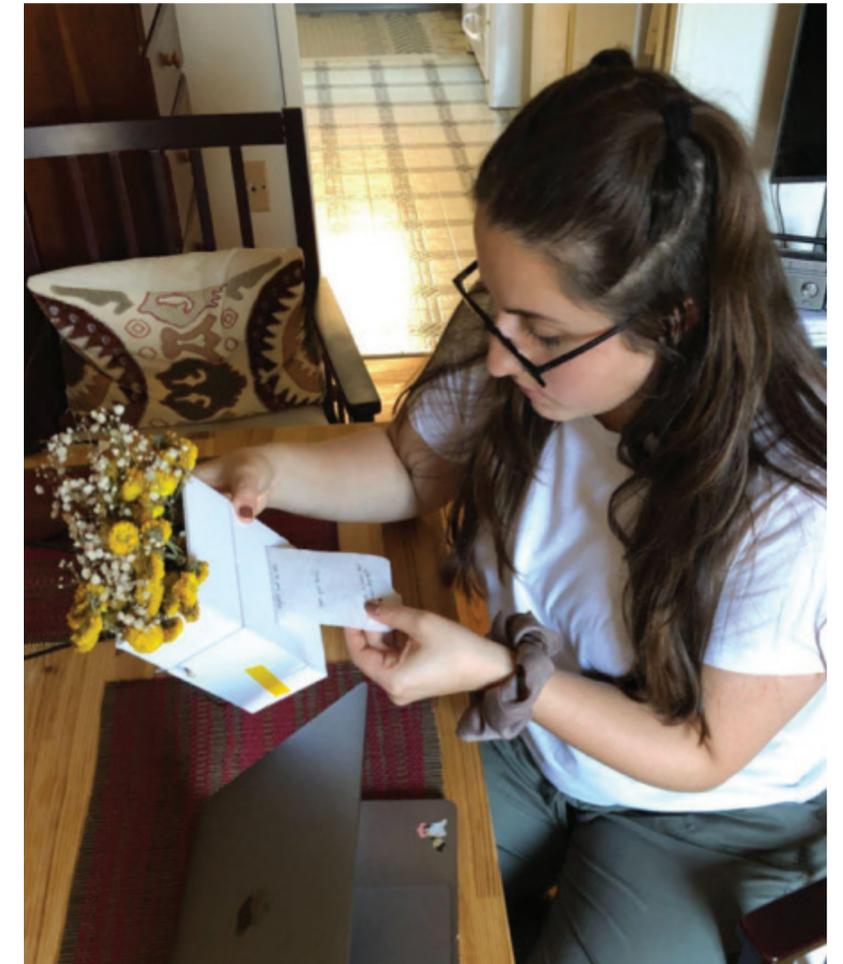


3 Reliable Support— listen to stories and provided feedback/support



User Testing.

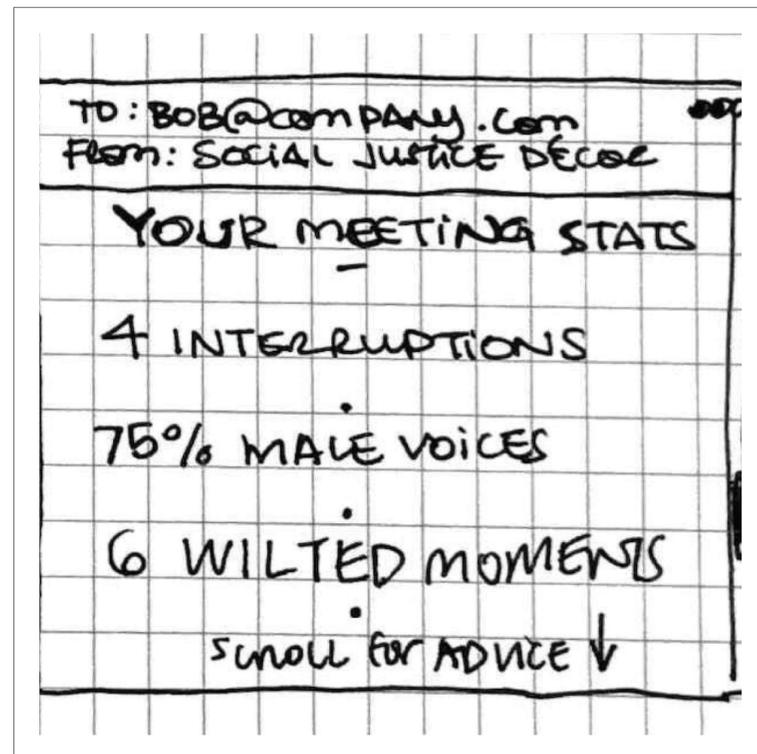
During testing, there was a clear preference towards the ambient intervention prototype. Users appreciated the unobtrusive and unbiased nature of the plant. We did, however, discover a major concern around data privacy.



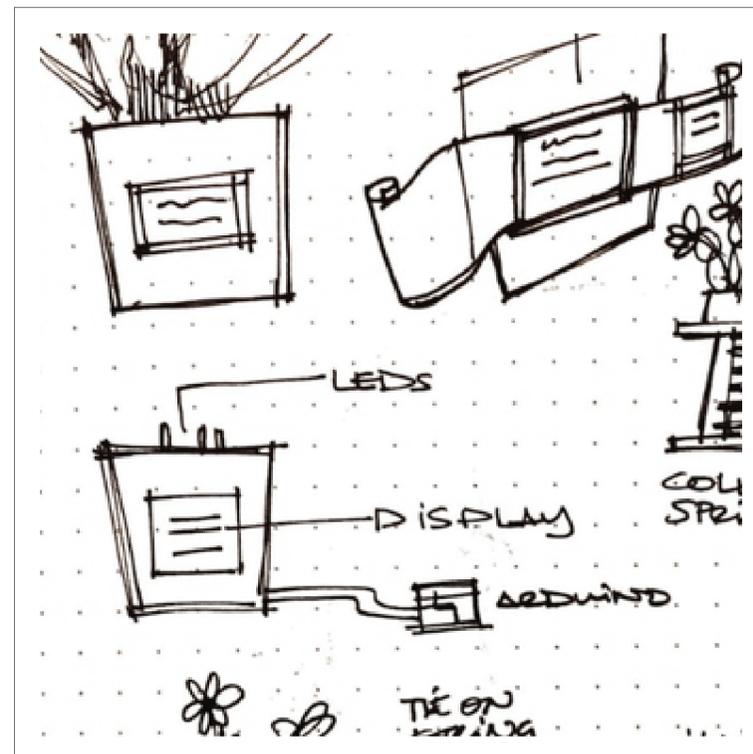
Iterating based on feedback.

We iterated our design based on feedback and storyboarding. The main iterations were:

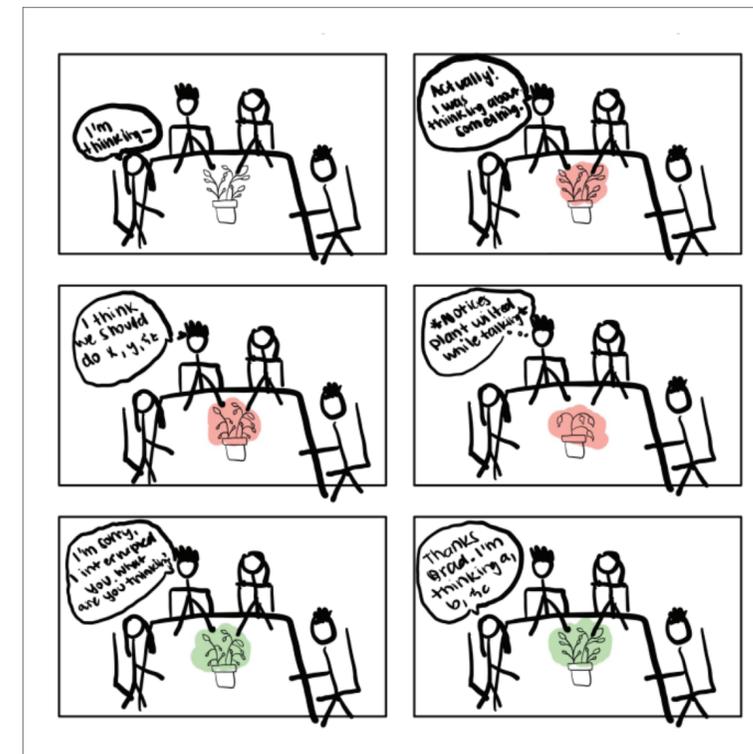
- 1 Abstract data collection—count of negative/positive instances rather than direct quotes and names



- 2 Data present on product's GUI screen



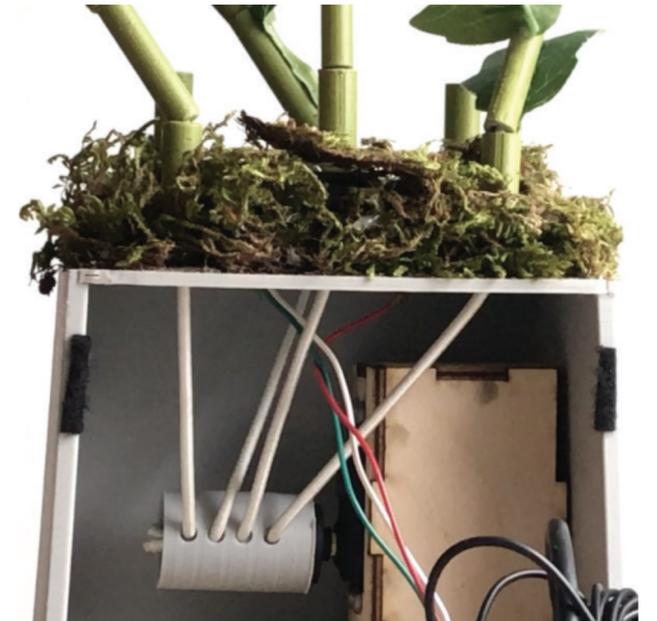
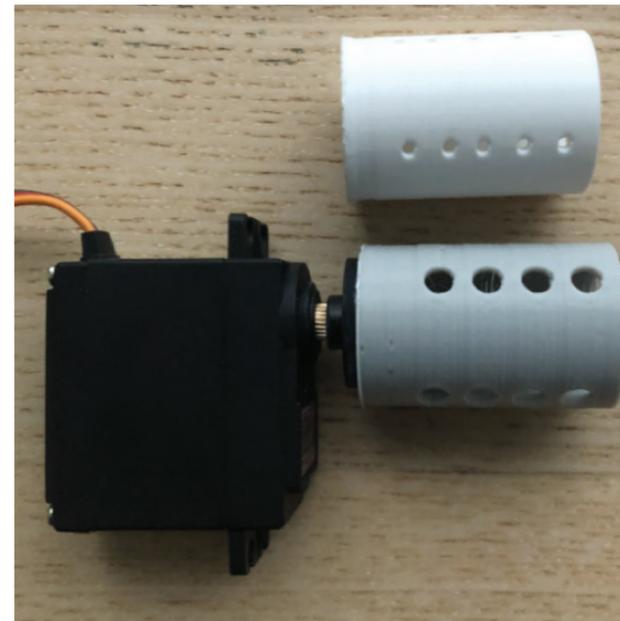
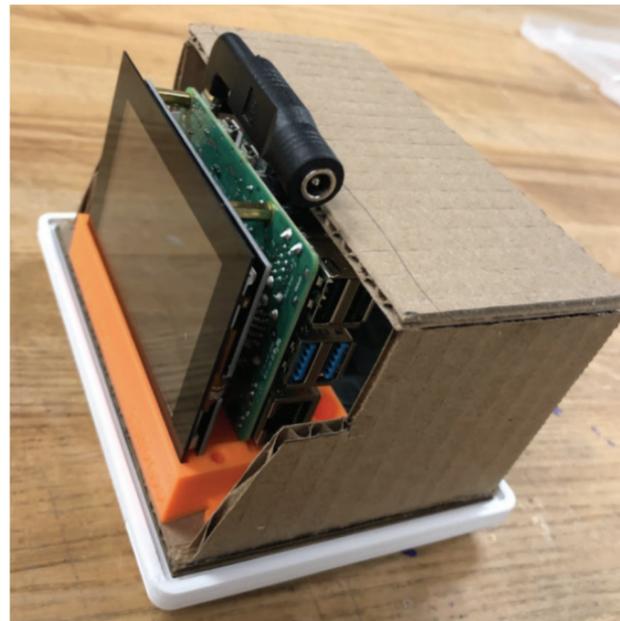
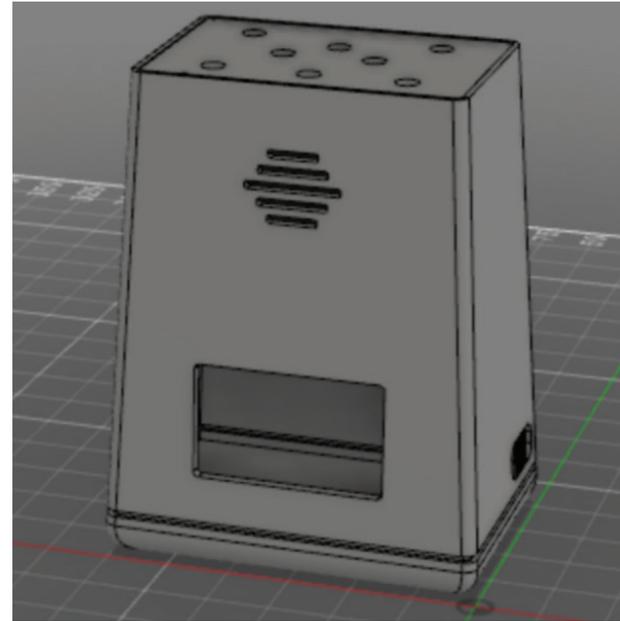
- 3 Implementation of colored LED lights to clearly indicate the difference between wilt and flourish



Fabrication

The final product was fabricated using a combination of 3D printed parts. The magic behind this product is a custom spool, which attaches each individual plant to a servo motor.

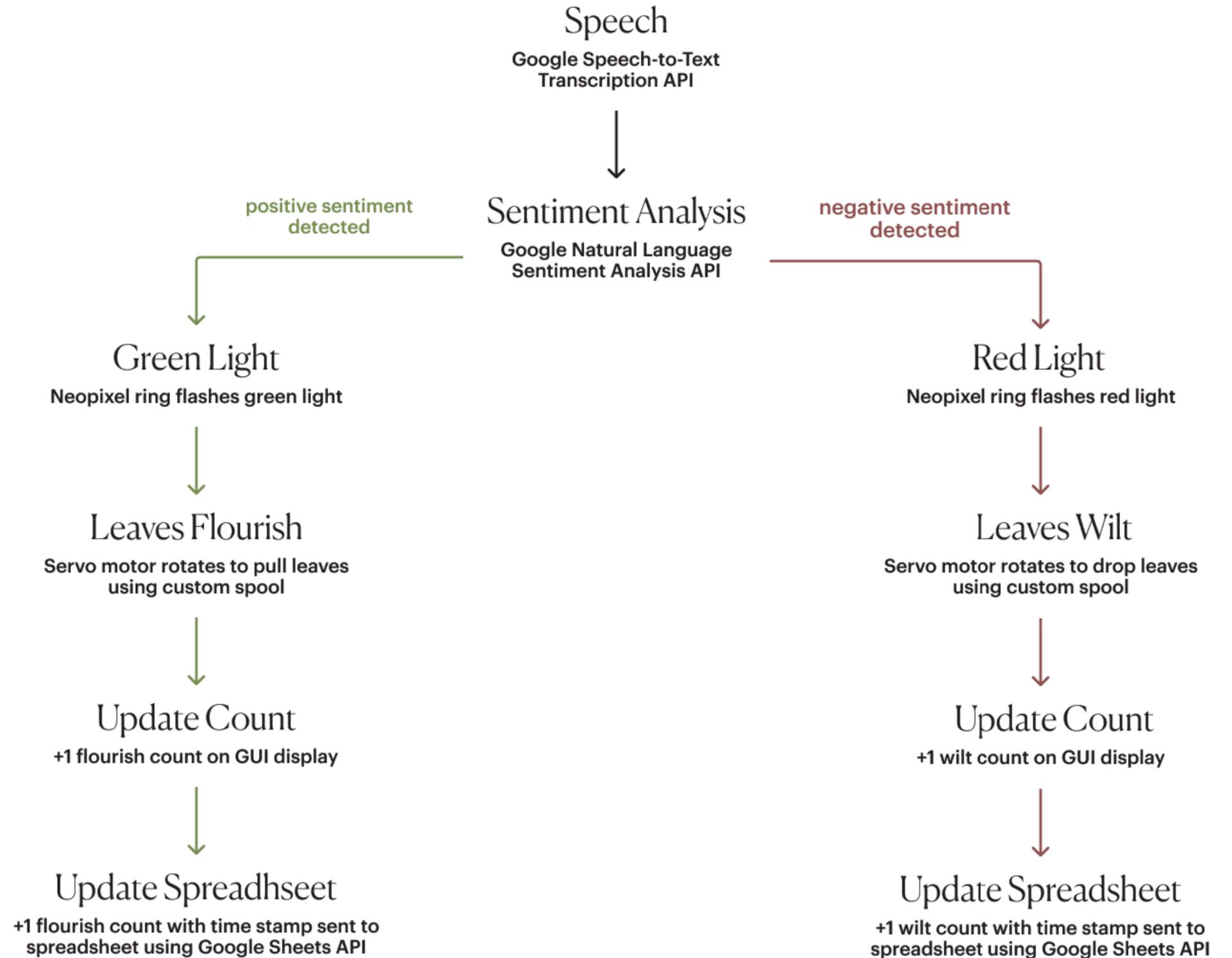
Well, actually the real magic is Benal Johnson, an inspiring Industrial Designer (and friend) who I feel lucky to have the opportunity to work with.



Programming

Alright, this magic was all me!

I used Python and Google Cloud API on a Raspberry Pi to capture, transcribe, record, and analyze speech and react to that speech in real-time.



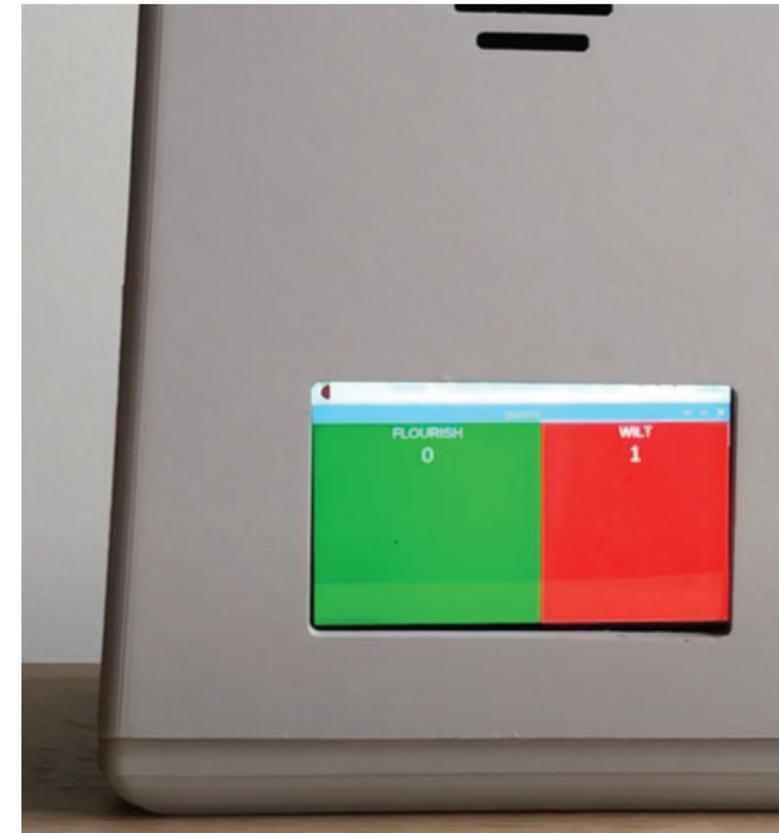
Final Design



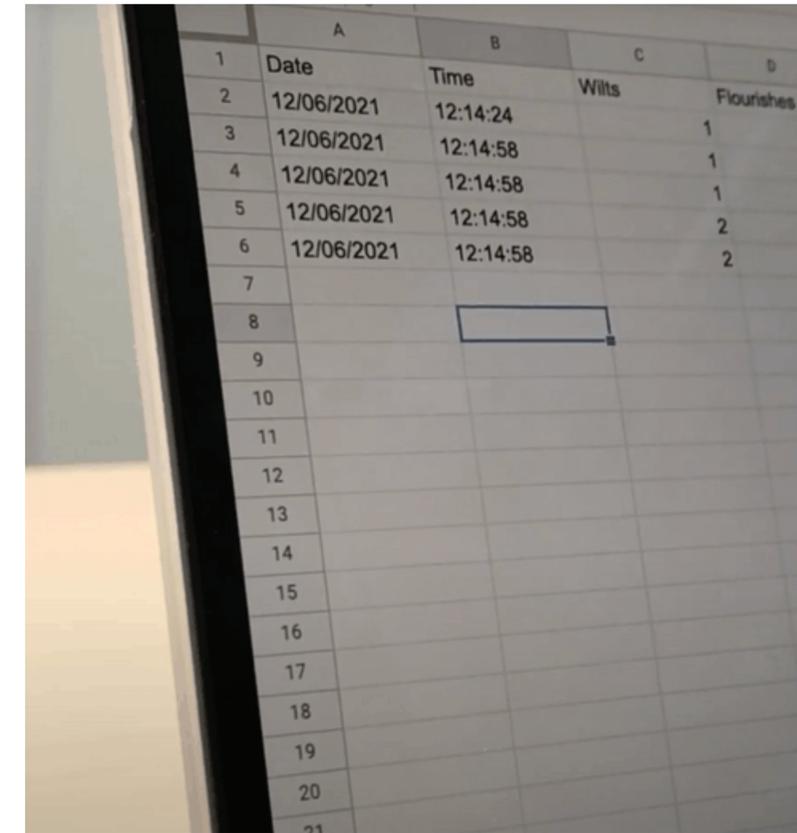
Positive sentiment triggers flourish
+ Green LED light.



Negative sentiment triggers wilt
+ Red LED light



Wilt count increases by one.



Instances of wilt/flourish automatically
collected on Google Sheets.v

When life feels like a storm, ride the **WAV**



WAV

Date: 2021

Tools Used: Adobe Illustrator, Figma

I created WAV as a design exercise to explore the use of unconventional design practices to display information in a more intuitive and abstract way.

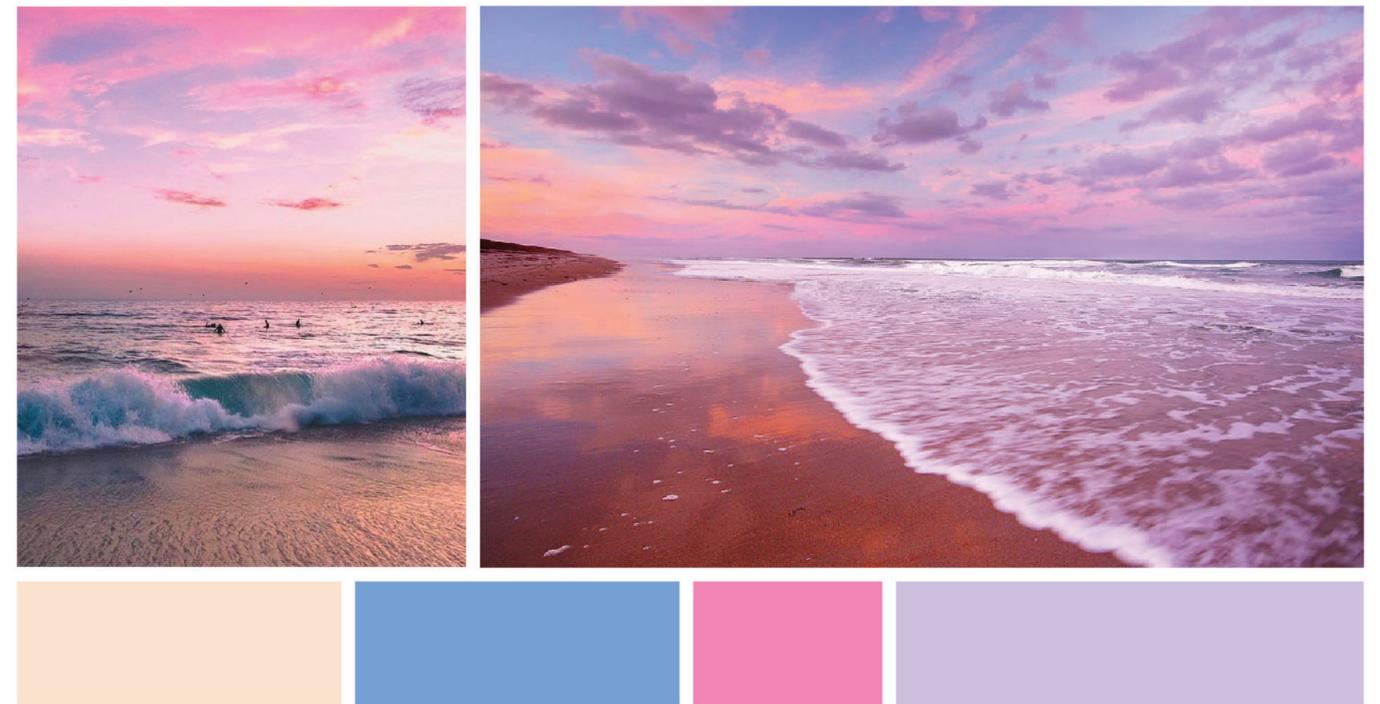
WAV is a connected wearable device and mobile application to detect stress and level and provide an intervention to help a user relax. The result is high fidelity mobile interface and wearable mock-ups as well as a complete brand guide to create brand identity.

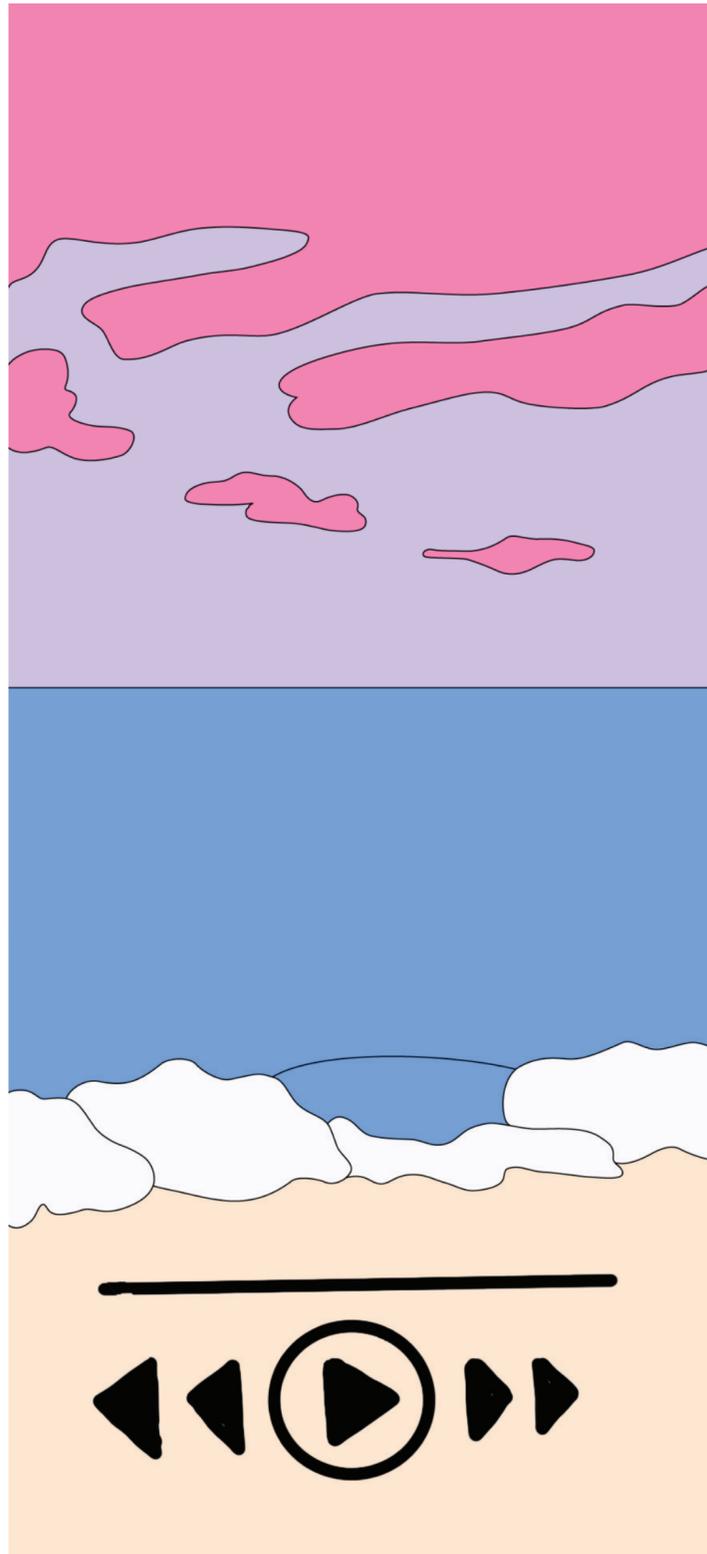
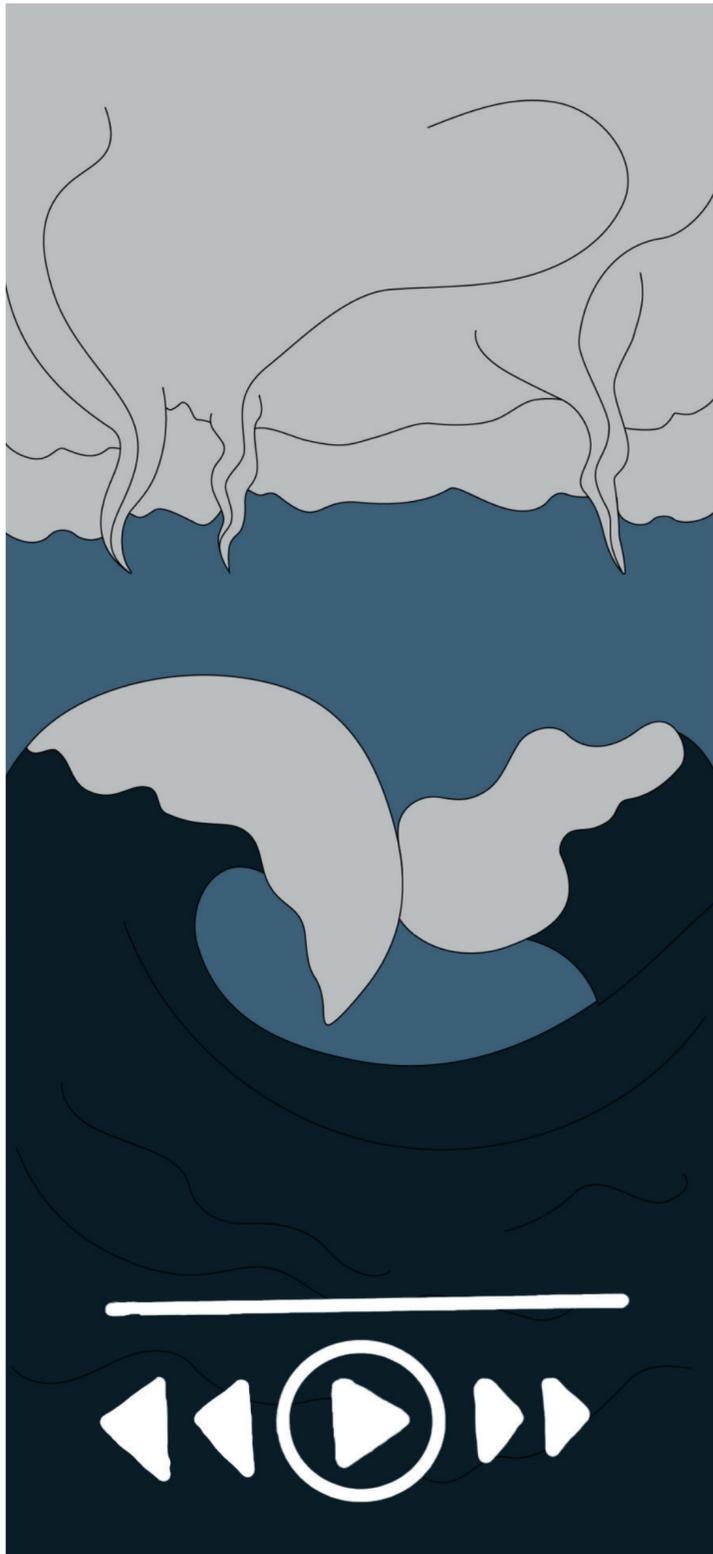


Mood Boarding.

Stress is a great ocean storm,
overwhelmed by dark navys and blue.

Relaxation is a calm day on the beach
shore with a calm cotton candy sunset.



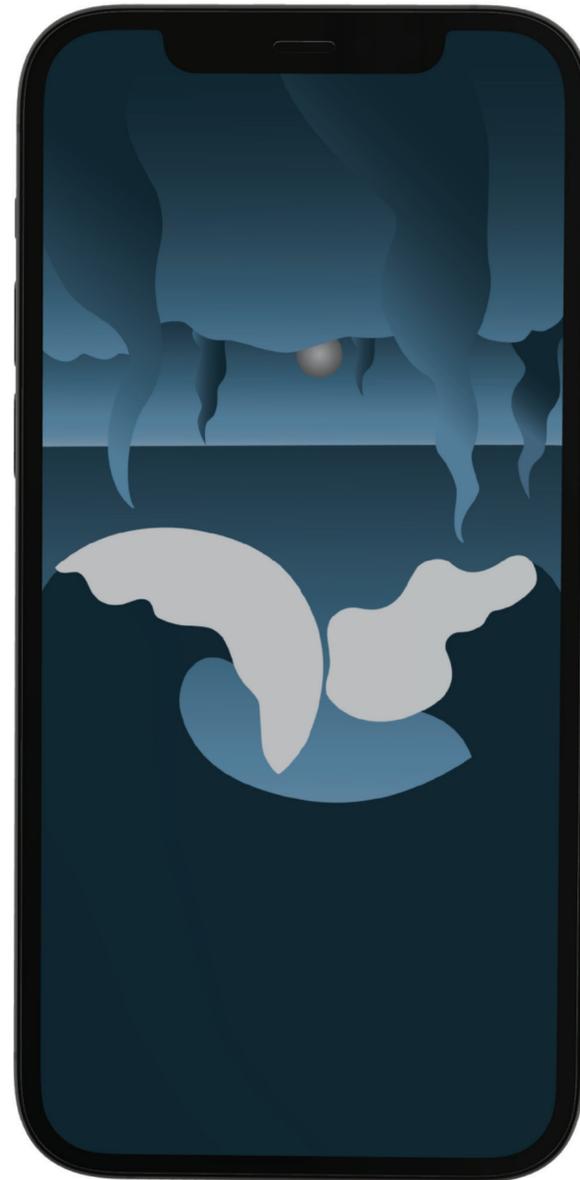


Sketching Interactions.

When stress is detected, a storm will start brewing on the WAV mobile app. Music will start playing to relax the user. As the user relaxes, the storm will calm down until a sunset is reached—representing the ultimate state of relaxation.

Iterating representation of stress level.

Number of tornadoes



Number of lightning bolts



7

Number of waves





Finalizing design.

+ Adjusting colors to represent stress with ominous warm tones, and relaxation with bright cool tones.

WAV Brand Guidelines

Creating brand identity.

Colors Palette

Stressed



Relaxed



What's Up, WAV?

When life feels like a storm, ride the WAV.

Sometimes life can be a lot. One moment you can be enjoying a nice swell, and the next you are getting swept into a riptide of your own thoughts. Then almost out of nowhere, you are in the middle of a thought storm.

We've learned that when this happens, instead of giving into the storm, it's best to remain chill and wait until a wave comes to take your mind back to shore.

But man, that's hard to do! That's is why we're stoked to share WAV with every bro and babe who is trying to chill.

Place WAV on your ear where it can detects your stress level using skin conductivity. It makes you look pretty sick too.

If WAV detects stress, it will notify you on your phone and start playing some relaxing music right into your ears. All that's left for you to do is kick back, enjoy the tunes and chill so you can start enjoying this crazy wave that we call life.

Typography

Ride the WAV

Usual Extra Bold 80 pt

Heading

Those are some gnarly waves, dude

Usual Medium 36 pt

Subheading

Kick back and enjoy the tunes while you ride this wave

Usual Regular 20pt

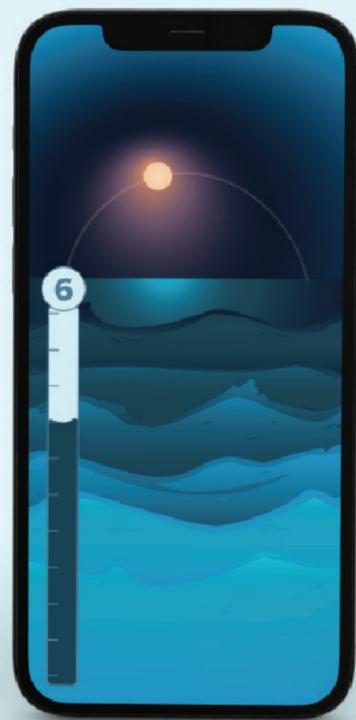
Body

We like to keep things chill here at WAV, that's why we use Usual.
This font comes with no surprises. Every detail about this font from the curves to the widths are, well, usual.

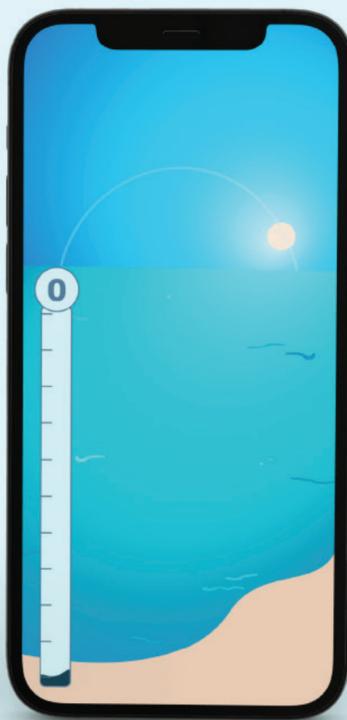
Motion of the Ocean



Stress Detected
Chill Music Starts



Riding the WAV
Relaxing to some tunes



Stress Reduced
Chillness Achieved

Wearable



Material
Recycled paper clips

Rechargeable
USB-C port behind ear

Audio Player
Speaker at ear opening, where wave ends

Stress Detection
Skin conductivity sensors behind ears

Grid Study

Top of Sun Path

Top of Stress Meter

Bottom of Wave Potential



Interactions



Stress Level
Number of waves, also shown on Stress Meter

Audio Player
Location of sun represents place in song (rise on left at song start)

