

Meeting Notes:

- Sunday, March 8th
- People who attended
 - Lucas Gama
 - Wesley Shen
 - Yvonne Liu
 - Leon Shen
- Discussion:
 - Critical Areas:
 - Unlocking Phone: how can the ring control other devices remotely?
 - Screen that is locked
 - Screen that is unlocked
 - Homepage screen
 - Importance
 - This task is important because you do not need to unlock your phone whenever you are near your phone
 - Changing Volume
 - Screen with volume tab on the side (Various volumes)
 - Laptop screen with volume change
 - Importance
 - Allows you to change volume for Laptop/TV/Phone when you are not nearby
 - Responding to Text Message
 - Project Text message
 - Responding to Text message
 - Importance
 - Able to respond to text messages whenever you are without the limitation of having your device
 - Tasks that can be done with Critical Area:
 - Change Laptop Volume 10%
 - Change Phone Volume to 80%
 - Unlocking phone without typing in a password or using built-in features
 - Respond to text message without using built-in keyboard/voice control on phone
 - Talked about adding a projection screen/ how we would integrate that into a paper prototype
 - The projection screen is a light that comes off the ring that will project the most recent text message
- Paper Prototype:

- Text Message Projection Screen
 - Initially, we were planning on projecting on the wall but after discussing with the group we decided that if you are able to project it against the wall it would be really obvious. At that point, you might as well use your phone. We decided that the better alternative is to project it onto the palm of your hand and our paper prototype reflects the small screen you would see on your hand.
- Initially, we decided to each work on certain screens but what we realized was that we were using different OS for the screens. Some of us had Samsung so we would use the Samsung volume page but others had iPhones and would use the iPhone homepage. We discussed and universalized the layout so that it felt continuous.

Critical Areas

The first critical area of our project is the ability to respond and view text messages with the Ring. Initially, when a user receives a text message, there will be a slight vibration on The Ring notifying them that there is a notification. In order to view the text message, the user will need to hold the hand that is wearing The Ring with the palm facing upwards and in a slightly cupped position with the fingers facing away from the user. There is a button on the side of The Ring that will produce a small projection of the past 7 lines of text messages onto the user's palm. In order to respond to the text messages, potential ideas we were thinking of are voice command (Siri implementation), touch surface or gesture-based, Morse code (tapping The Ring), and a projection keyboard on the user's palm. For voice command, the user will speak into the built-in microphone on The Ring. The touch surface or gesture-based method to respond is writing onto any surface or writing in the air the letters and words the user is thinking of using the finger with The Ring on it. The Morse code method is more discrete in which the user will tap out responses when speaking or writing in the air is not appropriate. Our final idea of responding to text messages is having a keyboard that is projected onto the user's palm where the user will type out their message like they would when messaging someone on their laptop. This feature is important because the very original idea of our group was being able to respond to text messages from wherever you are even when your phone is not with you. In addition, we wanted to create something that other wearables like the Apple Watch cannot achieve yet since Apple Watch users can only reply to messages via either voice control or scribbling on the screen of the Apple Watch letter by letter.

The second critical area of The Ring is the ability to externally control devices. The Ring will be able to switch inputs between 3-5 Smart Devices such that it will have different modifying capabilities for each device it is on. For example, if input 1 is on an iPhone, the user will be able to unlock their device by bringing The Ring close to the device, modify the volume by drawing a circle with the finger wearing The Ring (counterclockwise to decrease the volume; clockwise to increase the volume), and respond to text messages. If the input is on 2, say, a Smart TV, the user will be able to use commands such as swiping up and down or left and right to change channels or increase/decrease the volume, respectively. If the input is currently the user's laptop, the user will also be able to unlock their laptop if they bring The Ring close to it and modify the volume of the laptop like how they would for their phone—drawing a circle with the finger wearing The Ring (counterclockwise to decrease the volume; clockwise to increase the volume). The Ring will be very versatile in allowing the user to have access to multiple Bluetooth devices and managing them without the need for other additional devices. This feature is important because it expands and makes The Ring cross-platform. This distinguishes The Ring from other smart devices because it combines capabilities of multiple different smart-device.

The third critical area of The Ring is the ability to record and monitor health-related and physical activities. First, The Ring will be able to measure the number of footsteps the user takes in a day. This is very useful for calorie tracking or detecting when the user is performing physical exercises to count the number of calories burned. The Ring will also be able to monitor heart rate which is useful for tracking physical activities. When the heart rate increases, The Ring will be able to tell that the user is performing physical activity. If the user has not been moving for a while The Ring will have the ability to give a slight buzz, unique from receiving a text message, to gently remind the user that they should get the blood flowing again, in order to ensure that all users stay healthy. This is crucial since it is important to take care of the body, and sometimes people are so busy that they forget to do so; monitoring physical activity is a good reminder of the things that we still need to do. Furthermore, the user can view their daily physical activity on their phone.

User Study Tasks

Critical Area 1: Responding to Text Messages

1. Respond to a text message using voice command
2. Respond to a text message using gestures
3. Use the projectable keyboard to respond to a text message

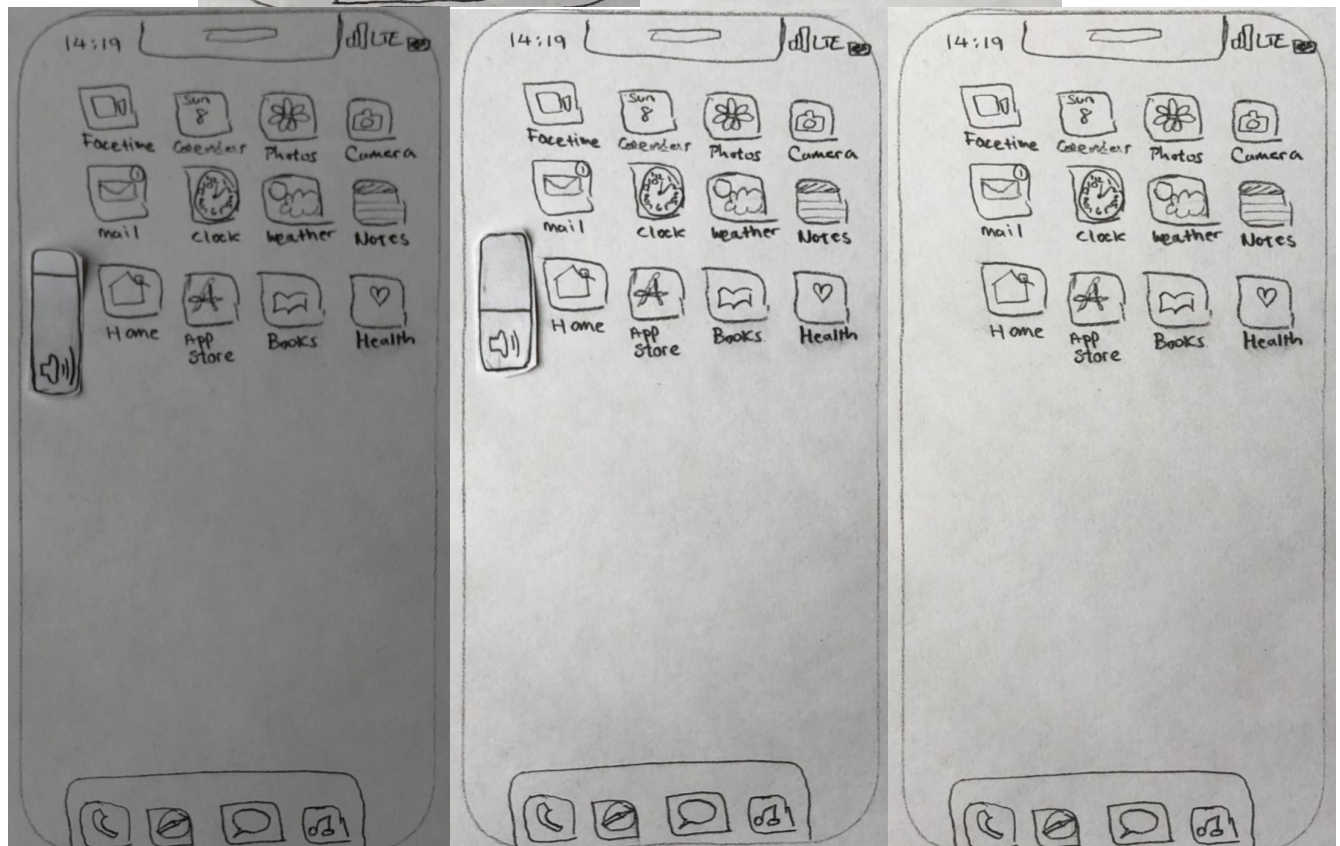
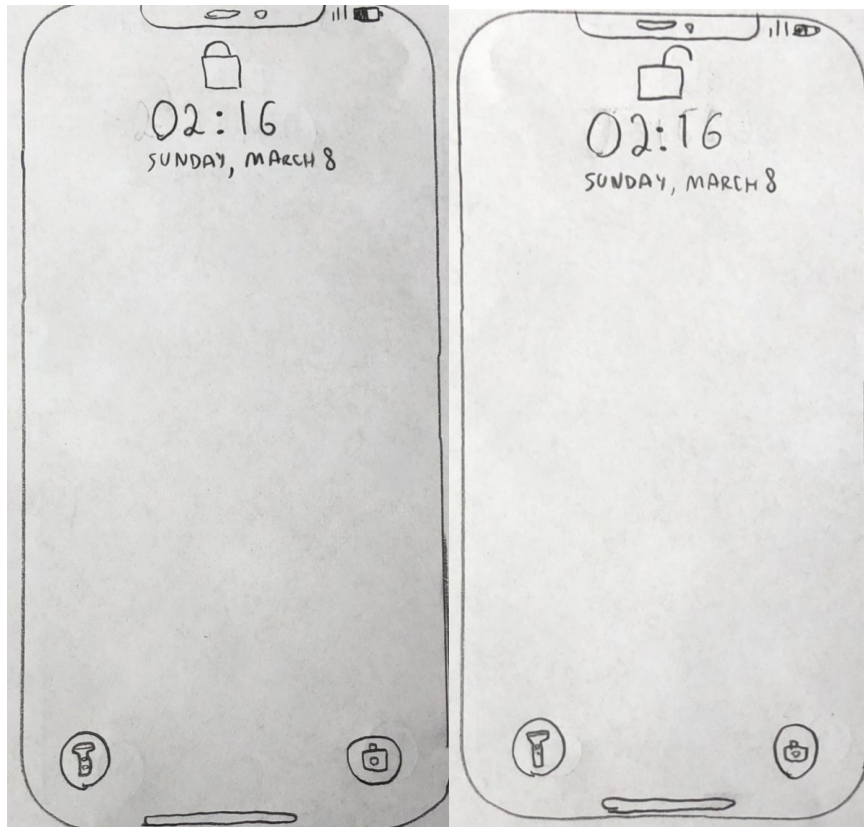
Critical Area 2: Externally Control

1. Switch to Smart TV and change the channel
2. Switch to the Laptop and change the volume
3. Switch to your phone and unlock it without using any built-in phone unlocking mechanism

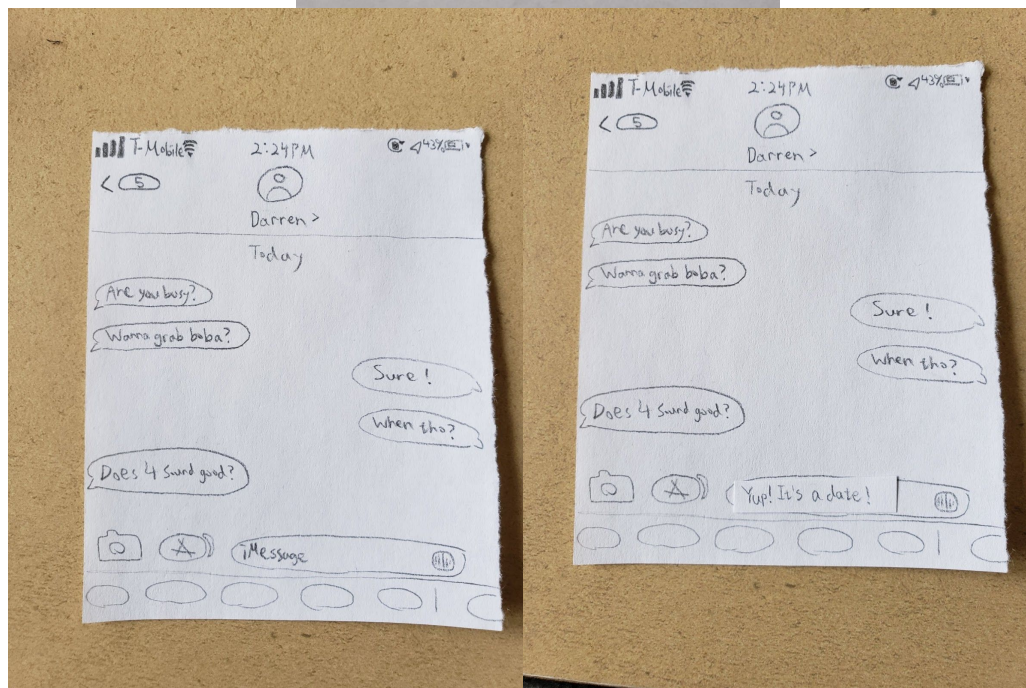
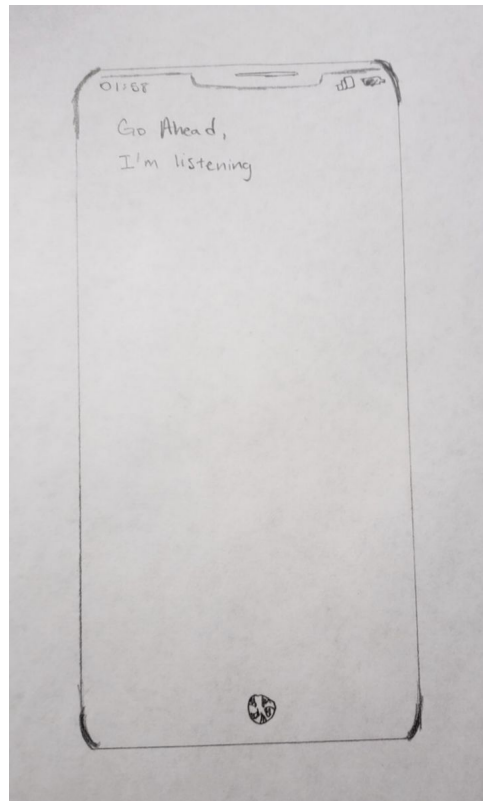
Critical Area 3: Health/Physical Activities

1. How many steps have you taken ever since you put on the Ring?
2. What is your heart-rate right now?
3. Check how many calories have you burned so far today?

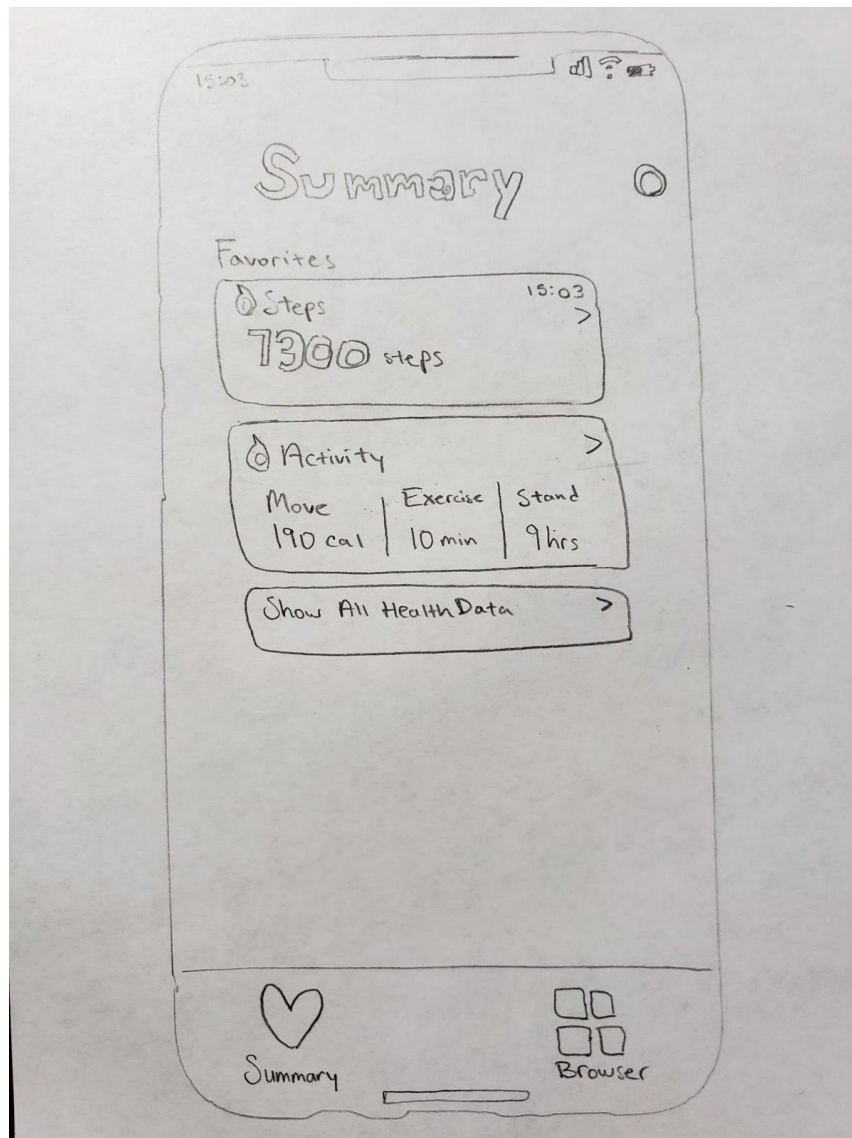
Paper Prototypes
Unlock Phone (Top); Change Phone Volume (Bottom)



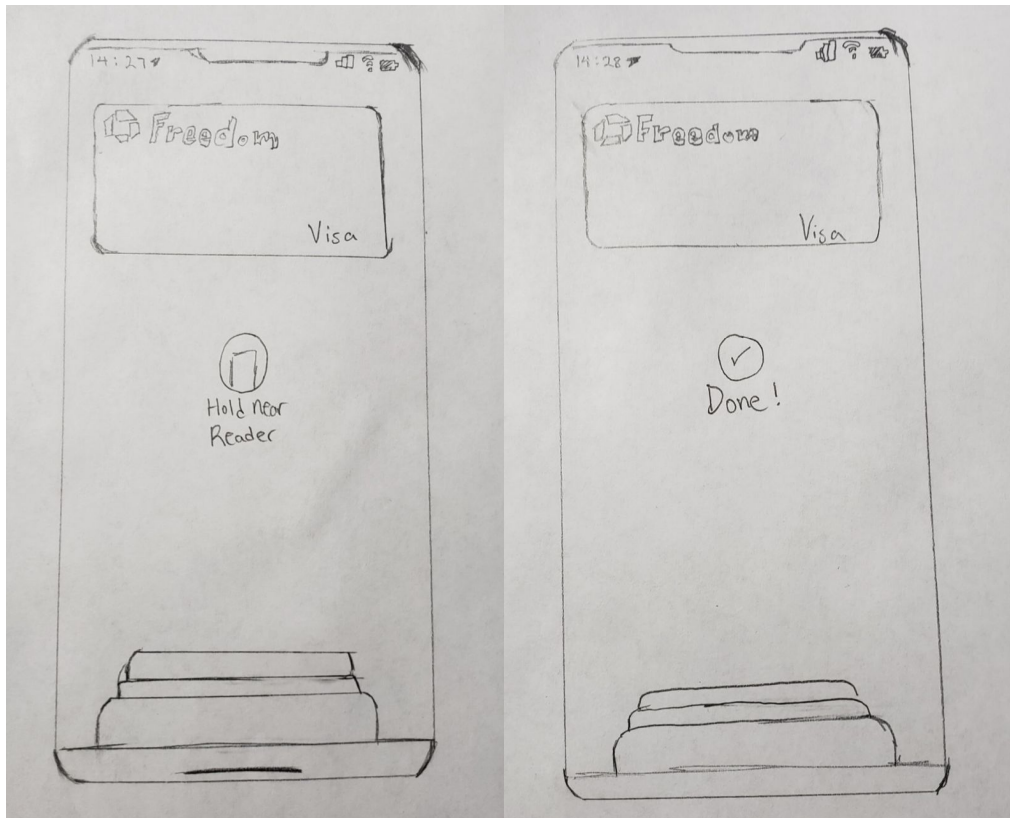
Microphone Input/Voice Command (Top); Text Message Reply (Bottom)



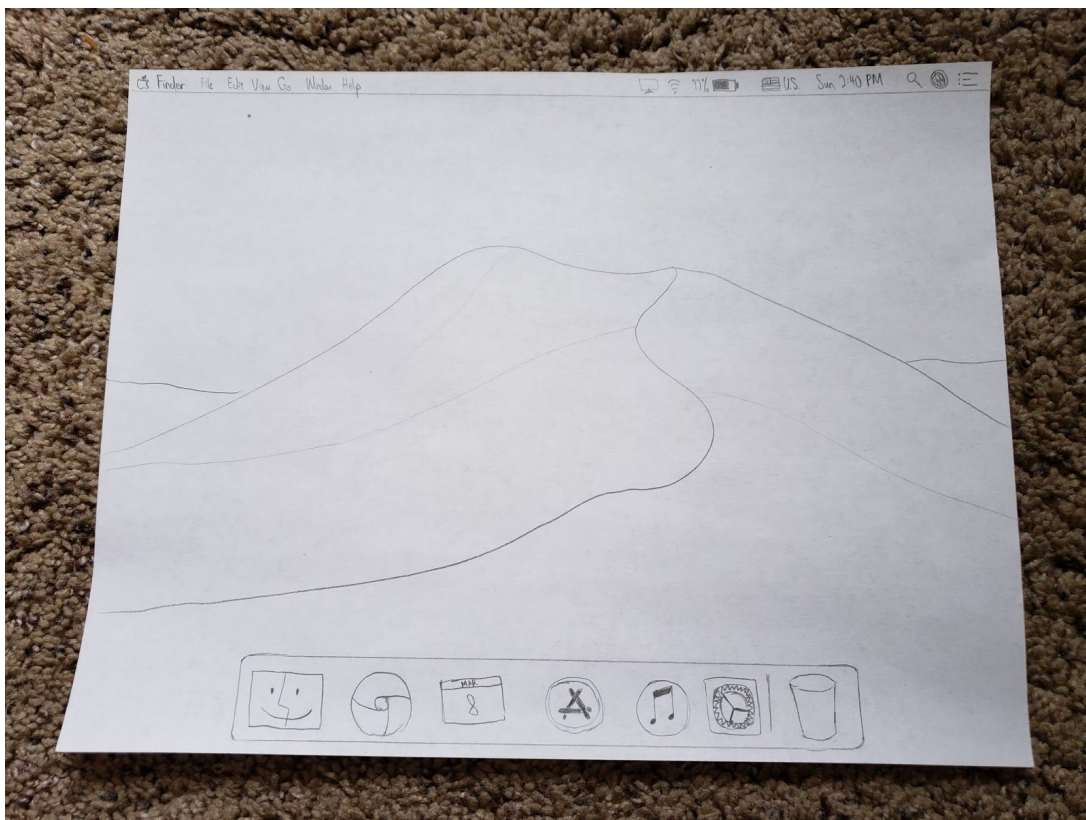
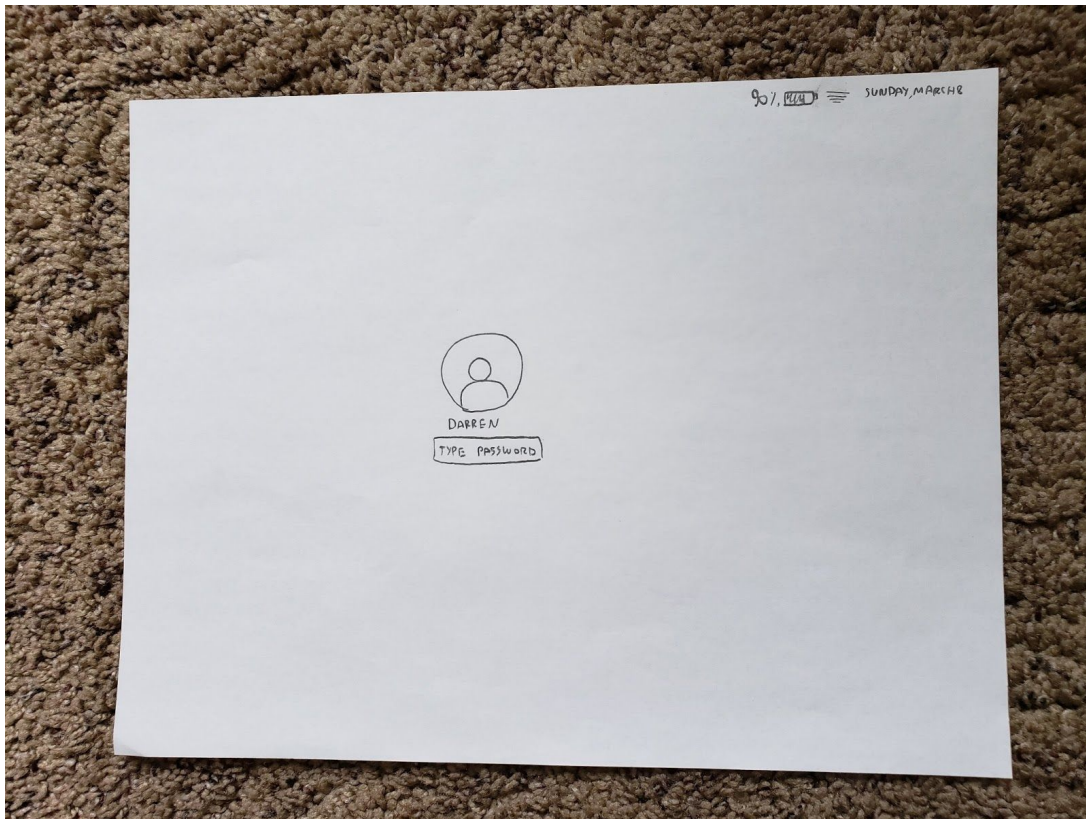
Health/Physical Activity Record on Phone



Cardless Purchases

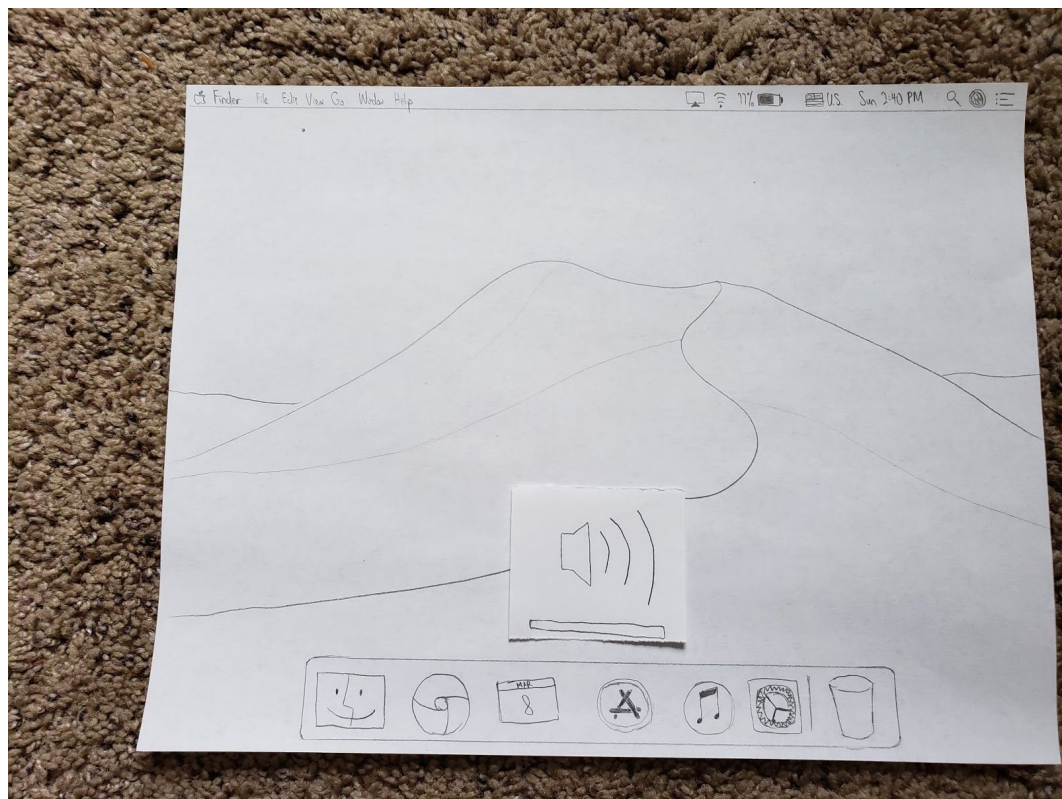
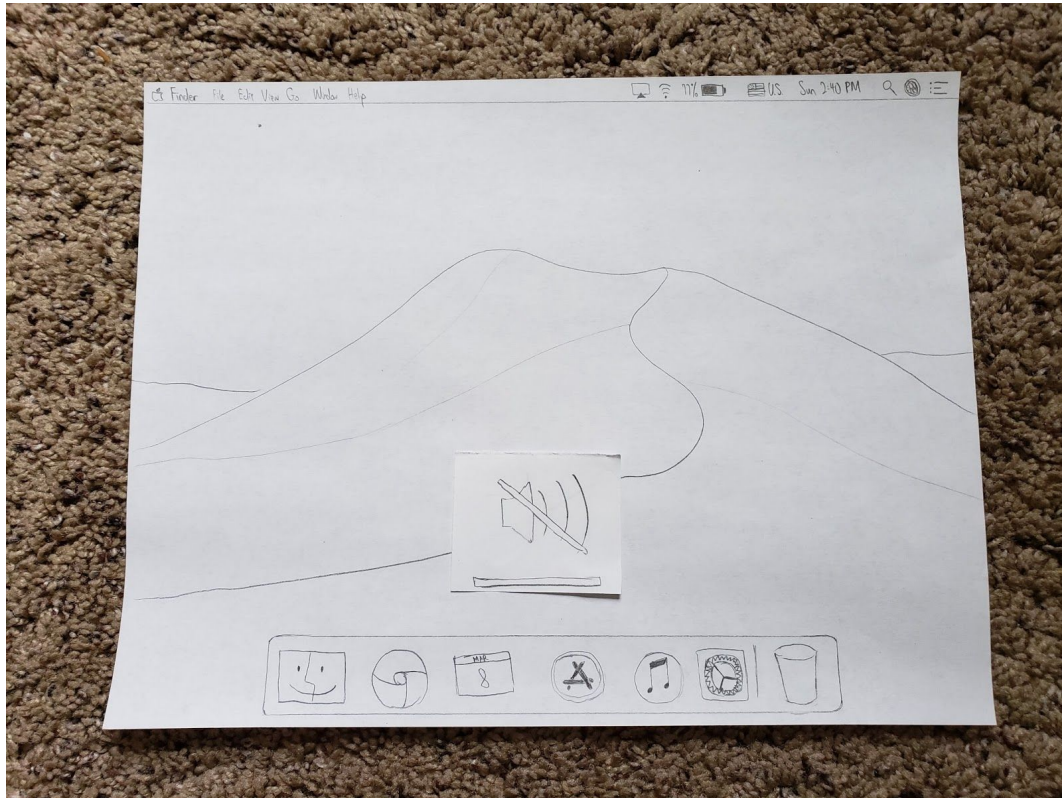


Laptop Unlock

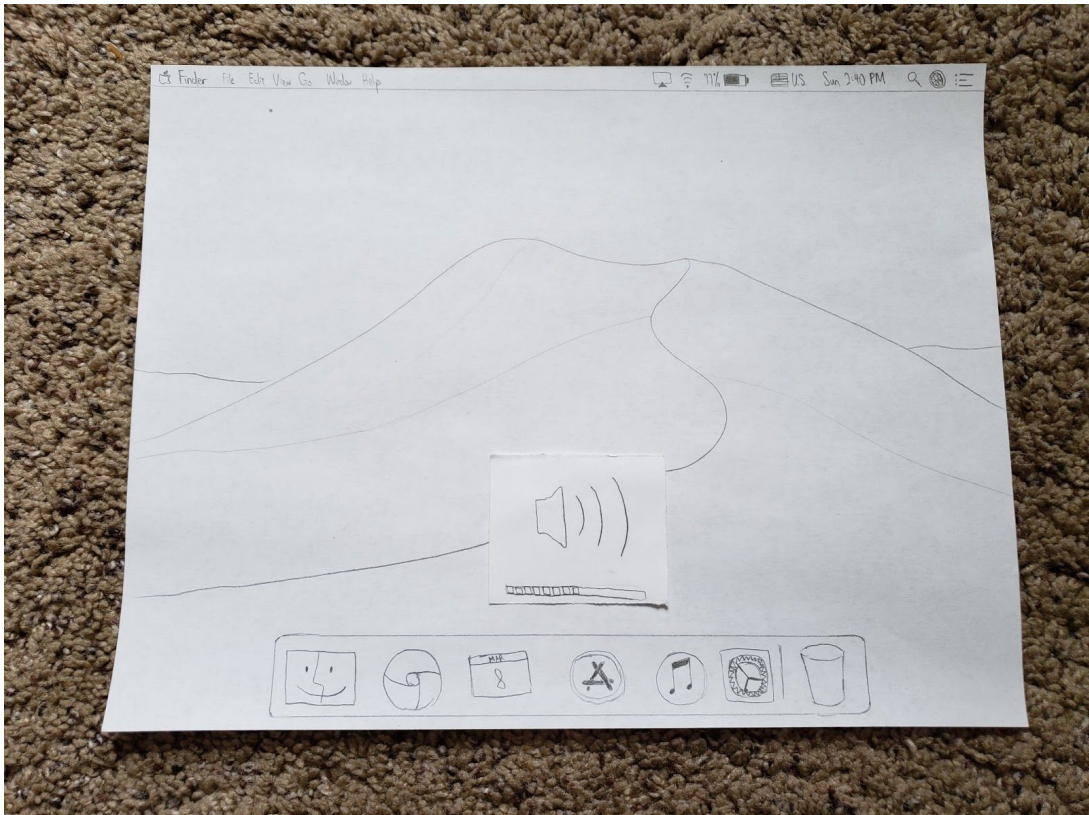


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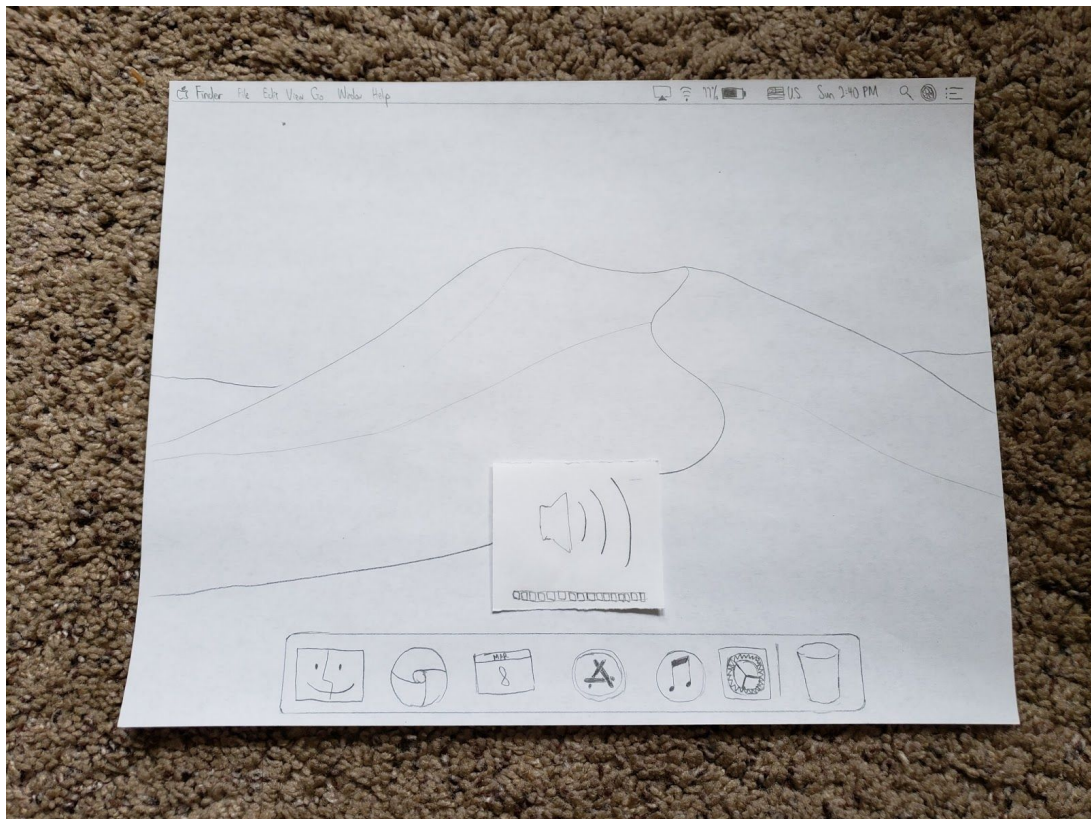
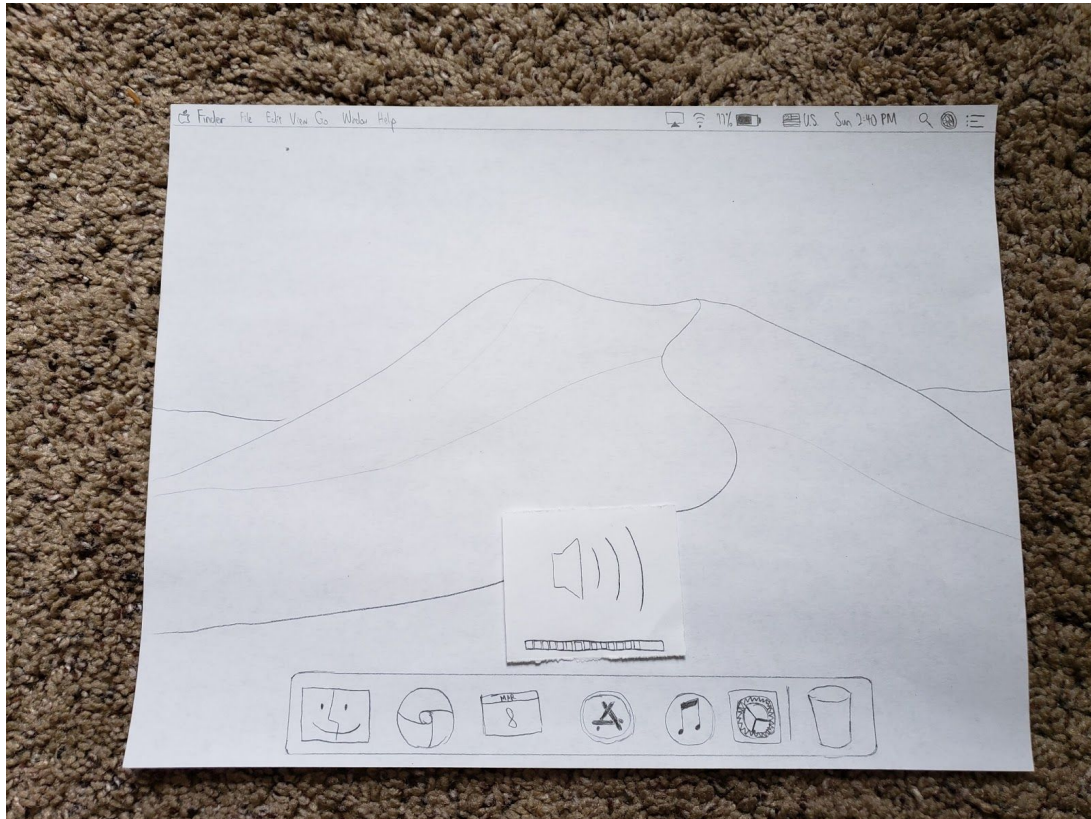
Change Laptop Volume



Figma: <https://www.figma.com/file/NKQ6e7Cku2MbnfZHiBi3nZ/The-Ring?node-id=42%3A9>



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