

# Portfolio

**Jan-Simon Veicht**

Berkeley, CA

2022

2022

**Designer**

**Strategist**

**Generalist**



# 01 Audiomycelia

Mushroom-based headphones and designing for preferable consumption.



# 02 Meshpass

Subscription citizenship and the future of passports in the States.



# 03 Glasshouse

Promoting togetherness through indoor gardening in a time of remote tangibility.



# 04 Fable

Augmented Reality application for communal art making at Albany Bulb, CA.



# 05 XR Controller

Human Factors of mid-air mixed reality text input on construction sides.



# 06 Design@Large

Research on EV battery recycling for a french multinational company.

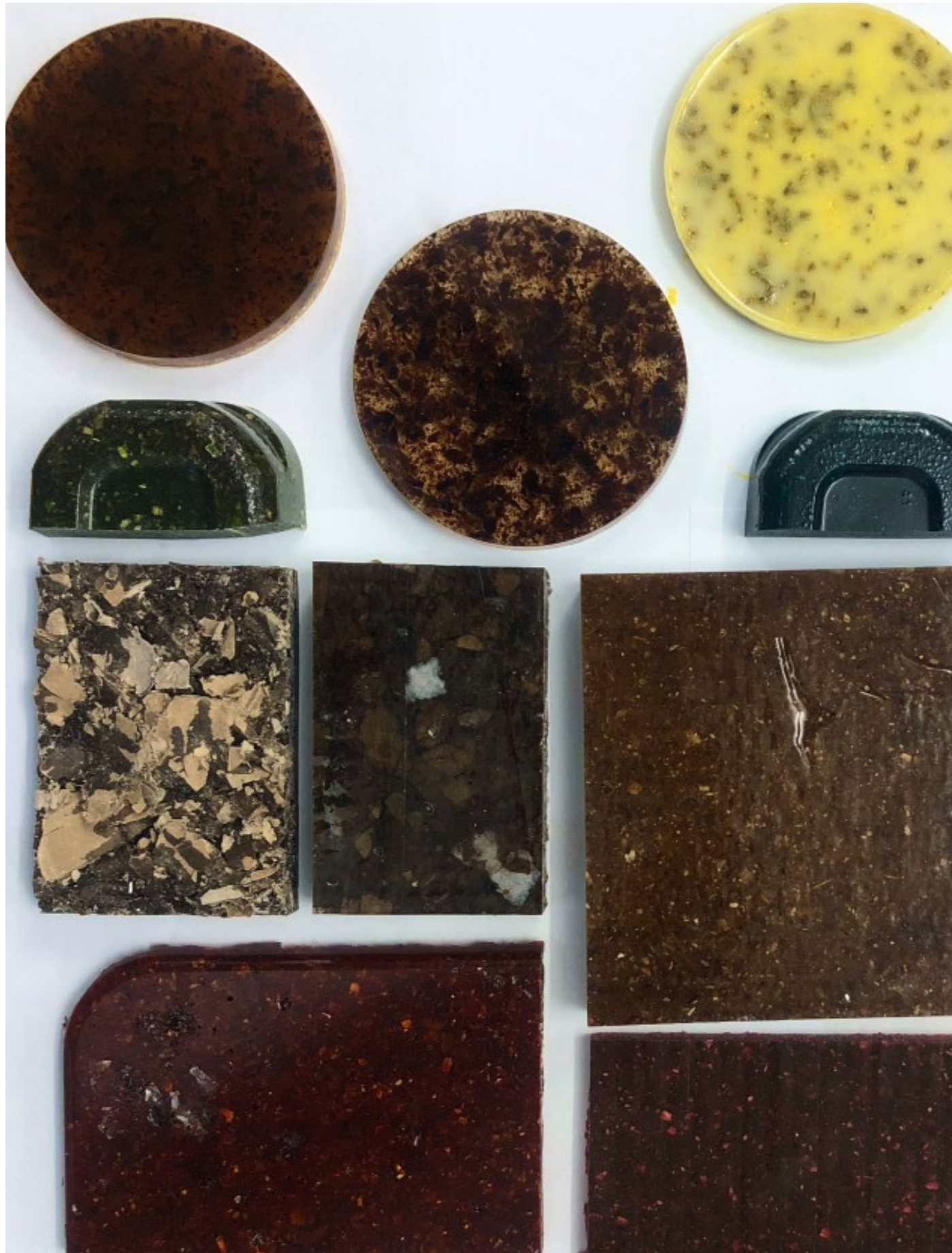


01

## Audiomycelia(WIP)

Our systems of mass production live on the brink of their capability. Through our consumption and our constant output, we simultaneously recycle and destroy. Thus, what if the products of our daily lives are being created in dialogue with nature? Audiomycelia uses mycelium - the root-like network structure used in fungus- as its primary matter. Leveraging its shock absorbent, lightweight, and noise-canceling properties, the project operationalizes this “dialogue with nature” through a nurturing of organic growth to design and fabricate a functional, bespoke digital artifact – audio headphones. Using discarded sawdust from the Jacobs Institute workshop and cardboard litter as a growing base.

Thesis in the Master of Design (MDes) program,  
UC Berkeley

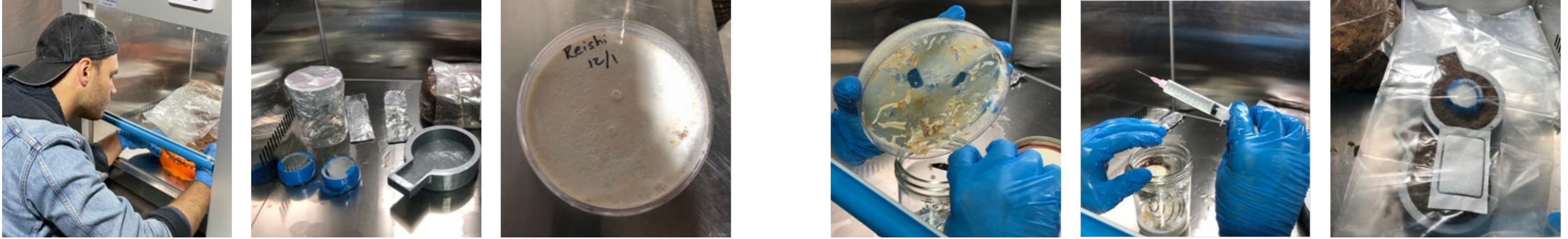


Color, Material and Finish experiments with sawdust and cardboard



1 Blended cardboard  
 2 Sawdust  
 3 Oyster mushrooms  
 4 Preparing new mycelium culture  
 5 Sealed mycelium substrate

6 Six weeks old mycelium substrate  
 7 Airfried mycelium substrate part  
 8 Pure mycelium pockets on substrate  
 9 Airfried pure mycelium sponge



For this project, I am focussing on doing prototype cycles with the mycelium of the reishi mushroom (*Ganoderma lingzhi*). Reishi is commonly used in creating mycelium-based leather and packaging applications. Due to the relatively fast-growing cycles between two to three weeks, it seemed appropriate to use it as a starting for the project and go through several iterations as the field of mushroom-based materials is new to me. This type of mycelium can also be easily cultivated on hardwood logs, sawdust, or wood chips, which are part of the abundance of waste material at Jacobs Hall workshop that would typically end up in the landfill.



Filling forms with substrate while inoculating the substrate with a mycelium culture



This kind of growable design is destined to create a new kind of aesthetic language. A future vision for this capstone project lies in continuing the work and taking the approach of co-designing with mycelium literal, in aiming to create a framework within the material that can achieve maximal, natural freedom of growth, while following certain co-designed pre-sets. The goal is to design a skeleton structure that functions as a map for mycelium, resulting in a transformation of the growing process to become a new design process itself.

## 02

# Meshpass

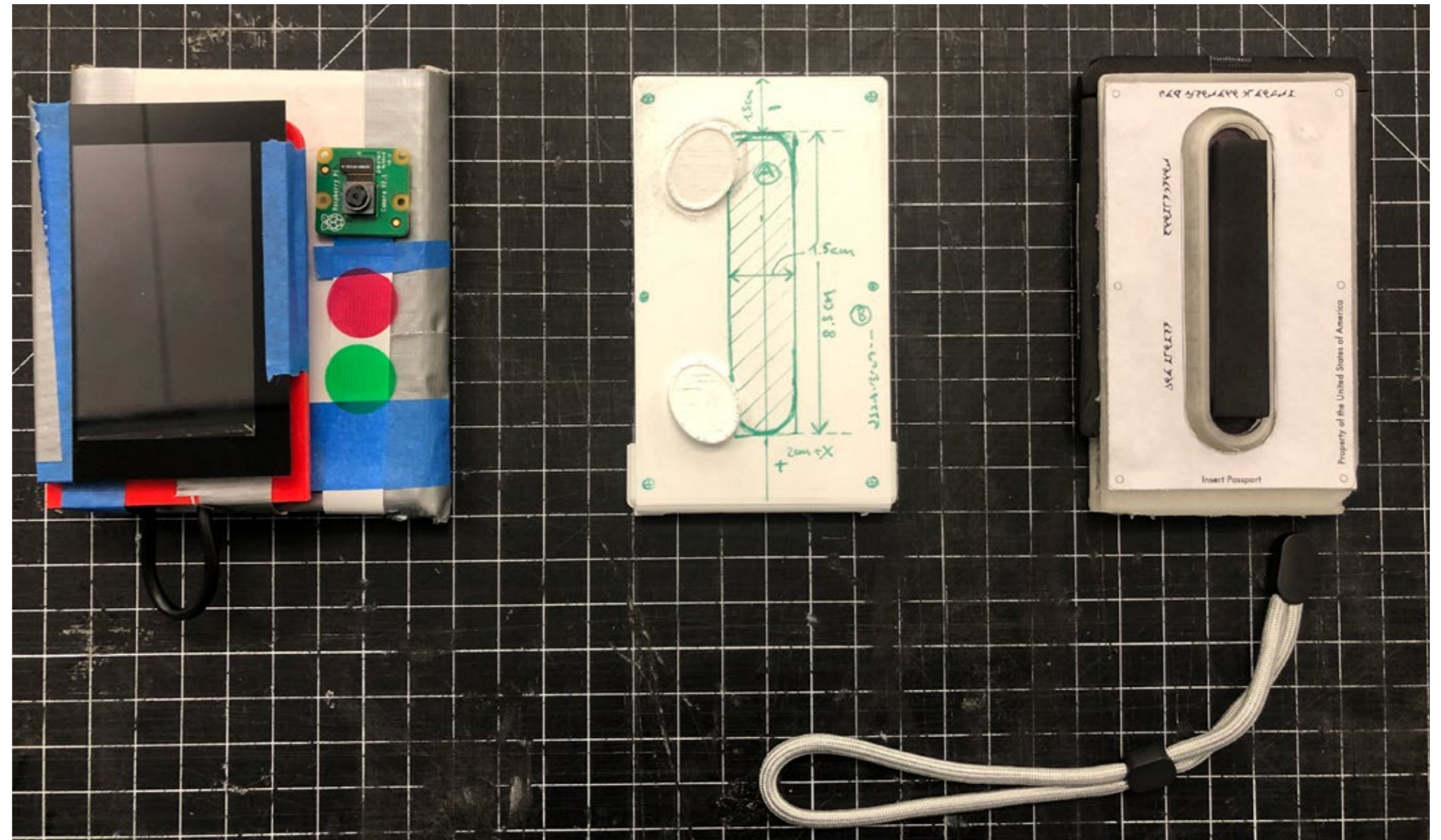
Speculative Design concept about the future of passports, identity and projected scenarios of a subscription based citizenship for the Virtual States of America, a digital territory in the Virtual World. This project uses strategic foresight techniques and future modeling frameworks to create uncomfortable conversations about what it means to be an immigrant in a modern society colliding with anachronistic governmental systems and how such institutions react to technological advancements.

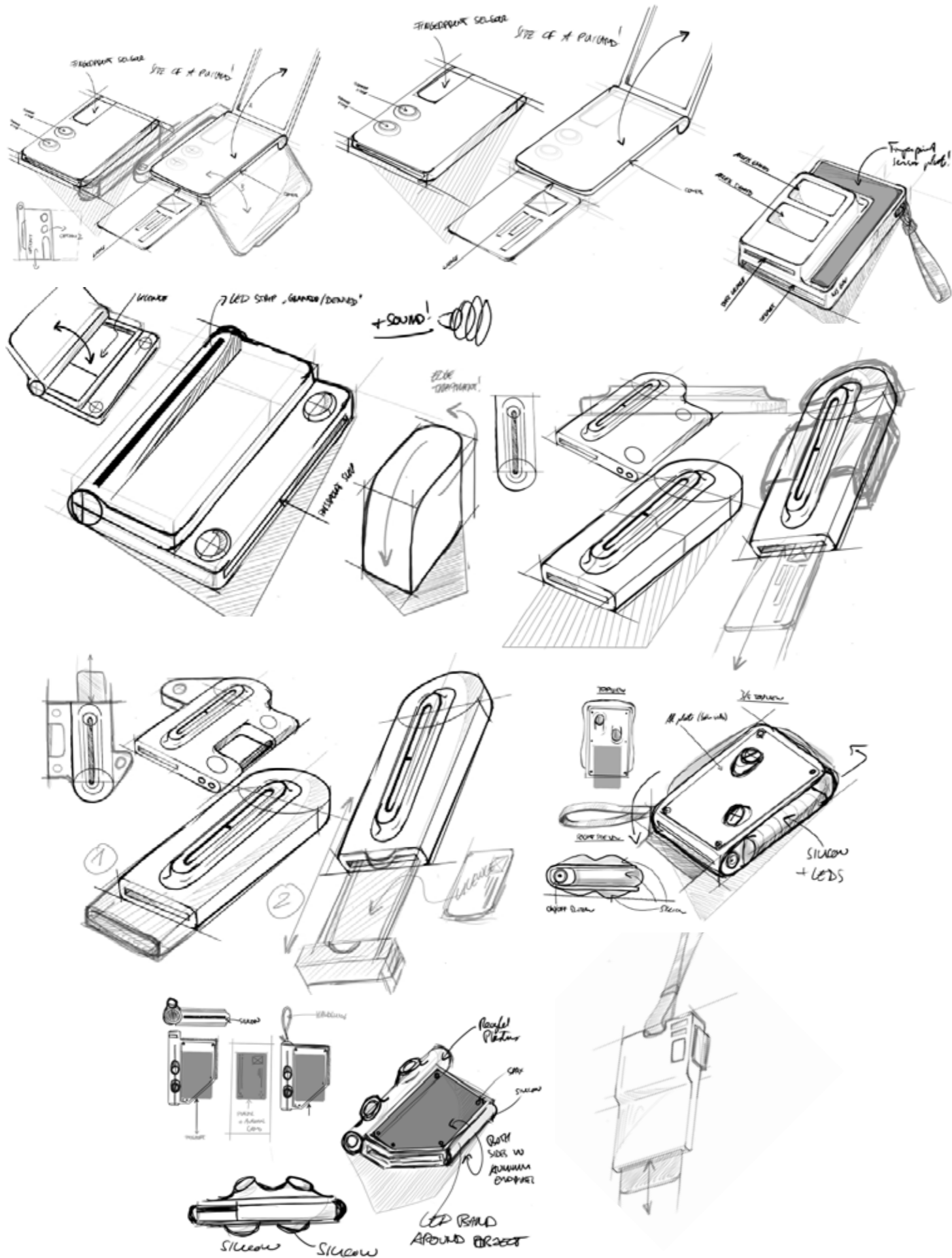






How to project a chronically backward-looking mindset like governmental bureaucratic structures in the future? I was taking inspiration from various forms of how current official institutions are integrating technology and loved the idea that a federally dispersed security system for keeping track of digital traces might take the form of clunky hardware devices. My objective was that the device would seem familiar but strange enough to open up a scenario that is visibly not our current reality. The overall utilitarian approach was guided by how governmental structures outsource such contracting most often to a lobbied industrial supplier rather than the most capable or disruptive.





Passport of the future, permanent resident, November 2041



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# 03

## Glasshouse

Glasshouse is a consumer device which augments the act of growing plants indoors with a digital, social interaction through remote lighting changes projected onto the plants. Conceived during the pandemic, the design explores the question of how might one foster remote group activities to create togetherness with friends and family.

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Group Project

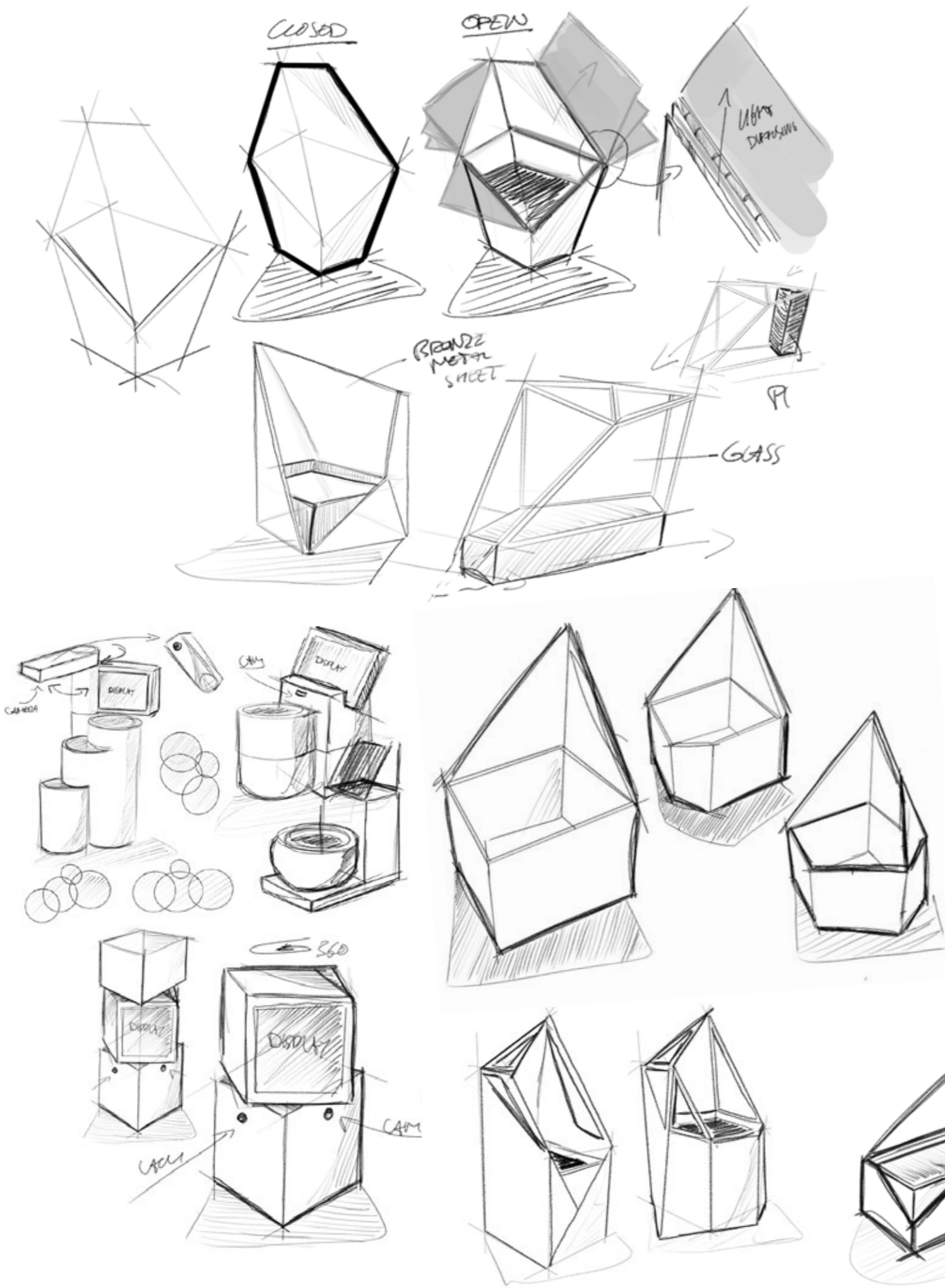
Effie Jia, Elijah Lee, Shuyang Yu, Xiaobai Ji, Jan-Simon Veicht



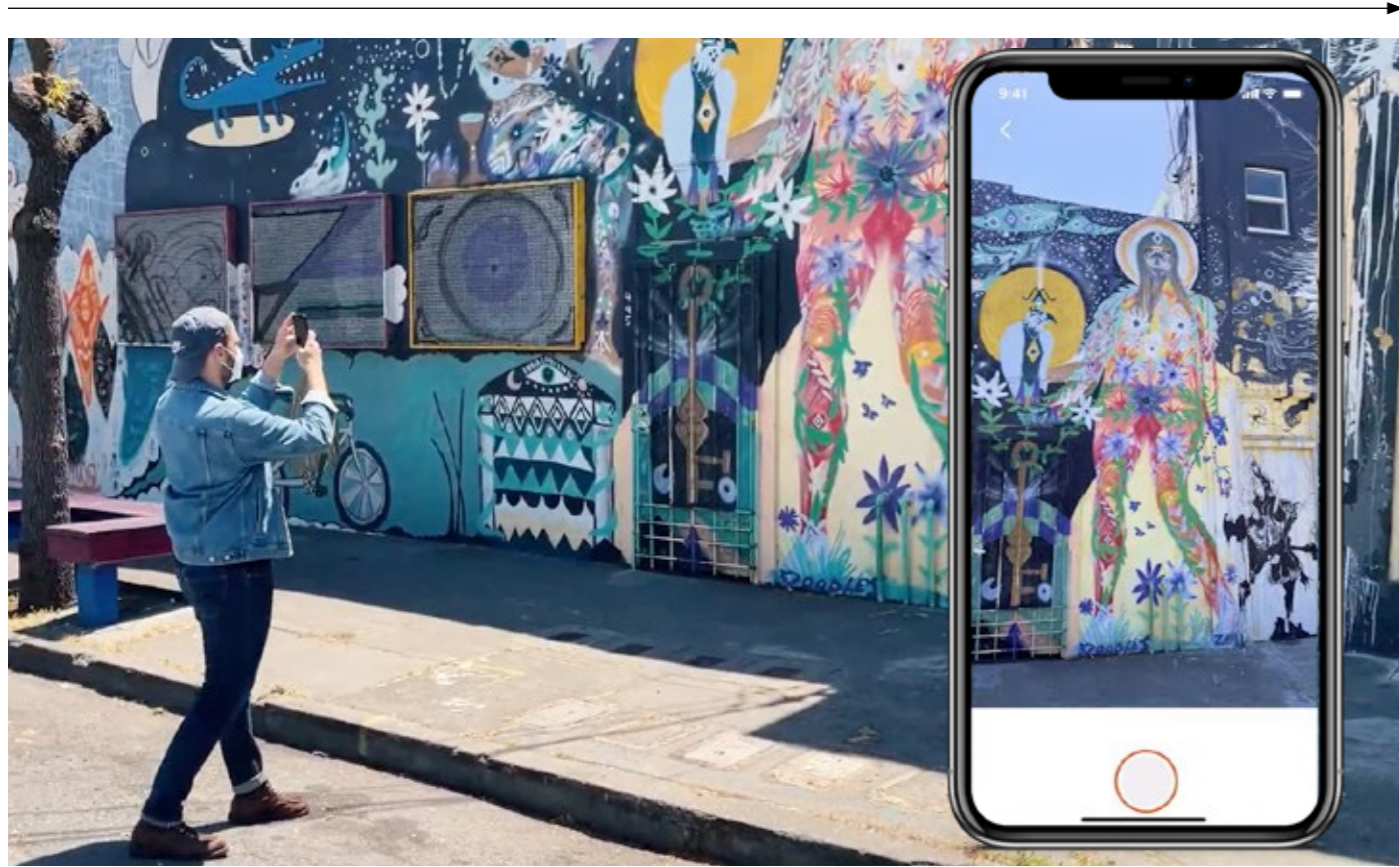


From our user interviews and market research, we learned that zoom fatigue is a shared challenge, and that people were feeling disconnected from the physical and digital world. These feelings of powerlessness and loss of control manifested into a wish for off-screen, social interaction. So we came up with Glasshouse, a product that fosters social engagement with friends and family through a ‘non-screen’ device. Glasshouse gamifies the interaction between individuals while creating a feeling of community and connectivity over a longer period of time.

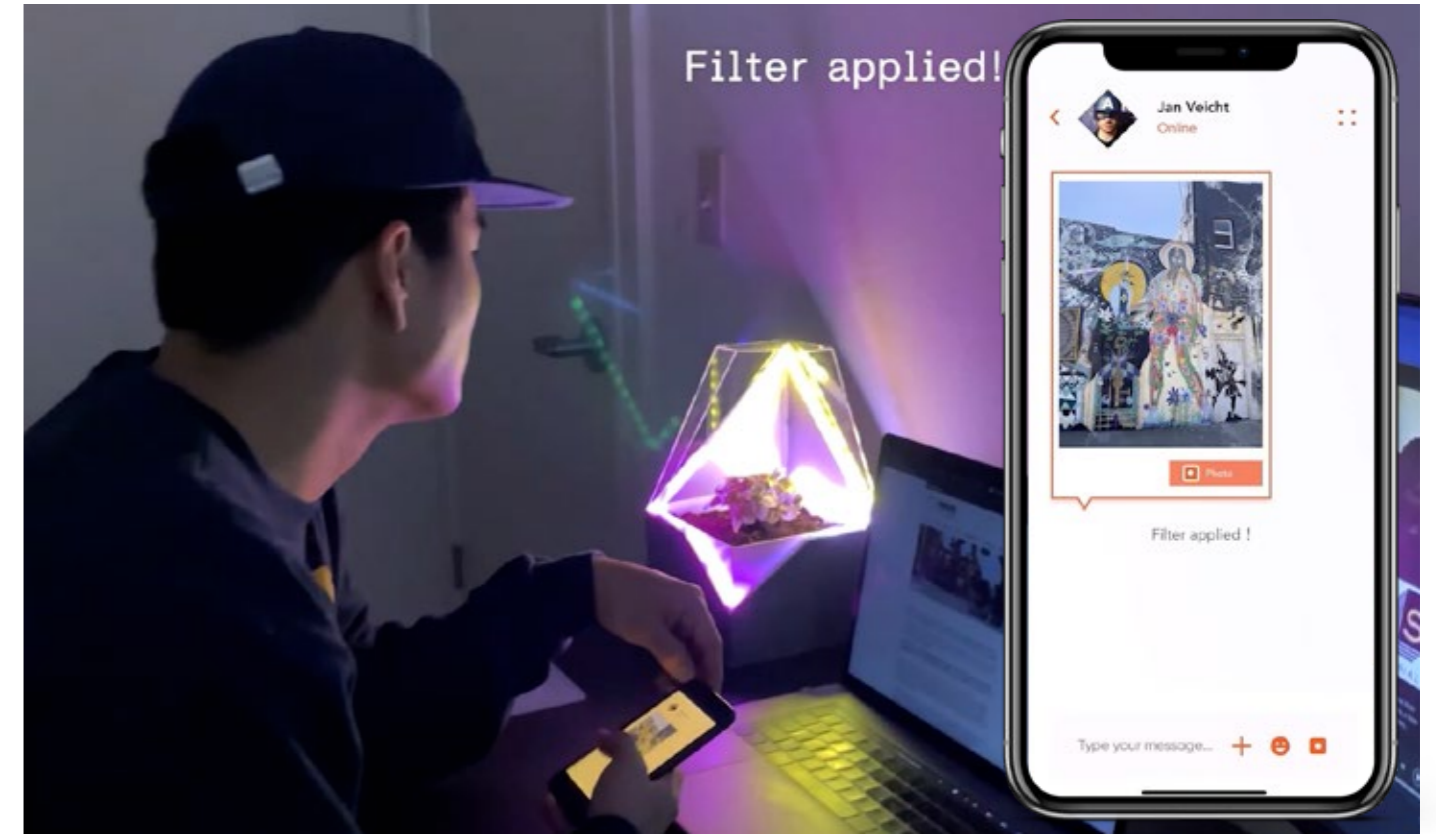




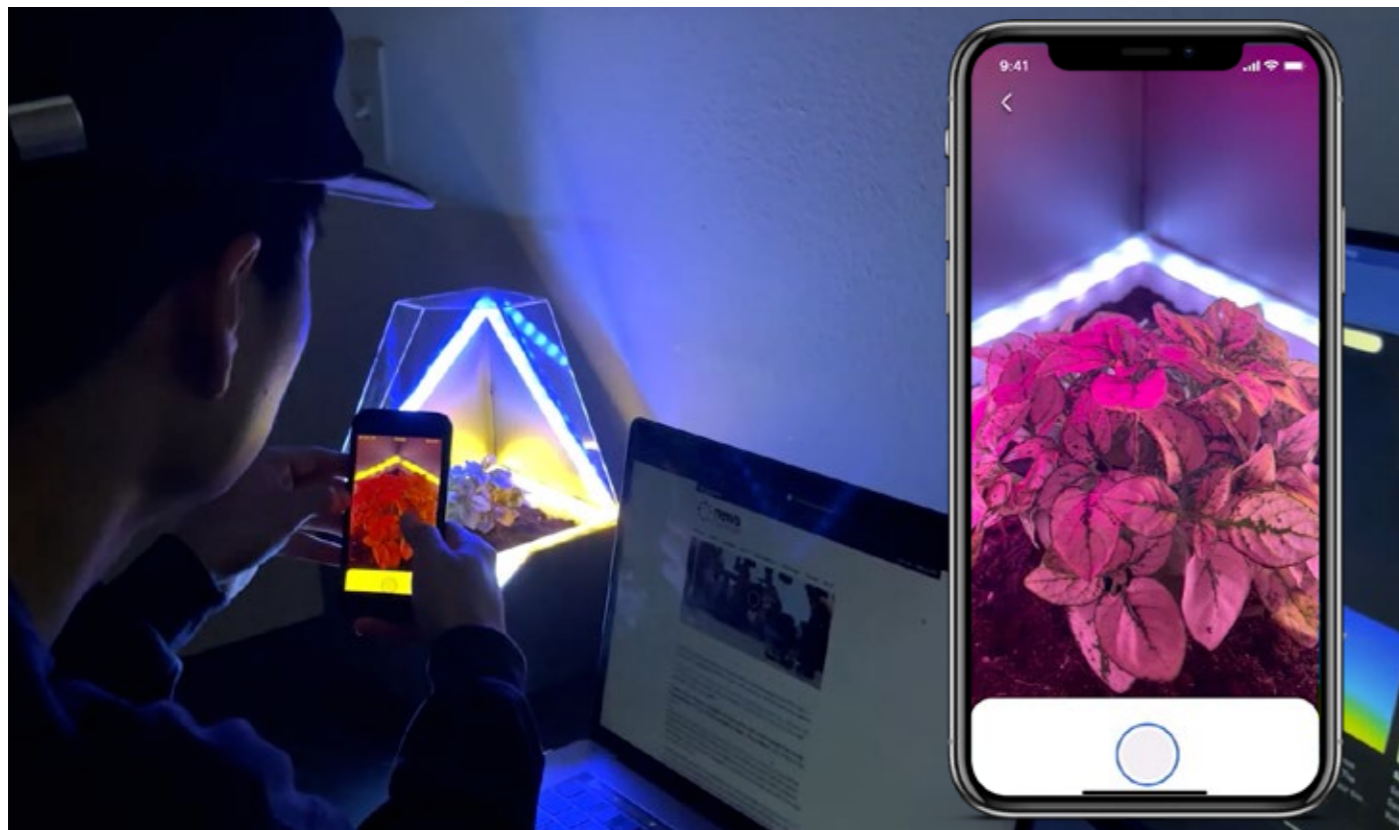
Interaction flow



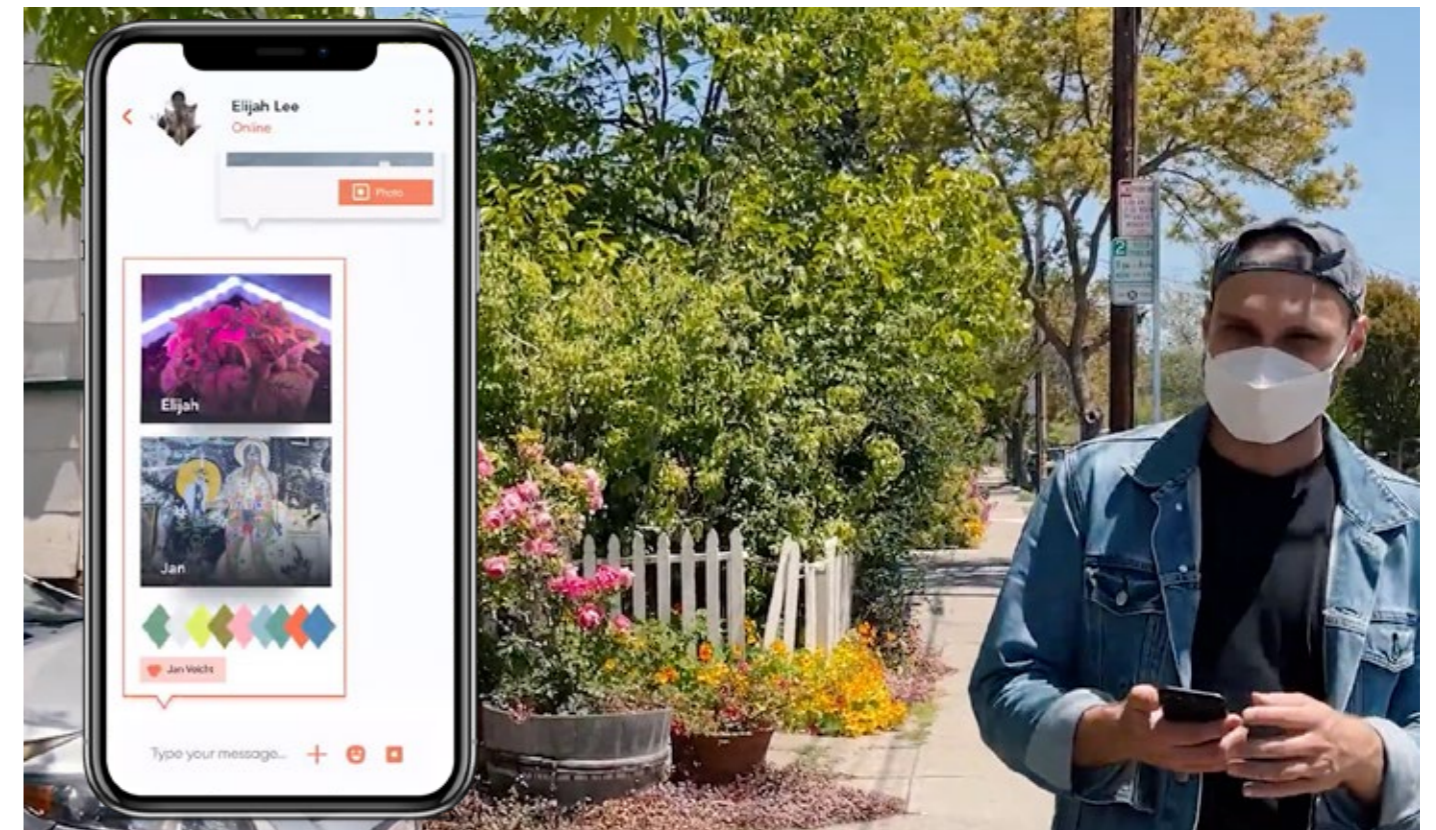
1 Photography of local street art which is analyzed based on colors



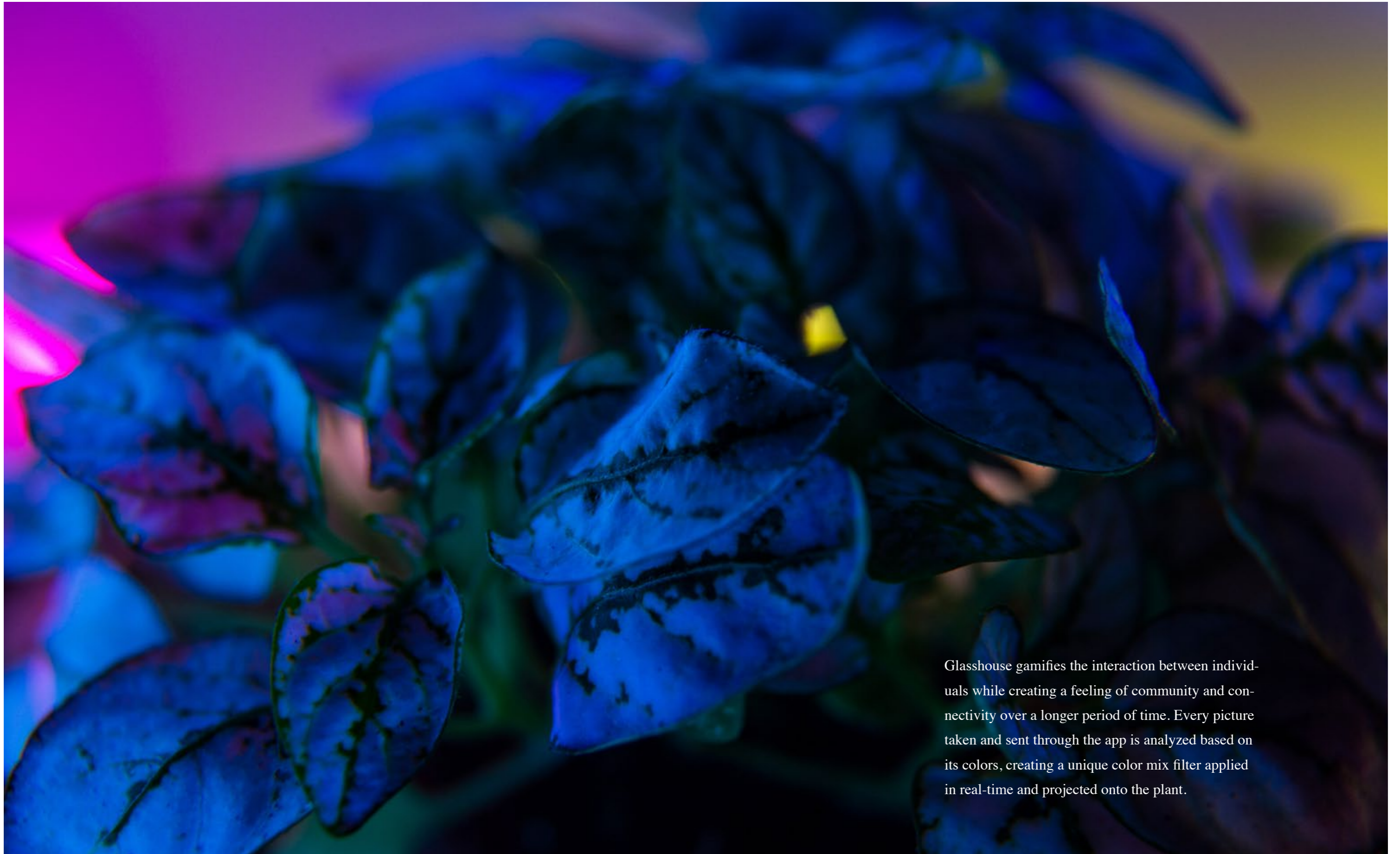
2 Color range of base picture is turned into an individual filter and applied to the device



3 The lighting filter creates unique environments and can be shared via social



4 The interaction and filter can be saved, liked and shared



Glasshouse gamifies the interaction between individuals while creating a feeling of community and connectivity over a longer period of time. Every picture taken and sent through the app is analyzed based on its colors, creating a unique color mix filter applied in real-time and projected onto the plant.



# 04

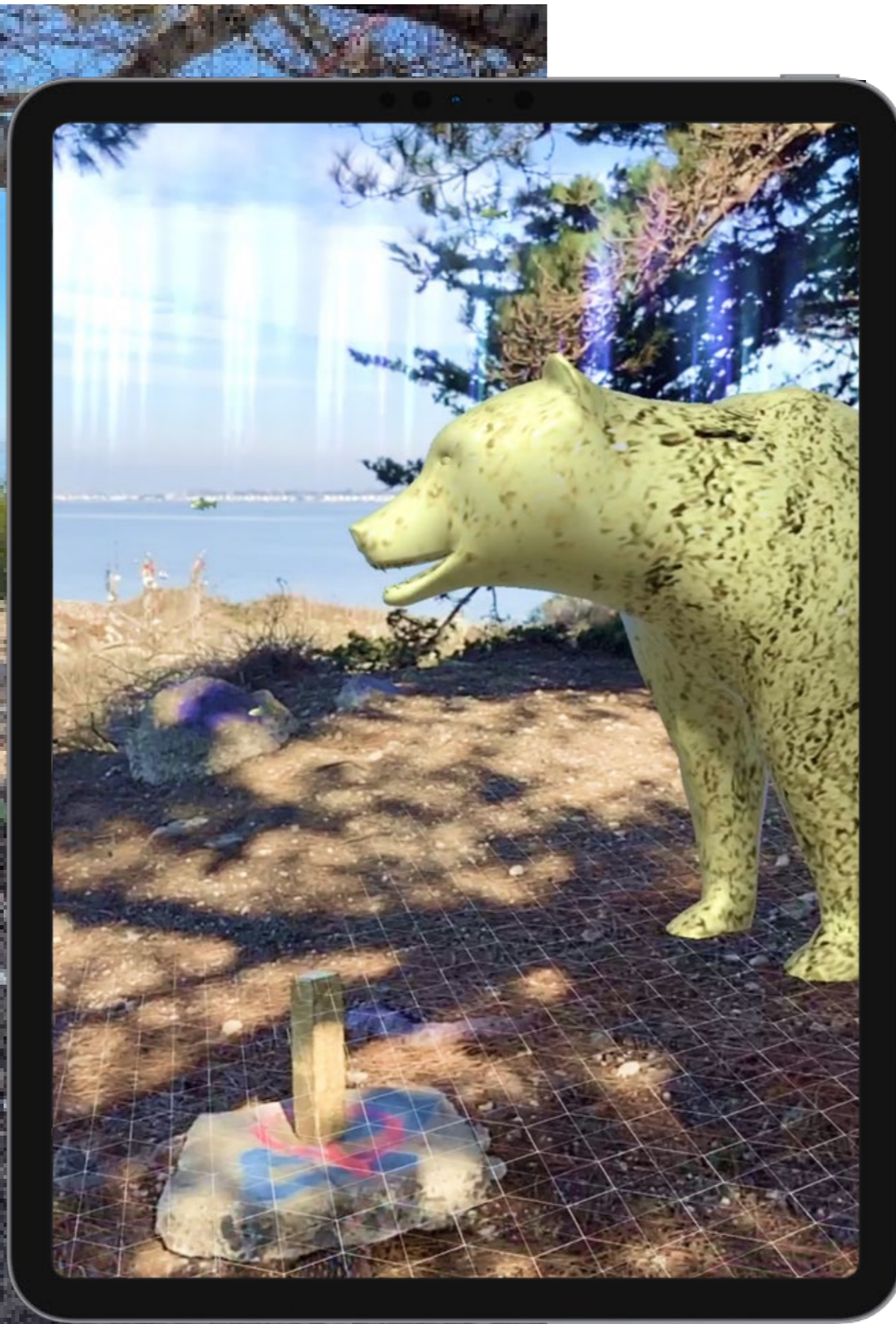
## Fable

An augmented reality experience that allows visitors to digitally create and contribute art within the practice of the existing found art culture of Albany Bulb, CA. At the specific site, visitors are invited to explore and create digital artifacts using the existing physical found art artifacts and natural elements of the landscape. Within this digital experience, visitors create unique and colorful animals based on native California creatures.

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Group Project

Elijah Lee, Susanne Maddux, Xinyi Zhu, Xiaobai Ji, Jan-Simon Veicht





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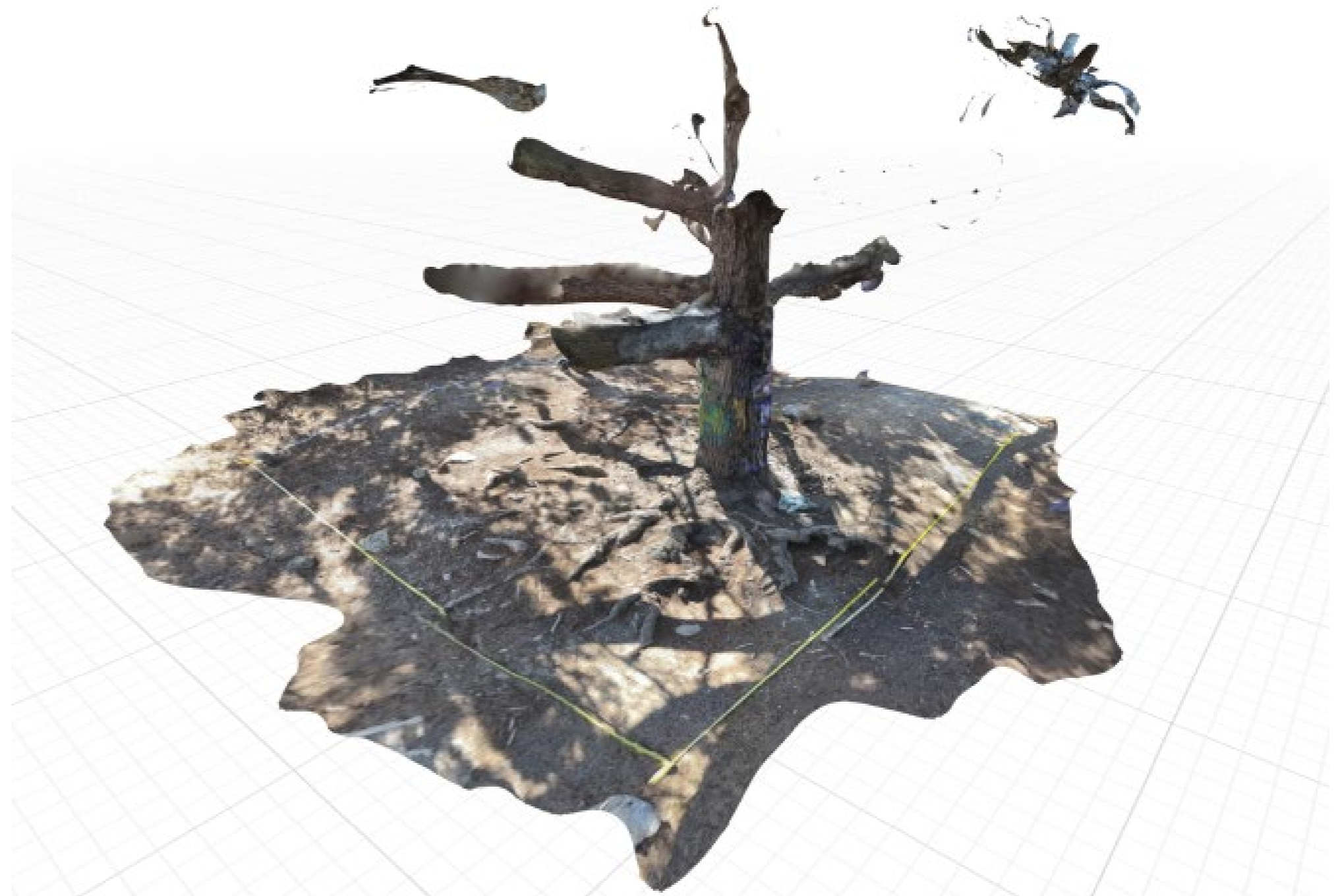
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6

Using found artifacts, visitors generate animals with unique colors and textures. The visitor can then engage with their animated animal creations within the space and leave them for others to explore and enjoy, building on the found art vibe of Albany Bulb without leaving a physical footprint. The site is a public art park that invites the visitor to engage, contribute and view the practice of found art.

- 1 Close-up of a golden stone installation
- 2 Artwork hanging in upper tree branches
- 3 Buddha statue close to tree trunk
- 4 Found art object, golden brick
- 5 Golden brick on marker stone
- 6 Golden bear interaction



Texture

UV Map

3D Model



AR Interaction flow on site



1



2



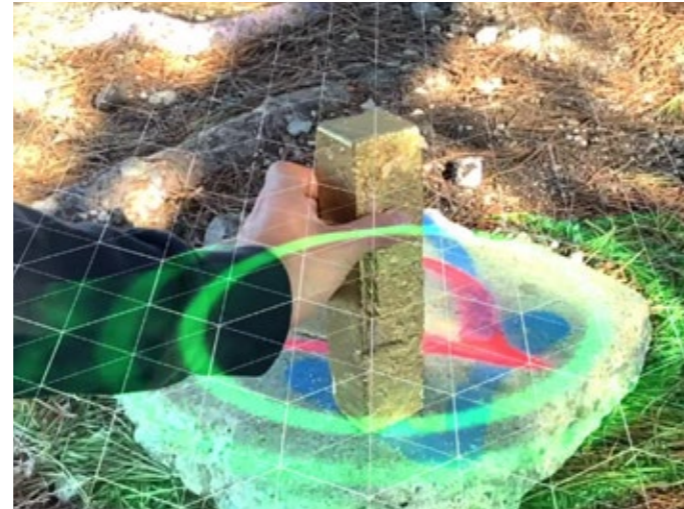
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12

# 05

## XR Controller (WIP)

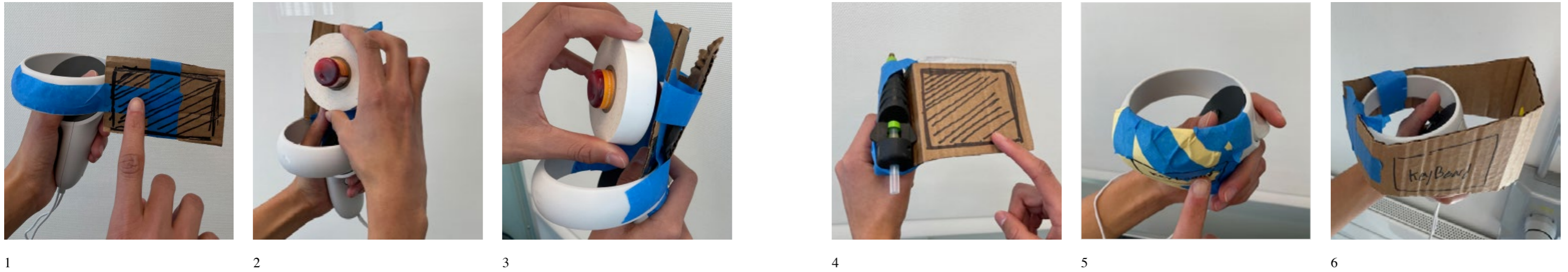
This project looked at the Human Factor Ergonomics of VR/AR devices and their various controller inputs. Our team chose to investigate specifically the ergonomics problem of mid-air computer interactions around text input, causing so-called ‘gorilla arm’ fatigue, a syndrome known to negatively impact user experience and hamper prolonged use of mid-air interfaces. We explored the opportunities and constraints around XR applications on construction sites, redesigned the text-input experience based on the physical controller experience, and rethought the digital interaction.

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Group Project

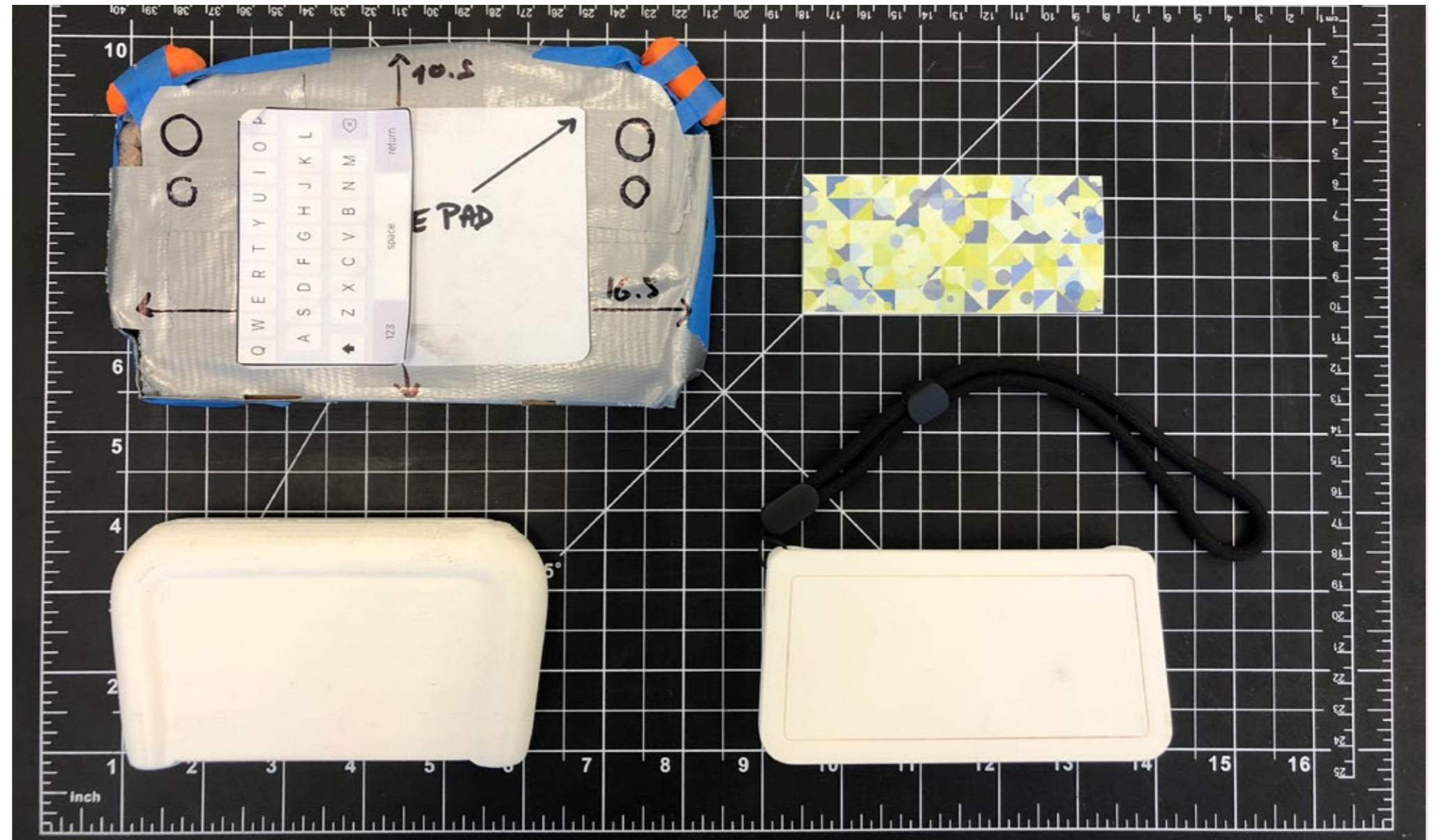
Elijah Lee, Susanne Maddux, Mercedes Saldana, Jan-Simon Veicht



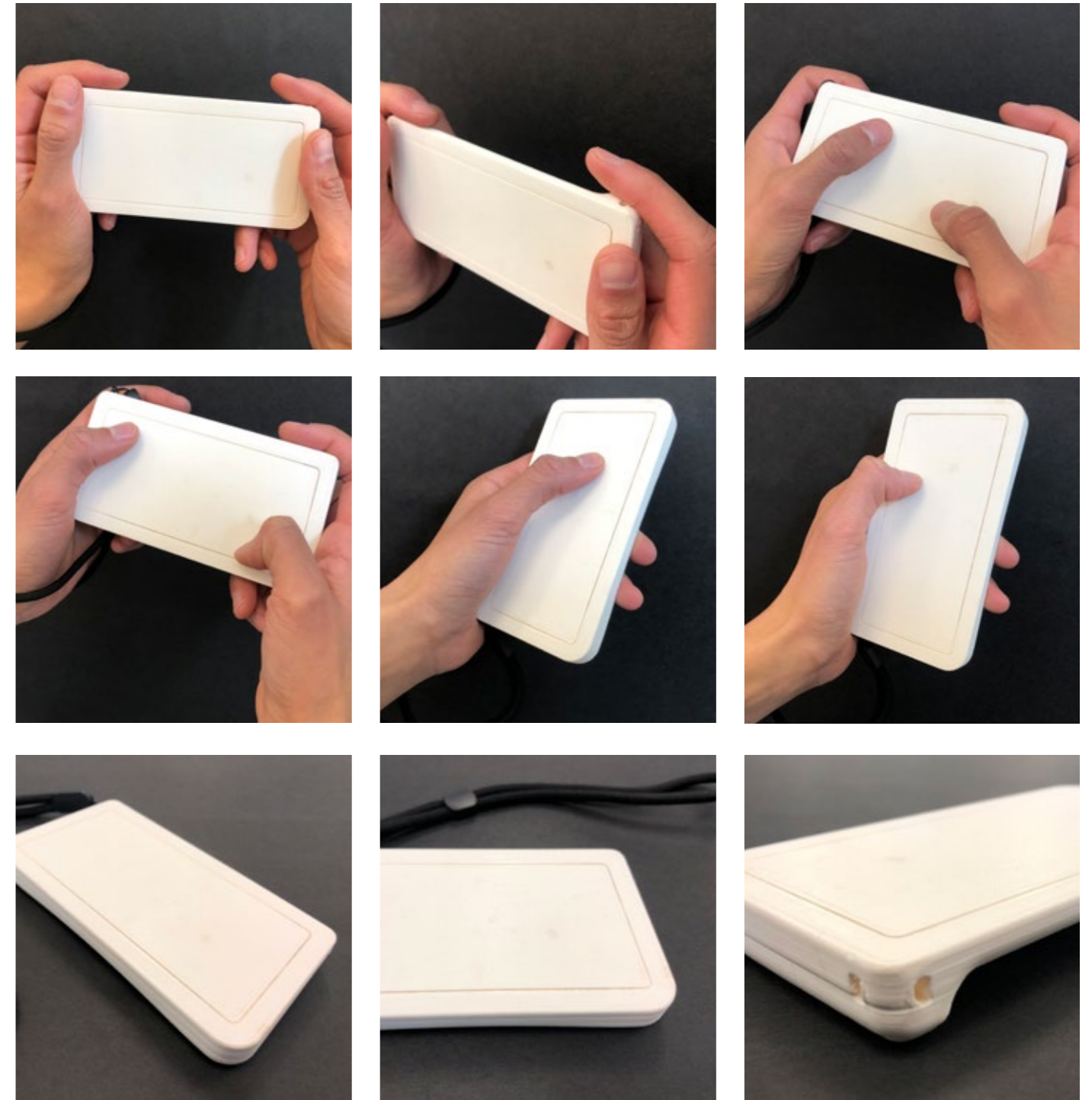
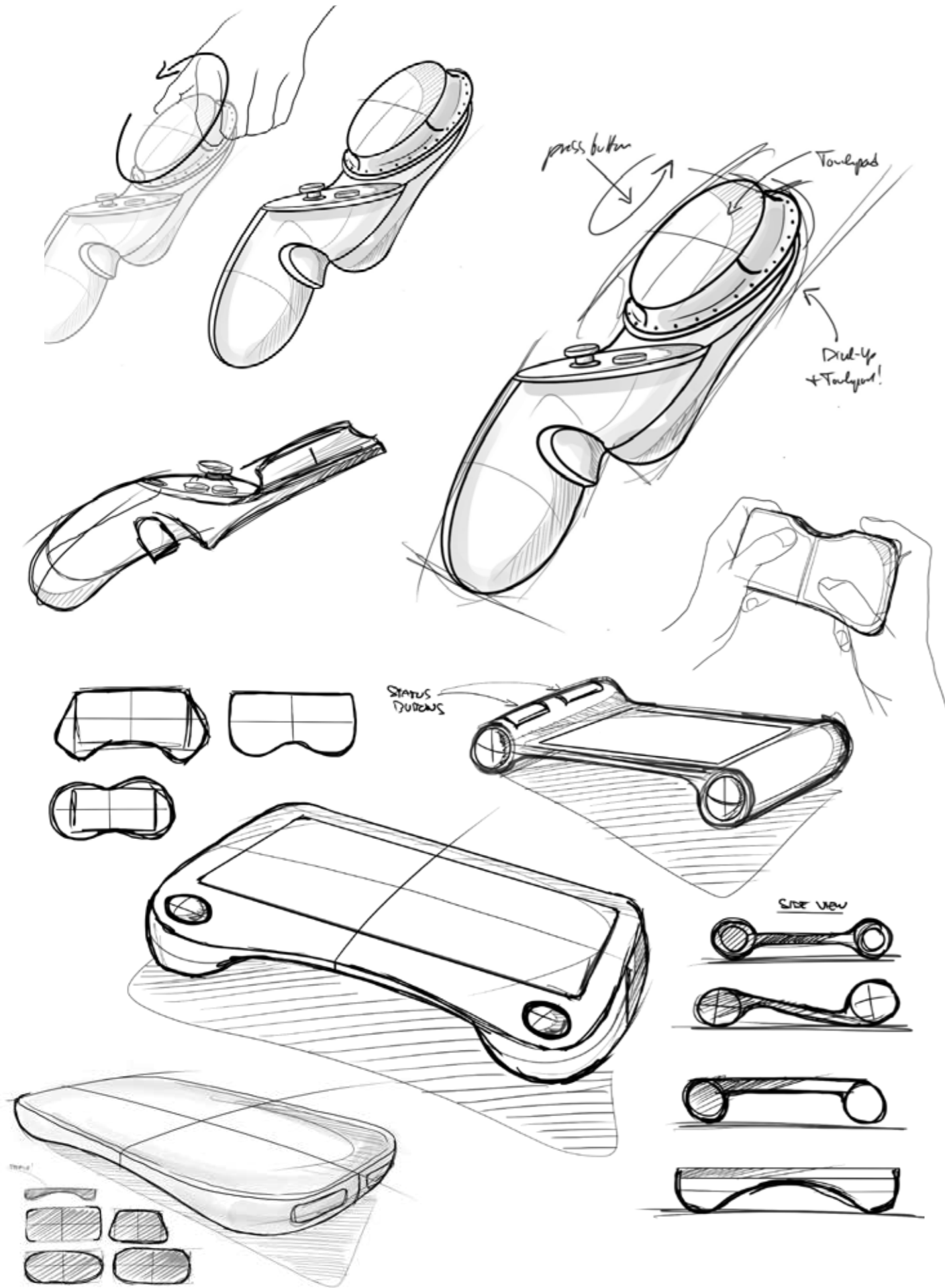


Early-stage rapid prototyping helped us to understand hand-grip and force-matching for a potential hardware-based solution. Currently, there are two methods of typing in VR/AR environments, using a hand controller to click on a virtual QWERTY keyboard or connecting a Bluetooth keyboard and using a physical input for typing. While typing on a physical keyboard is a great way to type that most users are familiar with, it limits the user to be stationary near the physical keyboard and disconnects the full-body immersive experience. In contrast, typing on a virtual keyboard offers full-body movement. Our team understood the physical controller as an integral part of solving the problem and prototyped many different solutions for user-testing.

- 1 Rapid Prototype, touchpad on controller
- 2 Rapid Prototype, text dial extension
- 3 Rapid Prototype, text dial extension
- 4 Rapid Prototype, touchscreen solution
- 5 Rapid Prototype, various touch area
- 6 Rapid Prototype, QWERTY position



Final prototyping stages



# 06

## Design@Large

I joined Schoolab San Francisco as a consultant in Design Strategy for my summer experience.

Schoolab is a global innovation studio based out of Paris, France. Working in the San Francisco office, my role was to conduct design research in Electric Vehicle batteries, specifically the recycling and potential future application of processes around the re-use and re-purposing. This work led to a series of remote workshops in Speculative Design with the client, a French multinational energy company. The client wanted to push their understanding of the status of the technologies involved and, specifically, how to implement potential recycling solutions into the broader system of their corporate business units.

Work protected under non-disclosure agreement.







Schoolab Paris, courtyard work space



Schneider Electric, EV charging station

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[jansimonveicht.com](http://jansimonveicht.com)

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