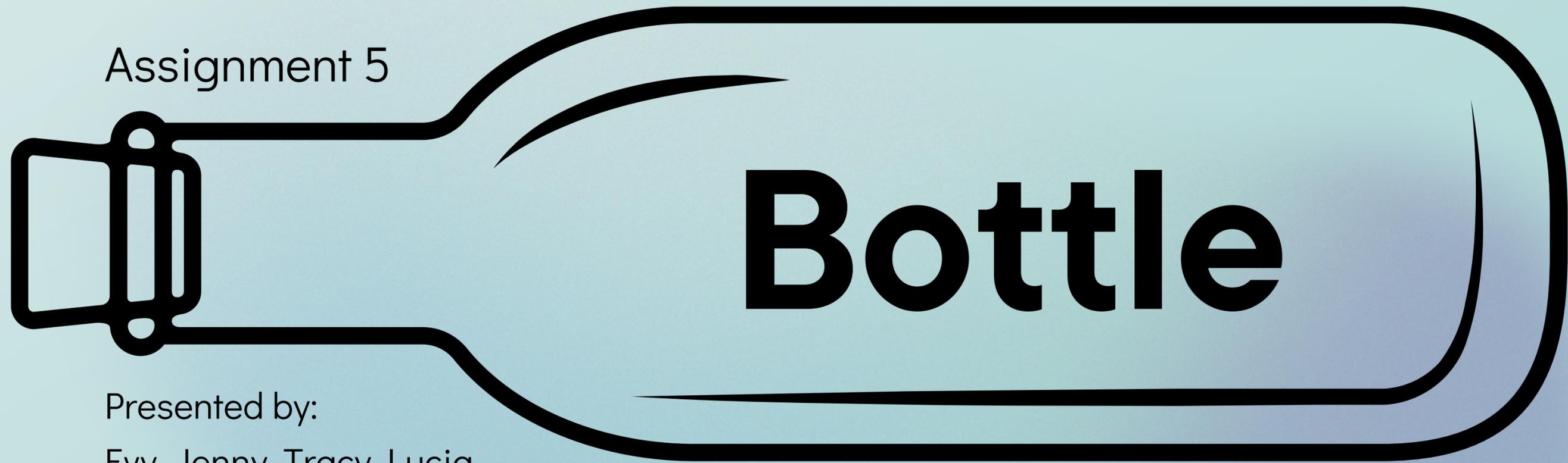


Assignment 5



Presented by:

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Our Team



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Bottle

Uncap your day with others



Overview of Problem & Solution

The **primary user** of Bottle is people in long-distance relationships, which include romantic, platonic, and familial.

Problem:

Busy lives and **time-zone differences** make it difficult for long-distance loved ones to **share updates** in real-time. During limited conversations, people have a hard time **recounting little moments** throughout their day, moments we believe are critical in maintaining emotional intimacy in relationships.

Proposed Solution:

Bottle makes updating **easy**:

- 1) Users store “**mundane**” **updates** throughout their day (text, image, videos, etc.) to a bottle, in which 2) they **exchange** with a receiver’s, to be opened and **shared at a set time**, optionally over a video call, enriching conversations. The anticipation before opening creates engagement between the users.

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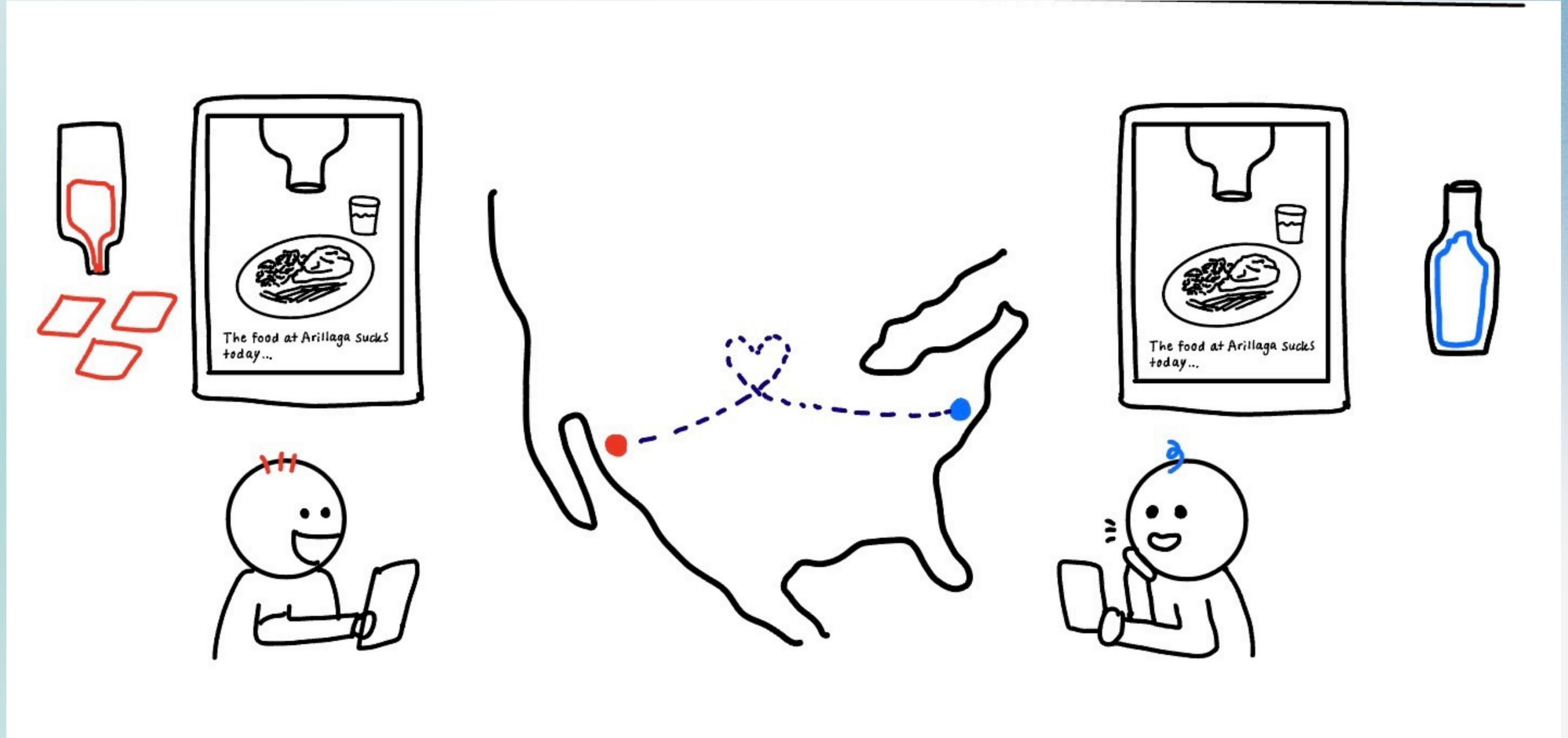
Concept Sketches



Mobile App



Mobile App

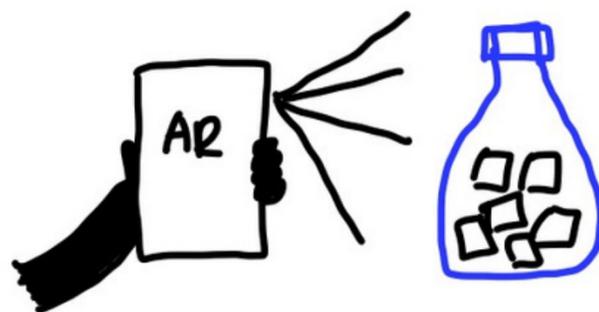


AR

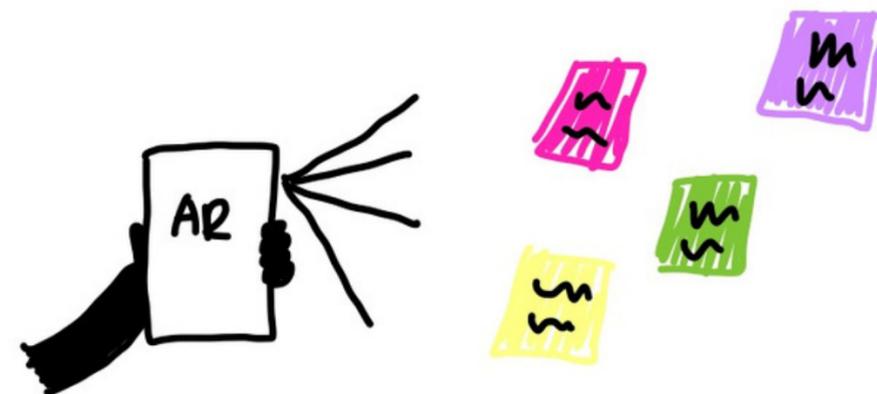
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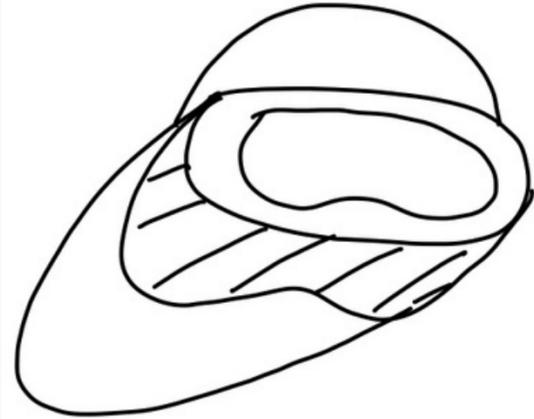


3.



VR

Your VR Headset

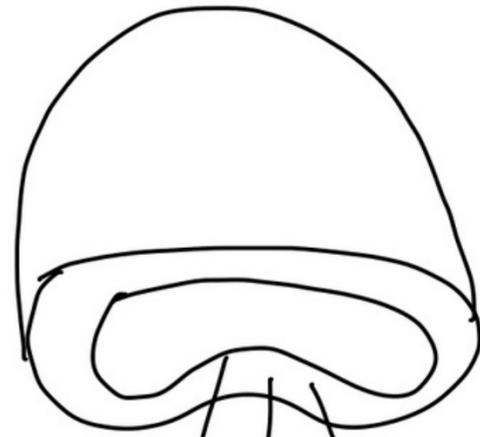


Used to view your partner's memories

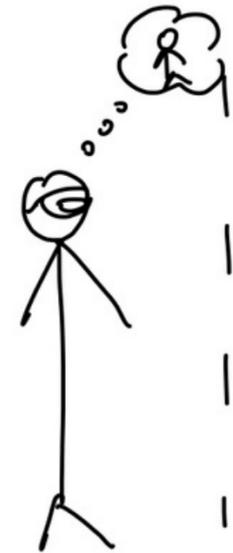
Your partner



Capturing moments from their meal



partner's memories viewable through headset



Viewing in VR (like real-time experience)



We choose...

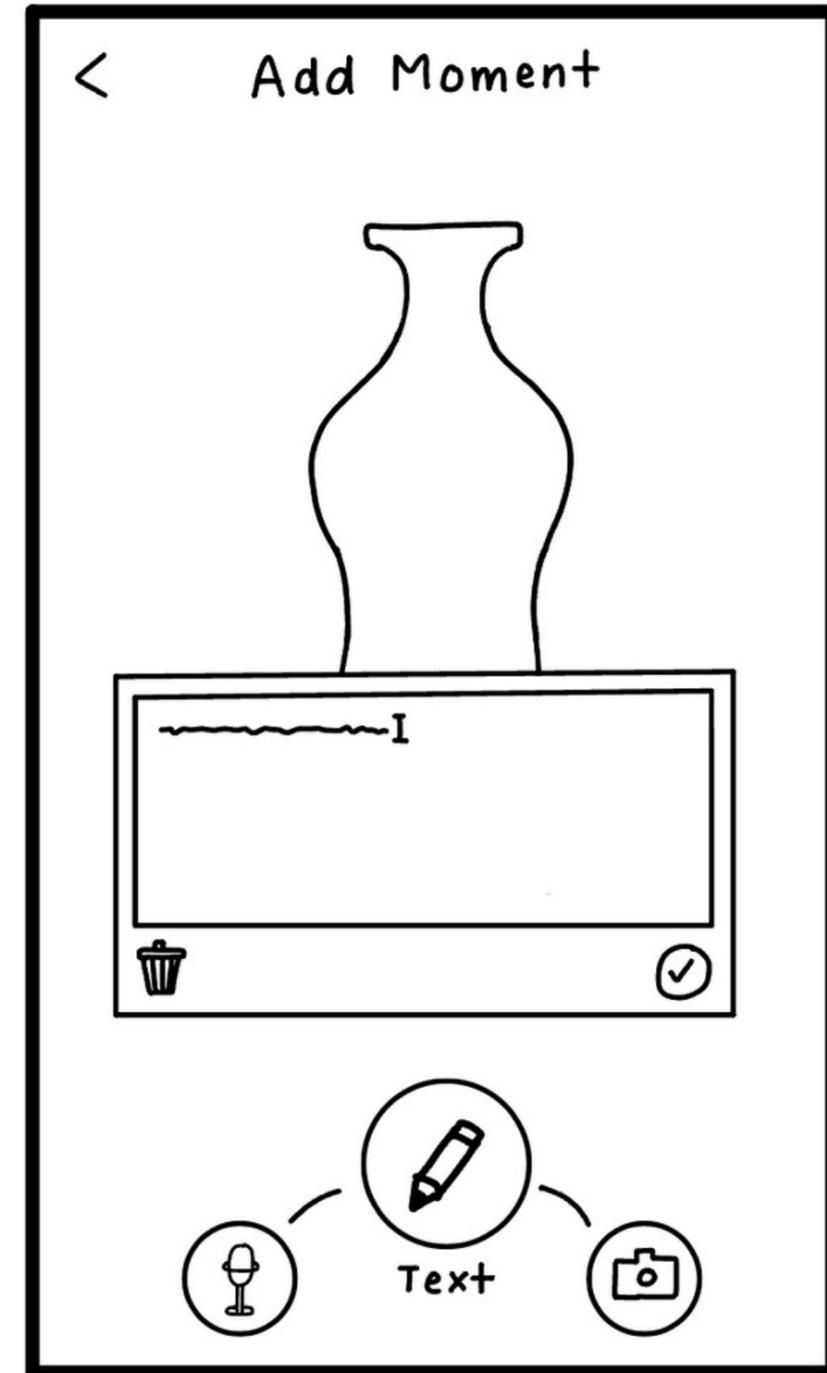
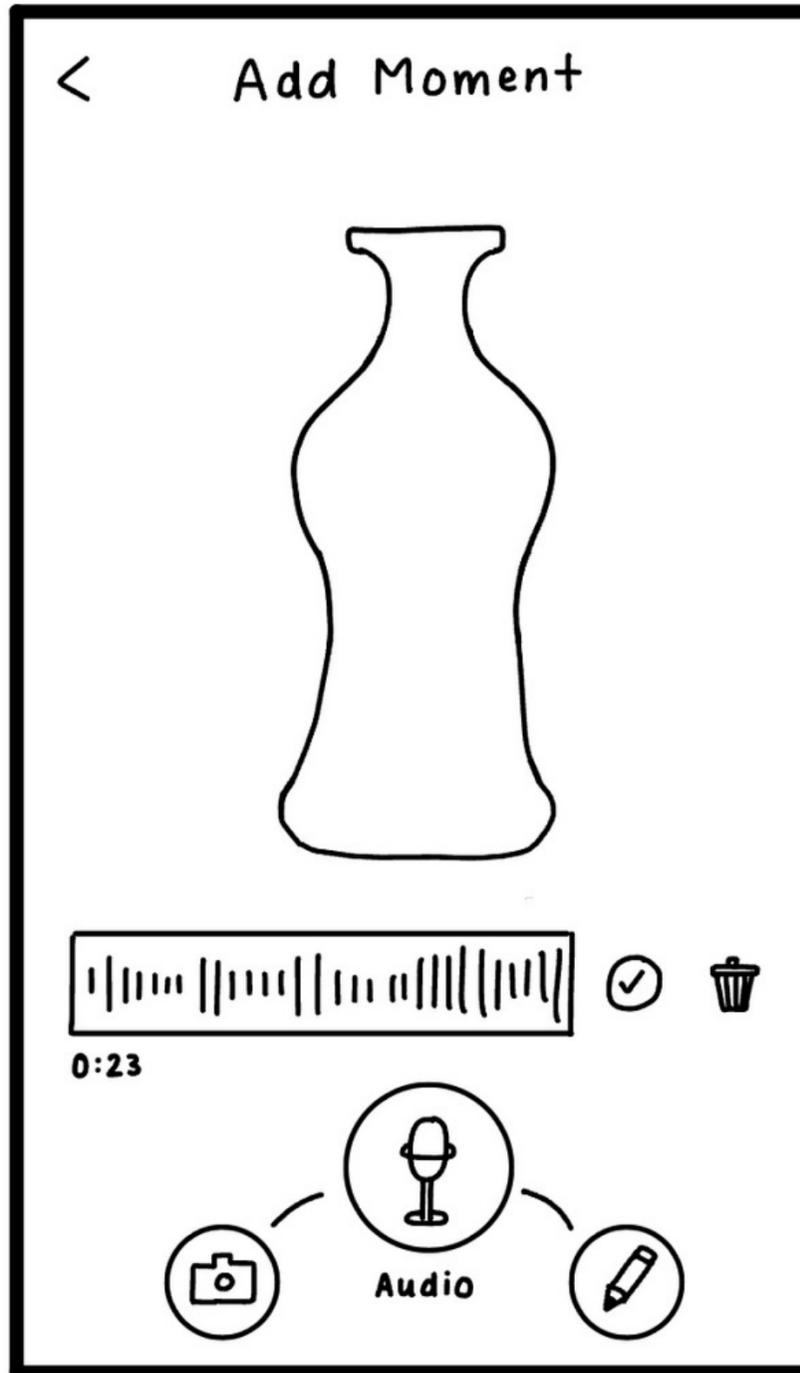
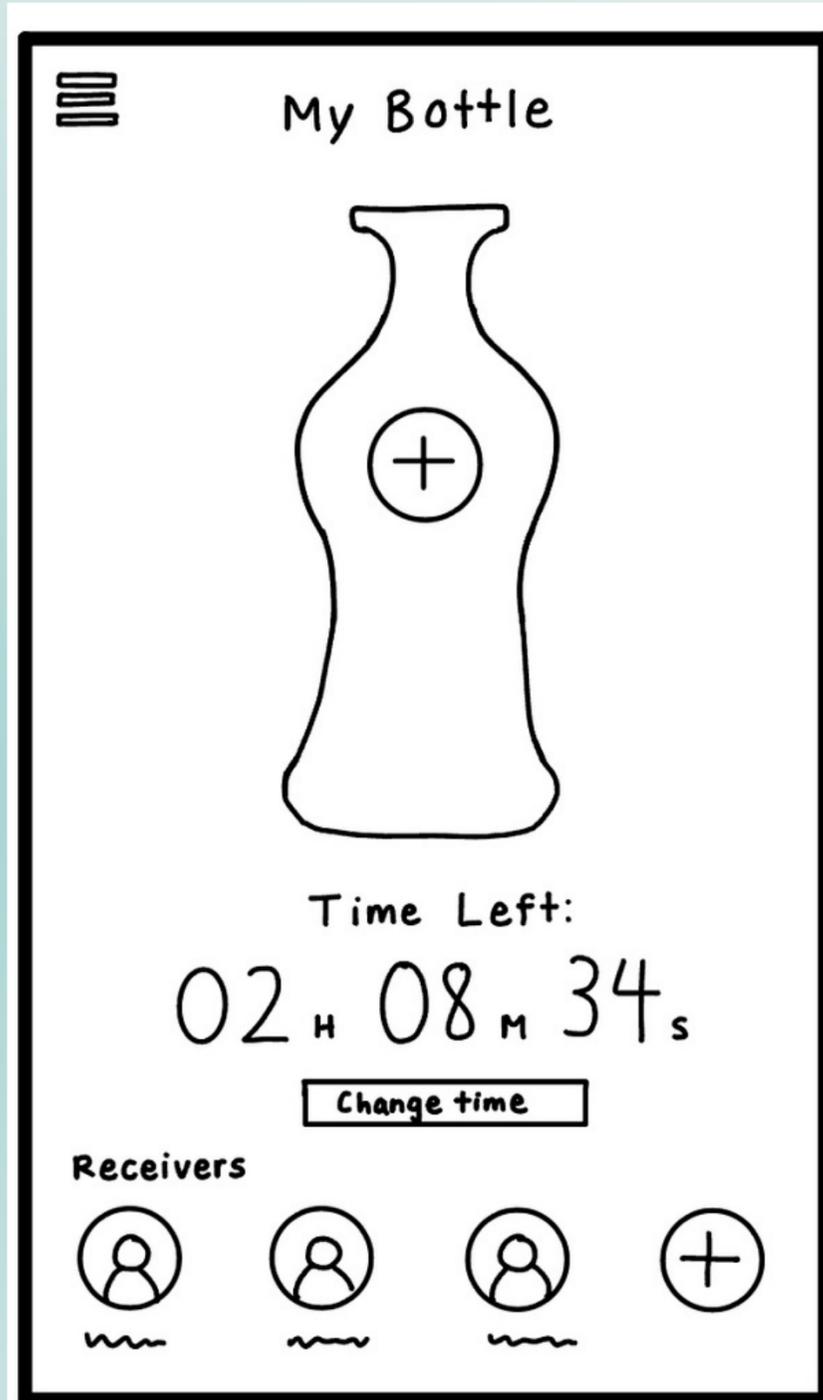
Mobile App

&

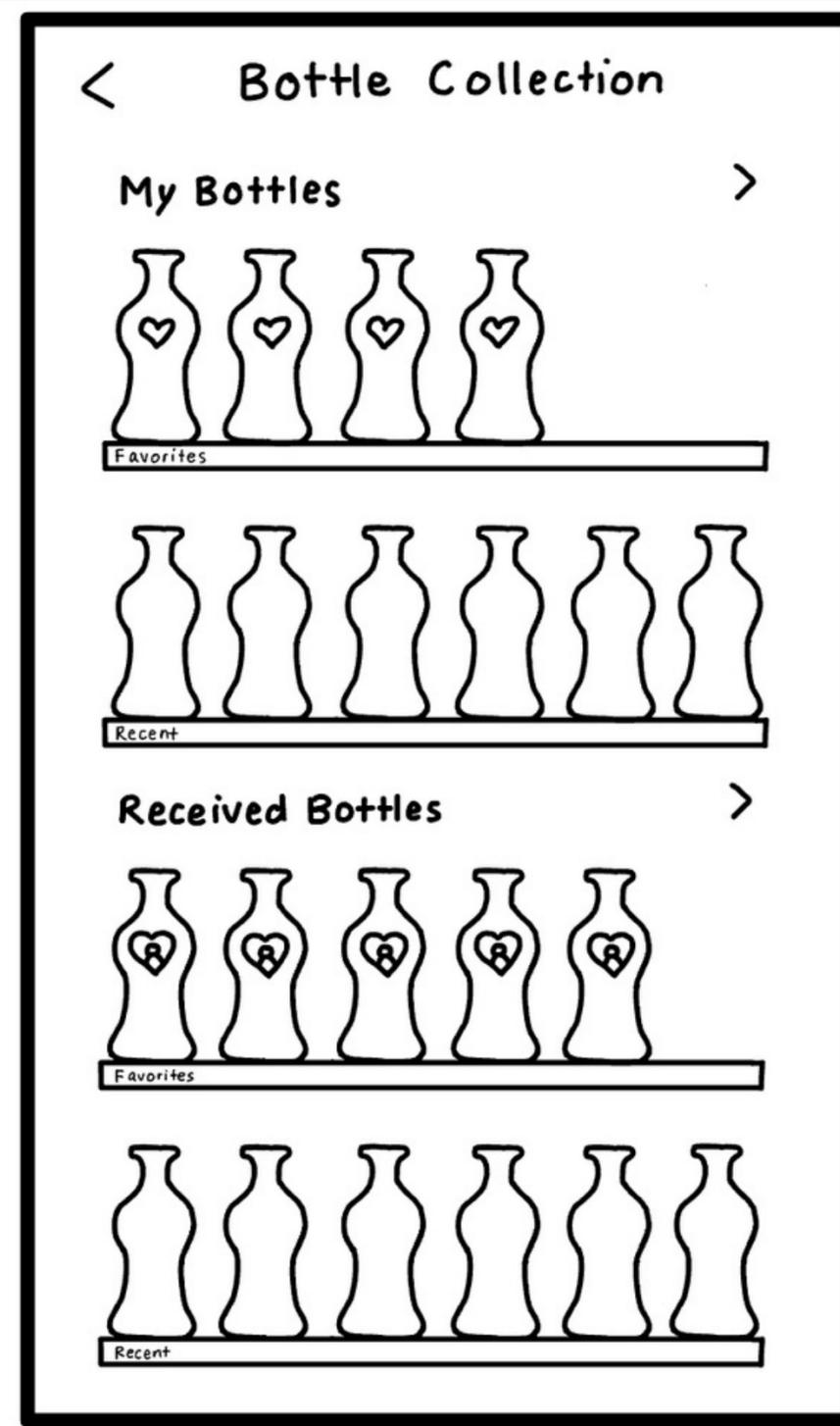
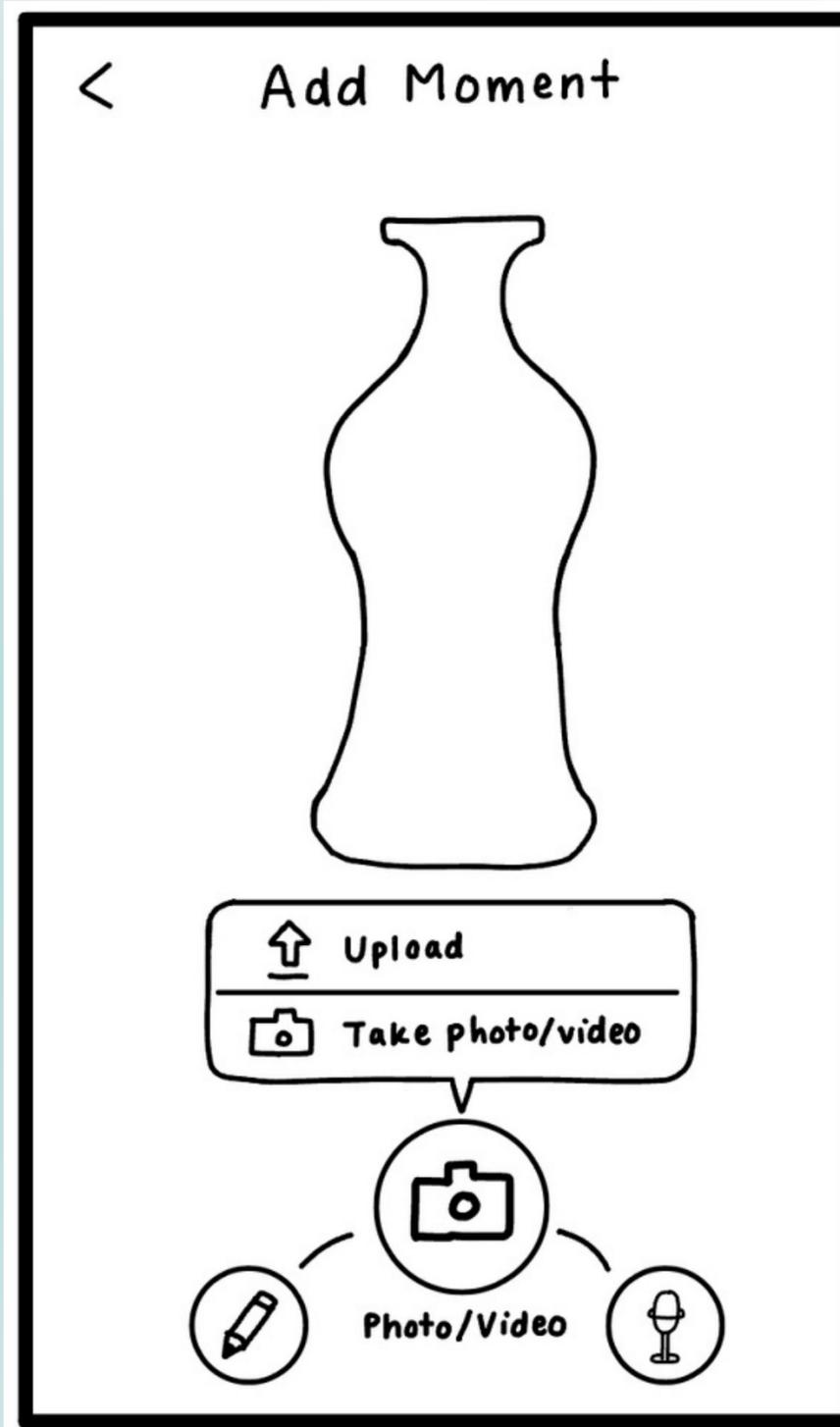
AR

Key Screens >>

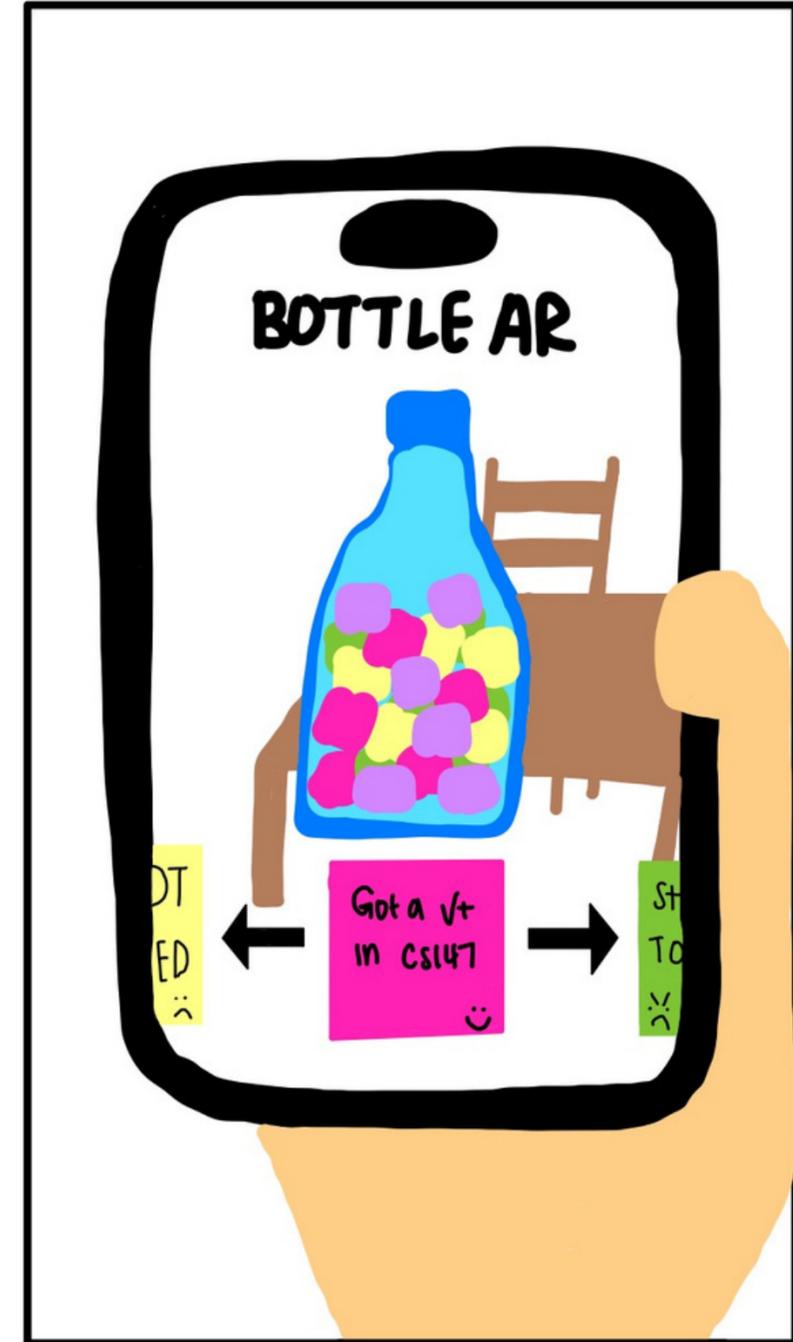
Mobile App Key Screens



Mobile App Key Screens



AR Key Screens



Pros and Cons

AR

Pros

- Users can "see" the bottle appear in their space, pick it up, and "open" it. This mimics the thrill of finding a real message in a bottle, playing to human curiosity and the joy of serendipitous discovery

Cons

- AR technology can be difficult to access for the visually impaired.

Mobile App

Pros:

- As our collection of moments encompasses a wide range of media, it is convenient and novel for users to consolidate the usage of all of these functions (capturing of pics/videos, send texts, and other media and sending) in one app

Cons:

- Mobile apps can be difficult to learn for older populations and graphics / interactive components may be hard to use for those visually impaired.

Final Solution: Mobile App

Why a mobile App?

We believe a mobile app best suits our solution idea because it has the ability to accommodate a wide range of media (photos, text, videos, voice memo, etc). This allows users to have more flexibility in documenting their everyday moments.

It is also convenient for users as all functions of the solutions are in one app that is downloaded on their mobile devices, which most people now own.

Lastly, an AR implementation would not always be practical given the different environments users may find themselves in and it is not inclusive of people who may have visual impairments. We want our solution to have a wide reach, so a mobile app is the superior option for our solution.

Lo-fi Prototype Construction

1. Based on our chosen realization, we began drawing out screens using a digital drawing app
2. We drew scenes based on the tasks we expect the users to execute
3. We thought rationally on the order of the screens in order to find a sequence that made the most intuitive sense
4. We drew the transition arrows and any buttons and popups that could occur in each screen
5. We printed and cut out our screens
6. Finally, we arranged them and began testing



Lo-fi Prototype Construction

Screens

Starting home screen

Change Time

Time to open XXX's bottle...

Move to my bottle

Task Flow: Add Message

Adding in different media

Saving add notes

Task Flow: Changing Time/ Sharing Bottle

Changing time

selecting user: selecting @

Task Flow: Changing Time/ Sharing Bottle

Viewing bottles

note is text

note is photo

note is audio

General Pop-ups

Task: Sorting by Emotion

When emotion is selected

When sort mode is on

Viewing notes by emotion (place corresponding emoji in blue dot)

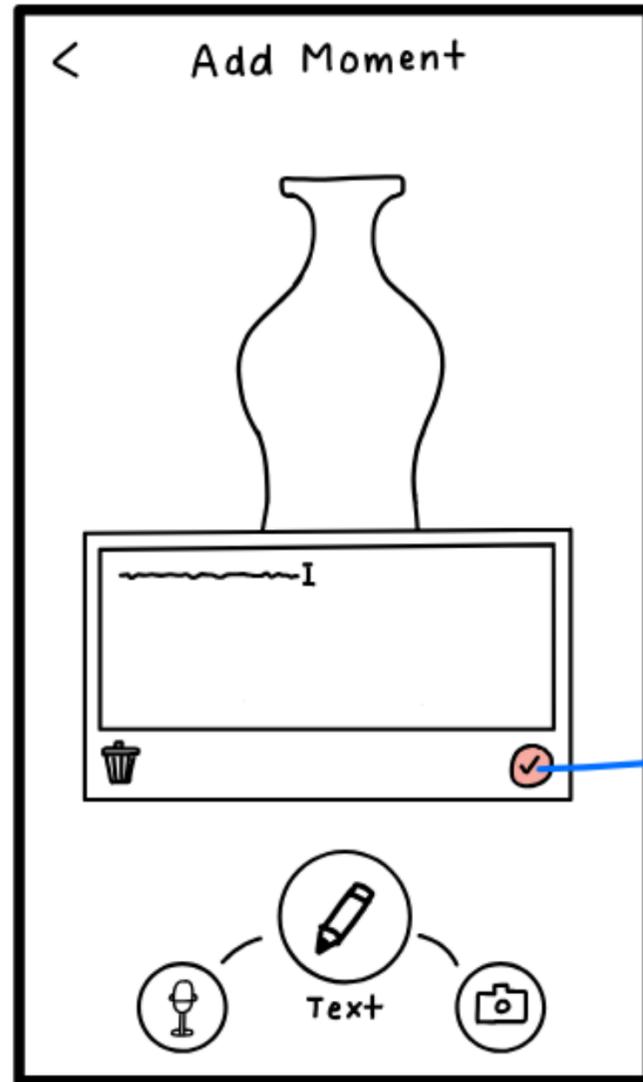
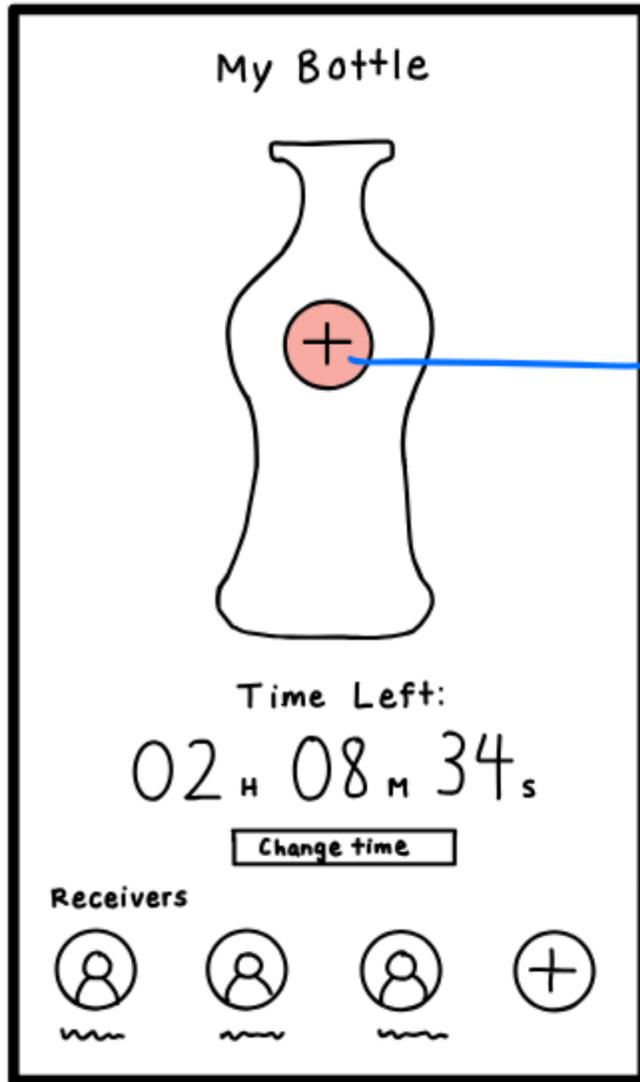
note is text

note is photo

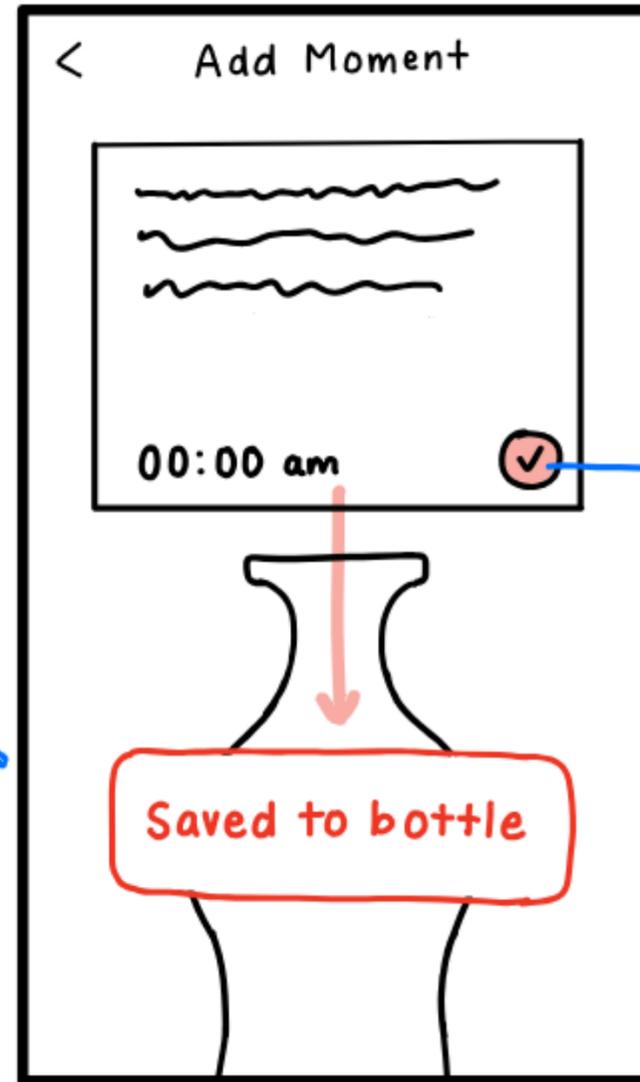
note is audio

Task Flow 1: Simple

Simple Task: Adding Message to Bottle

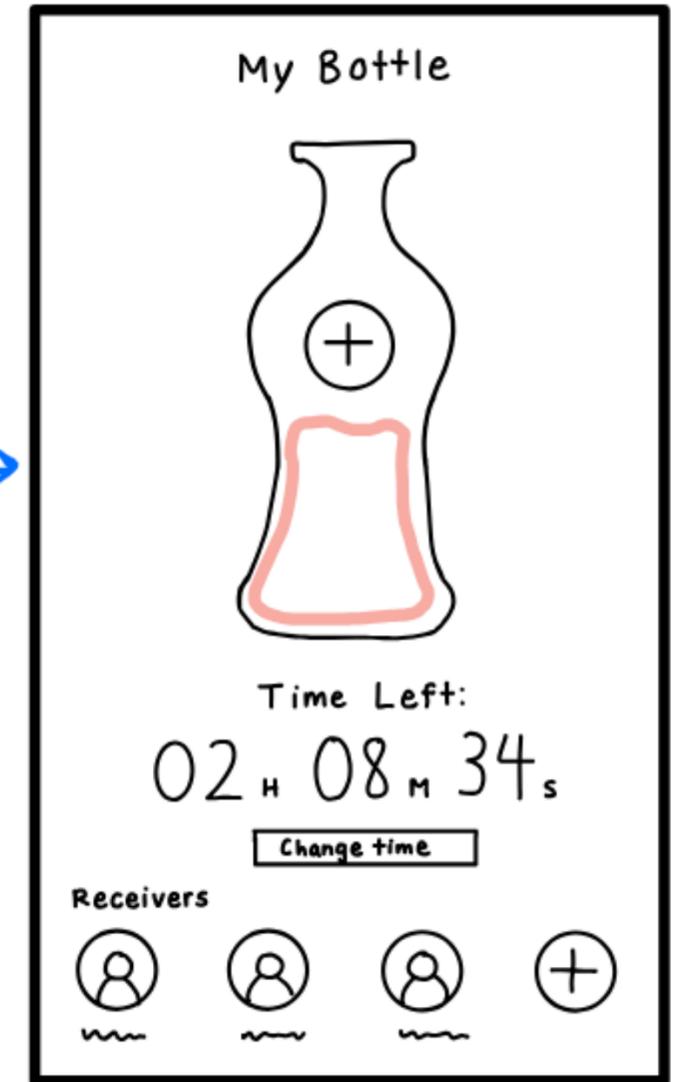


User writes note



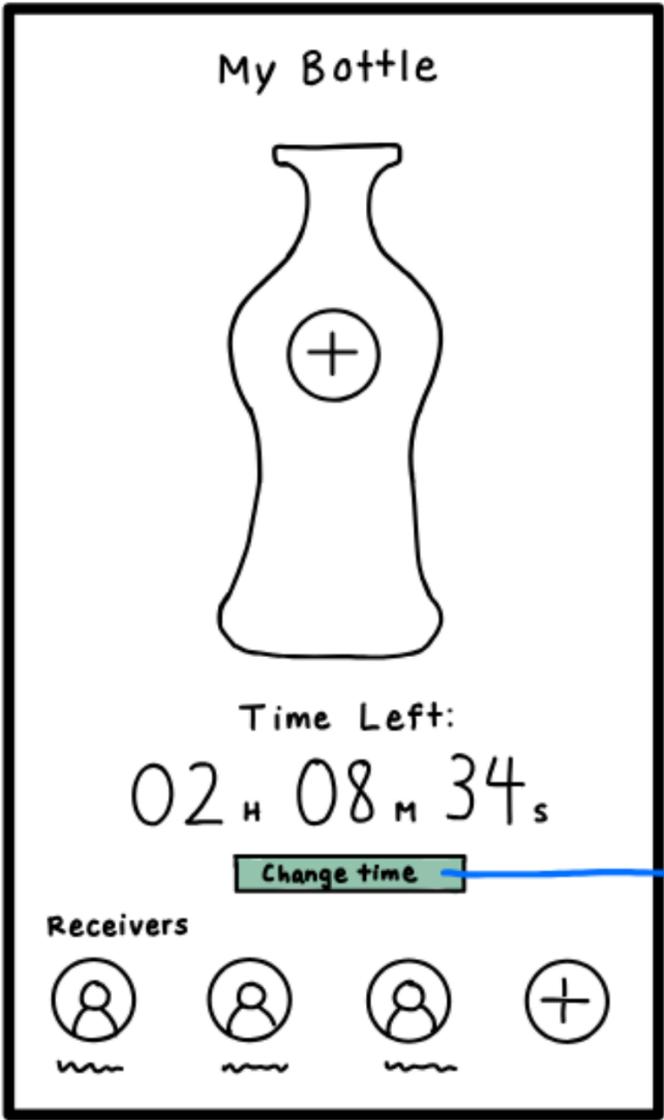
Saving note to bottle

User drags in note to bottle or clicks ✓ → note is saved to bottle and success message pops up

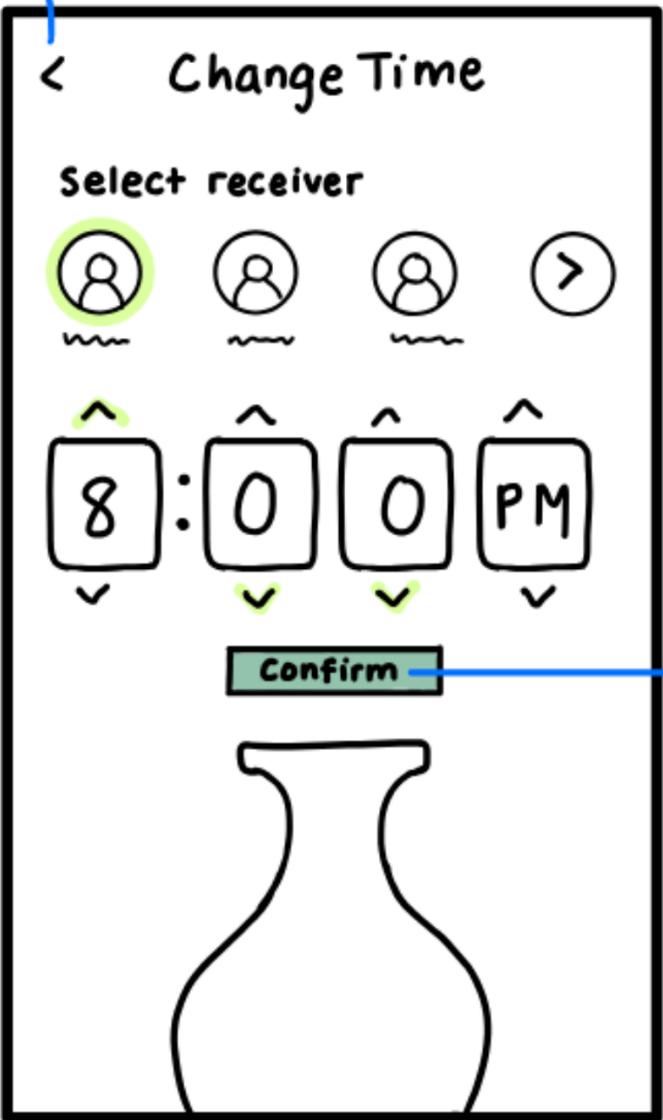


back to home page with bottle filled up more

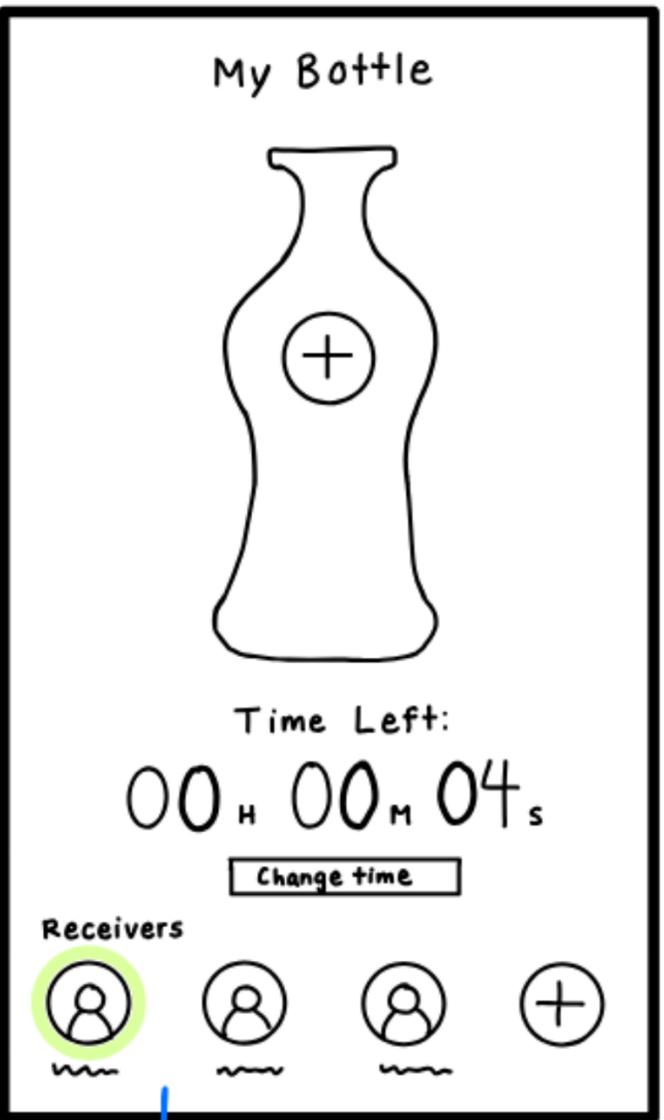
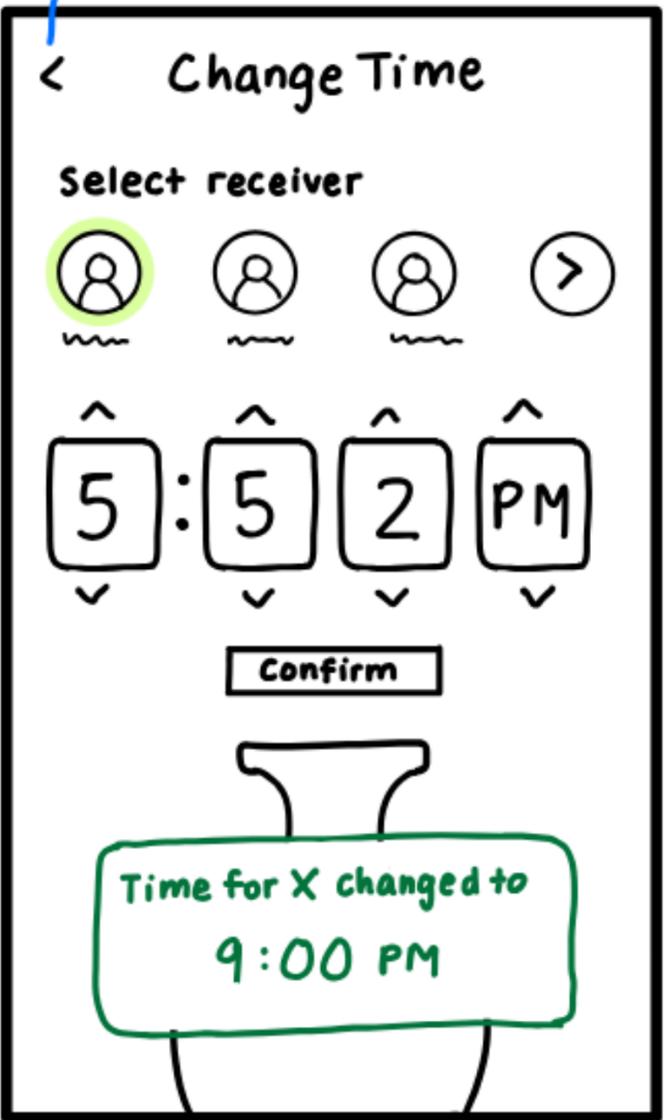
Task Flow 2: Moderate



changing unlock time for a receiver



- ① Click on icon of the receiver for which the user wants to change the opening time
- ② changed hour/min/sec for time



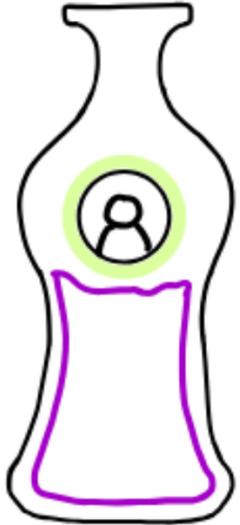
Task Flow 2: Moderate

after 4 secs, we've reached the unlock time

viewing/interacting with receiver's bottle

sharing own bottle

Time to open
XXX's
bottle...

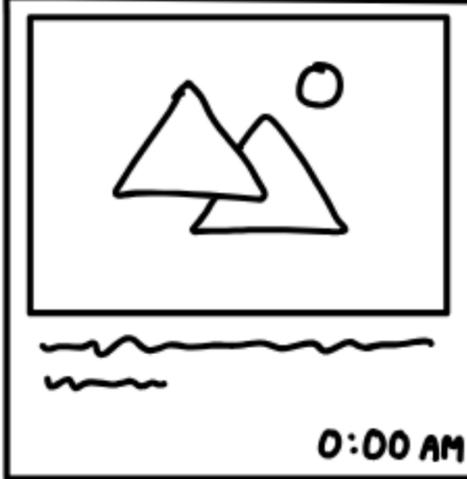
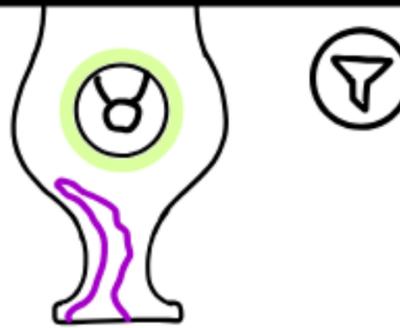


We're ready to open!



0:00 AM

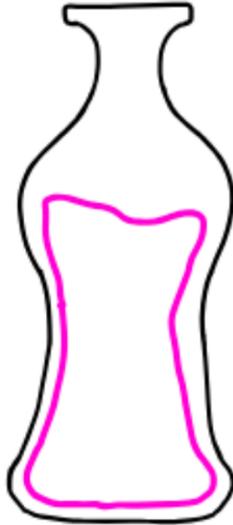
Move to my bottle



0:00 AM

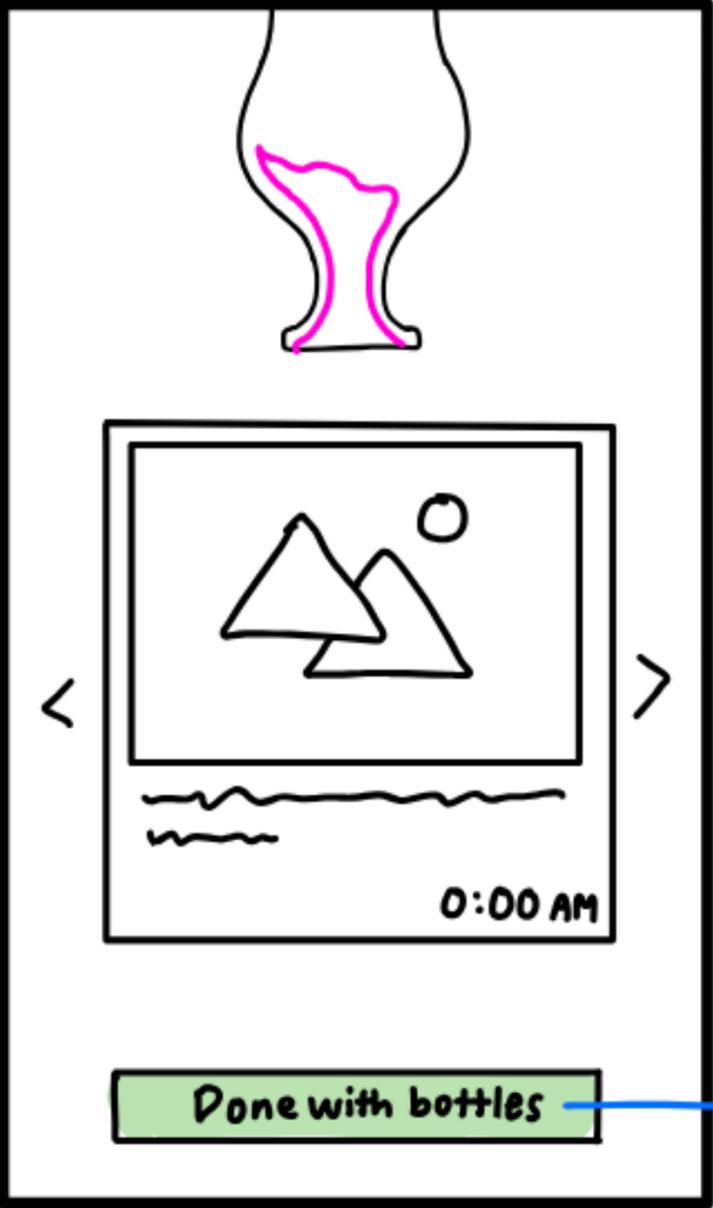
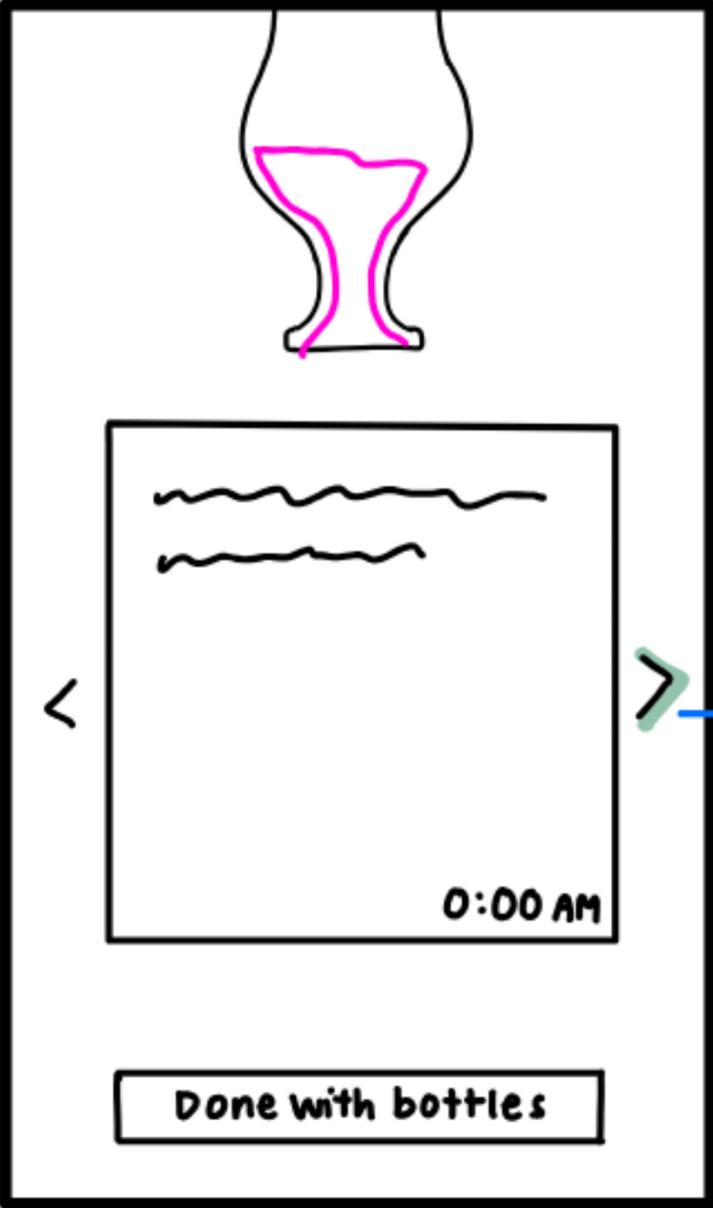
Move to my bottle

Time to open
your
bottle...



We're ready to open!

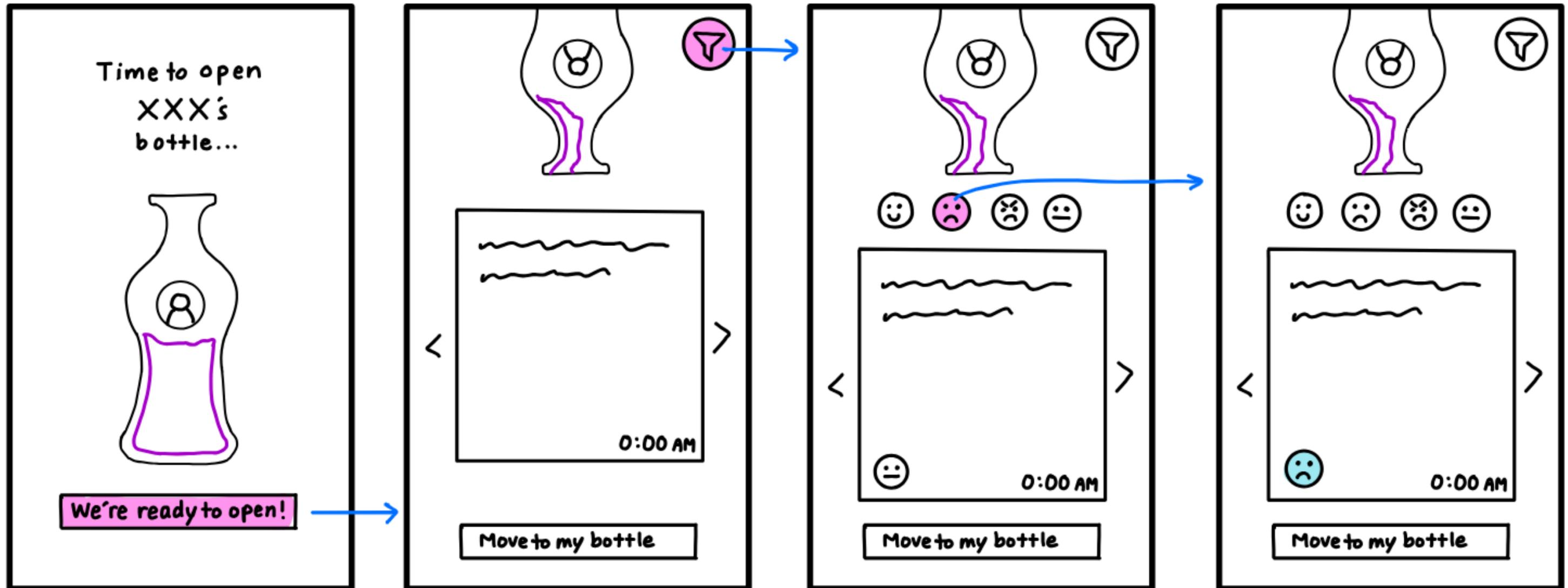
Task Flow 2: Moderate



back to home screen, waiting for another receiver's unlock time

Task Flow 3: Complex

Complex Task: Find moments associated with different emotions



select desired emoji to see the corresponding note
emoji tag on the notes appears

Testing Methodologies

Participants

5 total participants recruited and interviewed in Peet's Coffee, compensated with a gift card

P1: ~60 year old female with long distance friends in Maryland and Europe

P2: ~ 20 year old male

P3: ~30 year old male

P4: Paly HS female

P5: Paly HS student



Environment and Apparatus

We created a paper prototype of our app, with the 3 task flows. These paper prototypes were then laid out on a table in front of our participants.



Process

1. Introduce our team and offer Peet Coffee gift card in exchange for a short user interview.
2. Ask participants for consent to videotape and record their responses
3. Explain a brief overview of our “message in a bottle” app and encourage them to explore as much as they can and ask questions for clarification when needed.
4. Instruct the participant to perform each task by having them tap on the screens to simulate actions. The computer changed the screens or added pop ups accordingly.
5. Ask the participant for feedback about each task, including the aspects they found enjoyable and the parts they found confusing. We recorded this and any other comments
6. Thank the participant for their time and participation. Give them the \$5 gift card.



Jenny: Facilitator
Evy: Notetaker
Lucia: Computer

Goals and Metrics

Goals:

- Identification of gaps in our features, for example, testing if users are familiar with icons we chose and the purpose of each screen
- Determine if the app is intuitive and easy to navigate, even to the less technologically savvy population

Metrics for Overall Usability:

- Gather explicit open-ended feedback to gain insight on their experience: “What was confusing?”, “Did you get stuck anywhere where you weren’t sure how to proceed?”
- Track whether users were able to complete all three tasks
- Measure the confusion that users appeared to exhibit during the process of interacting with the app, through monitoring their hesitations and questions

Results

- 100% completion rate for the simple and moderate task and 80% completion rate for completing the complex task.
- 100% of users also navigated the camera, text, and voice memo bar.
- Explicitly communicated feedback from participants:
 - “What is being measured?” in relation to the effectiveness of enhanced long distance communication
 - “What does the time represent?” Time to fill bottle or time to open?
- Observed Data:
 - Confusion on the order of tasks being completed
 - Some people added message in the bottle before selecting user
 - Some features were not used (emotion filtering)
 - Button vs Pop-up message

Key Insights

- Enthusiasm about the app's design, aesthetic, and simplicity
- Uncertainty about the app's send-to-users functionality
- Confusion about sending and opening messages.
- Mixed responses about changing the message receipt time
- Younger users found it more intuitive, whereas older demographic cited areas of improvement.
 - Goal: Design inclusivity for diverse user age range

Task-Specific Insights

- Simple Task:
 - Unclear icons for selecting users
 - Ambiguity in sending process (manual send vs. auto-send)
 - Confusion on how to open received bottles
- Moderate Task:
 - Inconsistent understanding of time selection
- Advanced Task:
 - Filtering messages by emotion seen as innovative
 - Desire for clearer emotion categorization

Further Explorations

- Developing a short onboarding tutorial for a seamless first-time user experience
- Introducing preset time intervals for sending messages
- Refining the emotion filter for improved clarity and ease of use
- Ensuring our design is inclusive and easily navigable for all age groups
- Retaining our focus on a simplistic and intuitive design while ensuring functionality is not compromised

Appendix

Appendix

a. Full list of pros and cons for selected interface rationale

Mobile App

Pros:

- Most people who are in long distance relationships already have smart phones to communicate (based off interview data, whatsapp, wechat, imessage are common apps already used) so downloading this doesn't require new technology
- As our collection of moments encompasses a wide range of media, it is convenient and novel for users to consolidate the usage of all of these functions (capturing of pics/videos, send texts, and other media and sending) in one app
- Mobile apps can send reminder notifications to fill or open bottles
- Mobile apps can access and coordinate the time to lock and open the bottles across different time zones

Cons:

- Moments lose their sense of tangibility as they become digitized.
- Frequent message notifications can be distracting, affecting productivity and mental well-being.
- The video / pic and media sending / receiving are platform-specific, limiting access to them on other apps.
- Mobile apps can be difficult to learn for older populations and graphics / interactive components may be hard to use for those visually impaired.
- Written communication and media sent without full context lacks tone and body language, leading to potential misunderstandings or misinterpretations.

Appendix

a. Full list of pros and cons for selected interface rationale

AR

Pros

- Instead of just receiving a digital notification, users can "see" the bottle appear in their space, pick it up, and "open" it. This mimics the thrill of finding a real message in a bottle, playing to human curiosity and the joy of serendipitous discovery
- Users can physically interact with the virtual bottle by moving their device or by using hand gestures, making the experience more memorable.
- Users can project the bottle into various real-world environments, customizing the backdrop and making each experience unique

Cons

- AR technologies might be confusing for older populations
- AR technology can be difficult to access for the visually impaired.
- If users become too engrossed in the AR experience, they might neglect their surroundings, posing potential safety risks (e.g., walking into objects or straying into unsafe areas)

Appendix

Script:

Facilitator: "Hello! How's your day going?"

Facilitator: "We're excited to introduce an app we're developing, which is all about bridging distances. It's a 'message in a bottle' concept for sharing memories and moments with loved ones, be it friends, family, or partners."

Facilitator: "Imagine these papers as phone screens. Simply tap on them as you would on an actual phone, and Lucia will guide you to the subsequent screens."

Facilitator: "As you dive in, we'll be noting down your interactions and any thoughts you share. Just to keep you informed."

Facilitator: "Firstly, we'd love to see how you'd share a memory with a loved one. Voice out any thoughts or questions as you go through the process."

Facilitator: "Well done! Now, can you try setting a specific time for your 'message in a bottle' to be opened by the recipient?"

Facilitator: "For our next task, we have an emotion filter feature. Could you try searching for messages based on a specific emotion, say happiness or sadness?"

Facilitator: "On a scale of 1-10, how intuitive did you find each feature we walked through today?"

Facilitator: "Would you suggest this app to a friend or family member living far away?"

Appendix

Participant One

Incident	Severity
Accidentally clicked multiple people for sending the message	2
Sent the message prematurely, before selecting recipients	2
Questioned the app's effectiveness for long-distance communication compared to existing tools like WhatsApp	3
Uncertain about the microphone's role or function in sending audio messages	3

Appendix

Participant Two

Incident	Severity
Uncertainty about the meaning of "time left"	3
Clicked on the checkmark to add a text message without an understanding that it would add the text to the bottle	3
Faced difficulty understanding how to open the received bottle	3
Clicked on the text field while opening bottle	1

Appendix

Participant Three

Incident	Severity
Misunderstood the user selection icon, thinking it was for adding a new message	3
Assumed the bottle would be sent instantly rather than manually sending	3
Wanted an option to respond to received messages	2
Expected a popup notification for received bottles	1
Expressed excitement about applications for Bottle in the workspace	0

Appendix

Participant Four

Incident	Severity
Confused about whether a button was a pop up message or a clickable button	3
Didn't know what the time represented	3
Didn't know how to get back to a previous page	2

Appendix

Participant Five

Incident	Severity
Tried to add different people (a feature not yet available)	2
Didn't know how to change time	3
Didn't know how to get back to a previous page	2