A5: Sketching, Low-fi Prototyping & Pilot Usability Testing

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01

Intro

Problem/Solution Overview

Team

Hallie Xu

Symbolic Systems

Jillian Chang

Symbolic Systems

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Computer Science

Leo Sui

Design

WAYN

Where are You Now? — Together, Even When You're Not

Solution

Problem: Young adults often struggle to maintain friendships when busy schedules make real-time communication difficult.

Solution: A **map-based social app that helps friends stay connected** through surprise, multimodal interactions, even when life is busy. Friends can send notes, photos, or gifts that are **tailored to a friend's current location, creating spontaneous moments of emotional presence.**

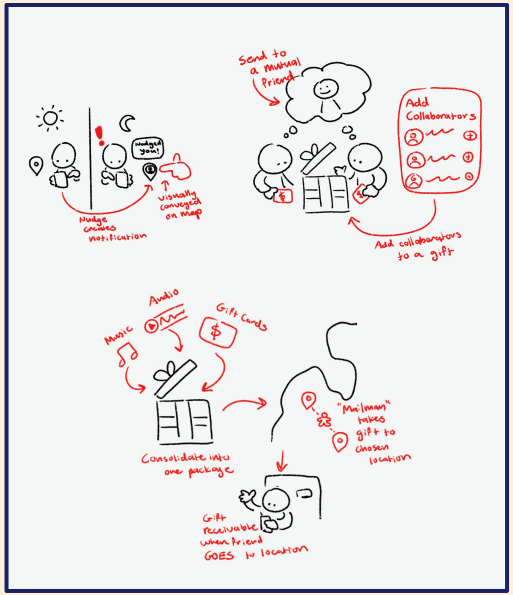
02

Sketching Explorations

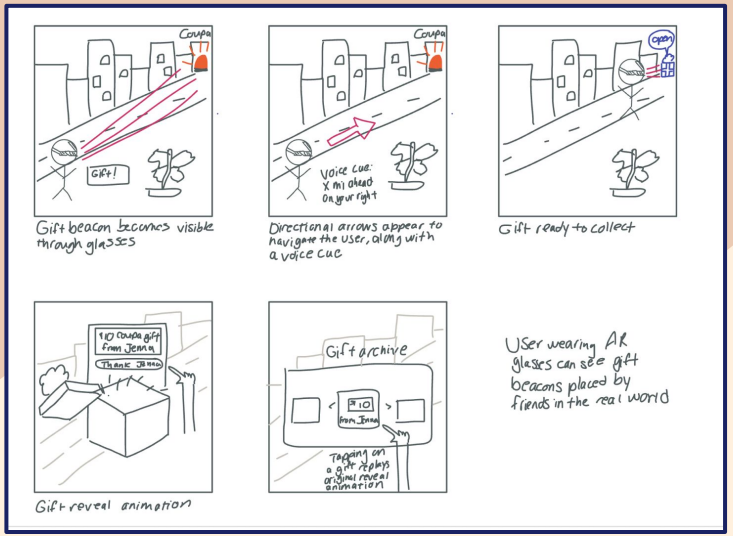
Concept Sketches, Realizations

Concept Sketches

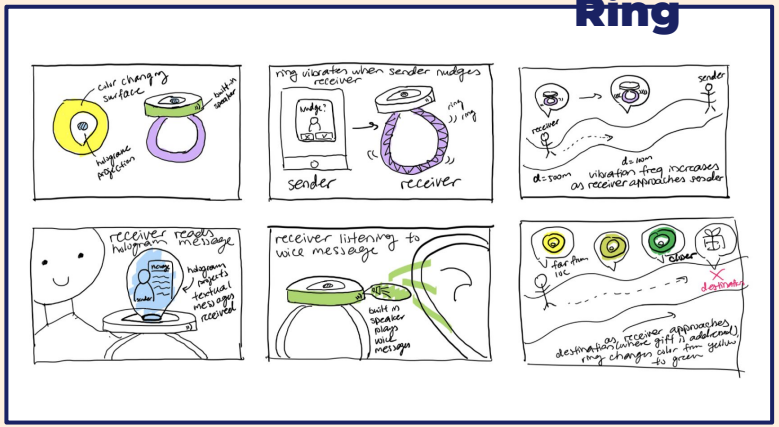
App



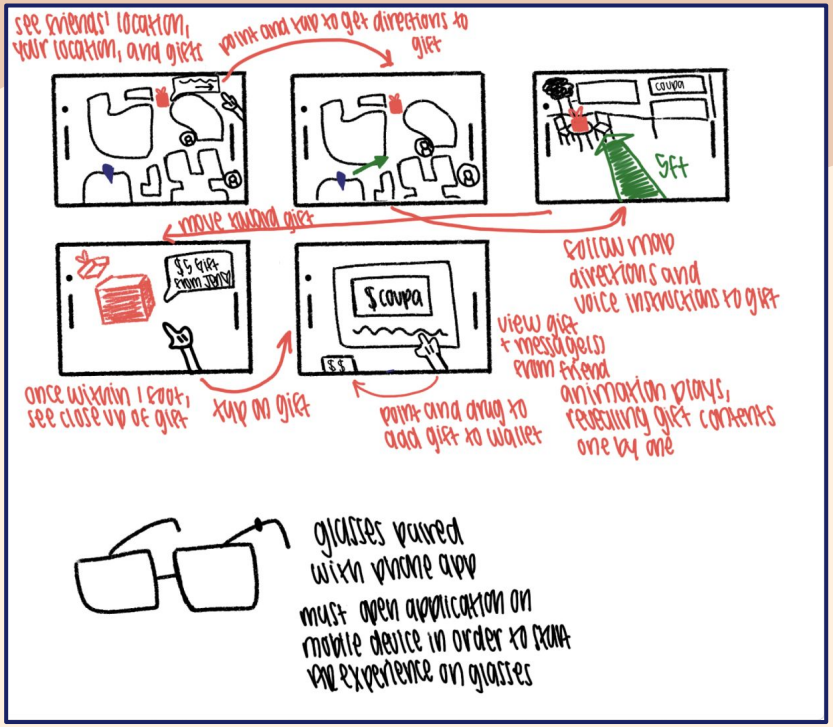
AR

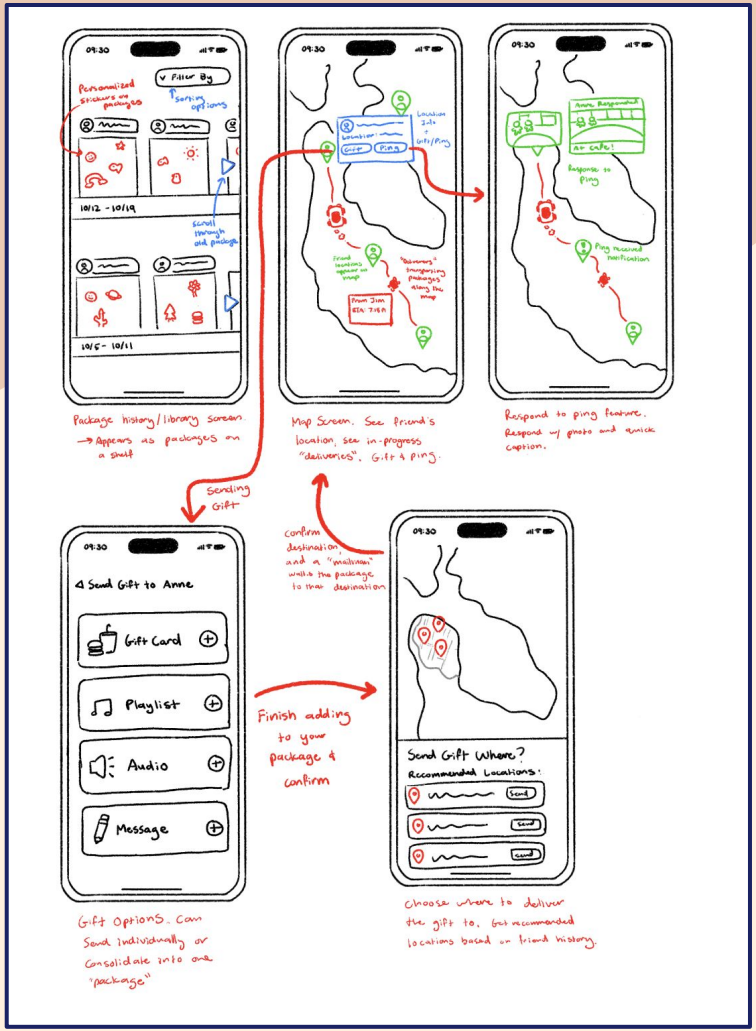


Smart Ring



Realizations



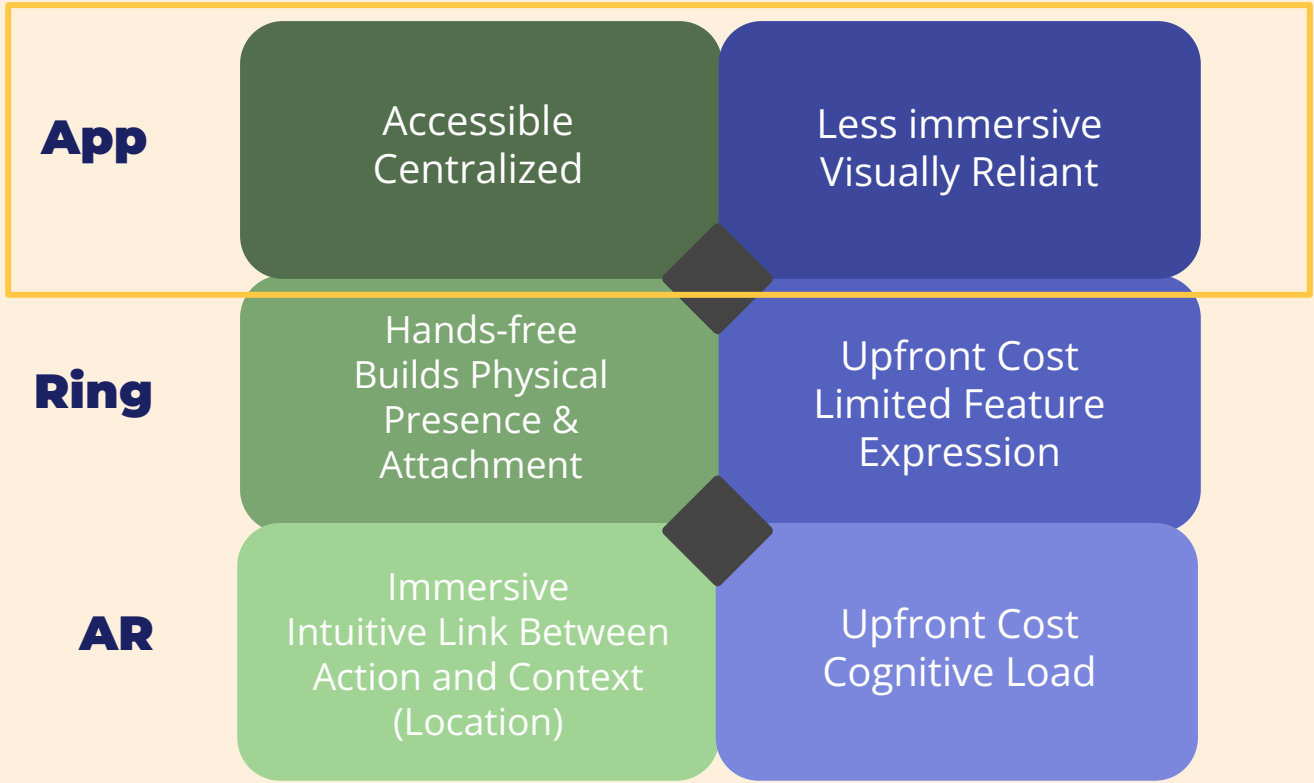


03

Selected Interface

Pros & Cons, Rationale

Pros & Cons


App
Accessible
Centralized
Less immersive
Visually Reliant
Ring
Hands-free
Builds Physical
Presence &
Attachment
Upfront Cost
Limited Feature
Expression
AR
Immersive
Intuitive Link Between
Action and Context
(Location)
Upfront Cost
Cognitive Load

MOBILE APP

Cost

Free — no upfront investment like with AR or Glasses.

Reach

Available to any smartphone user (97% young adults in the U.S.). Only 48.2% *interested* in purchasing glasses, 3-5% own glasses, and 1 in 3 Americans use AR.

Functionality

Centralized platform for all tasks (nudge, messages, gifts, collaboration). Potential for integration with future AR or wearable extensions as a companion app.

Usability

Familiar interface and interactions. Enables effectiveness and efficiency.

MOBILE APP

We selected the mobile app because it provides the most **accessible**, **scalable**, and **user-friendly** experience. Unlike hardware options like AR glasses or ring wearables, the app reaches nearly all smartphone users with **no upfront cost**. It serves as a **centralized hub** for all of our connection-based features — nudges, messages, and gifts — while offering a familiar, intuitive interface that **integrates seamlessly** into users' daily lives and routines.

04

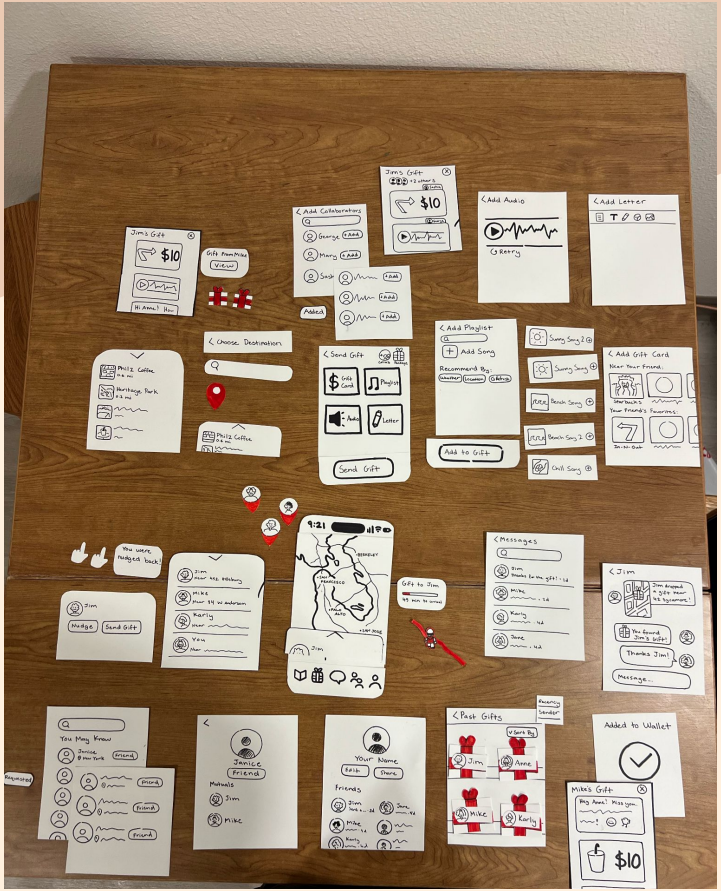
Lo-Fi Prototype

Construction

Prototype

Our paper prototype was constructed using **cardstock.**

- **Easy to work with** → allows for frictionless iteration
- **Durable** to handle multiple rounds of testing.

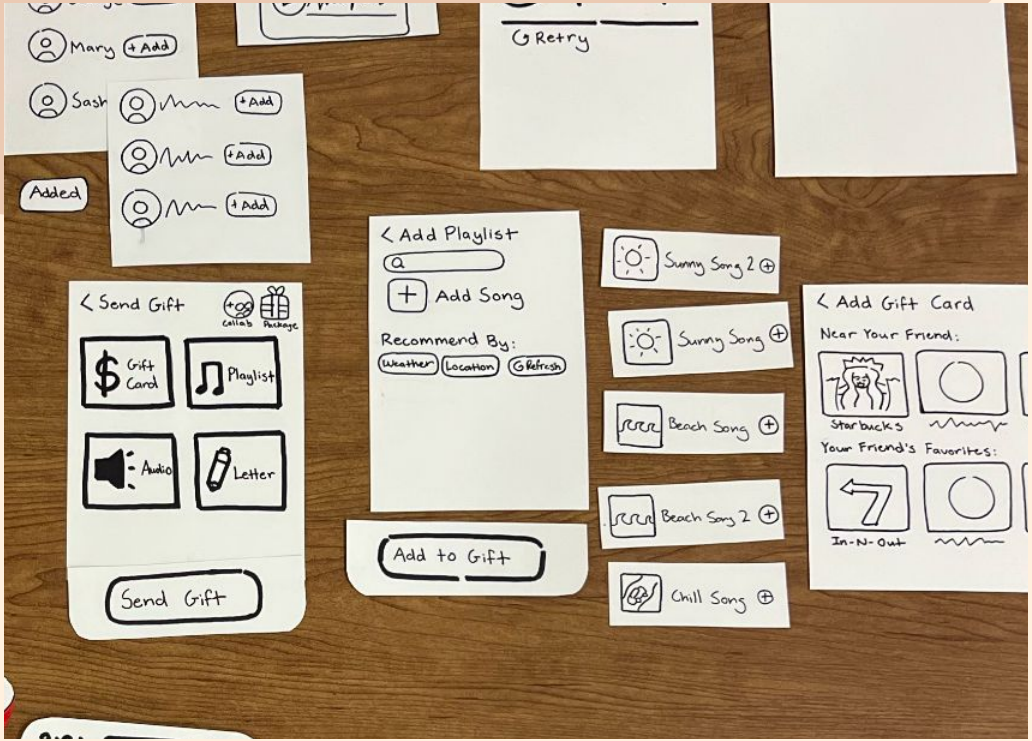


Prototype

The prototype was also designed to be **modular.**

- Constructed with many **loose, moving parts** so we could easily swap them out or modify as needed.

Tradeoff: screens require more construction + difficult to find pieces → **longer “loading” times**



Prototype

In practice:

- **The facilitator** could help out with larger screen transitions
- Note-taker stayed focused on timing and data collection.

Result: successfully **minimized length of screen transitions**, while retaining our iteration-conducive design.

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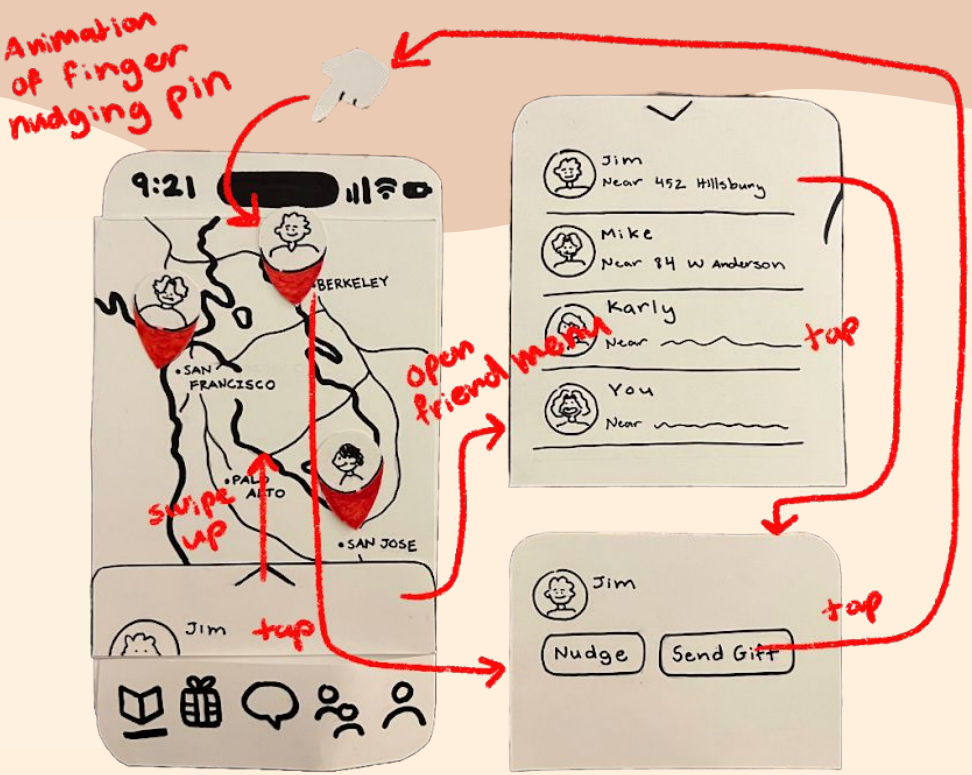
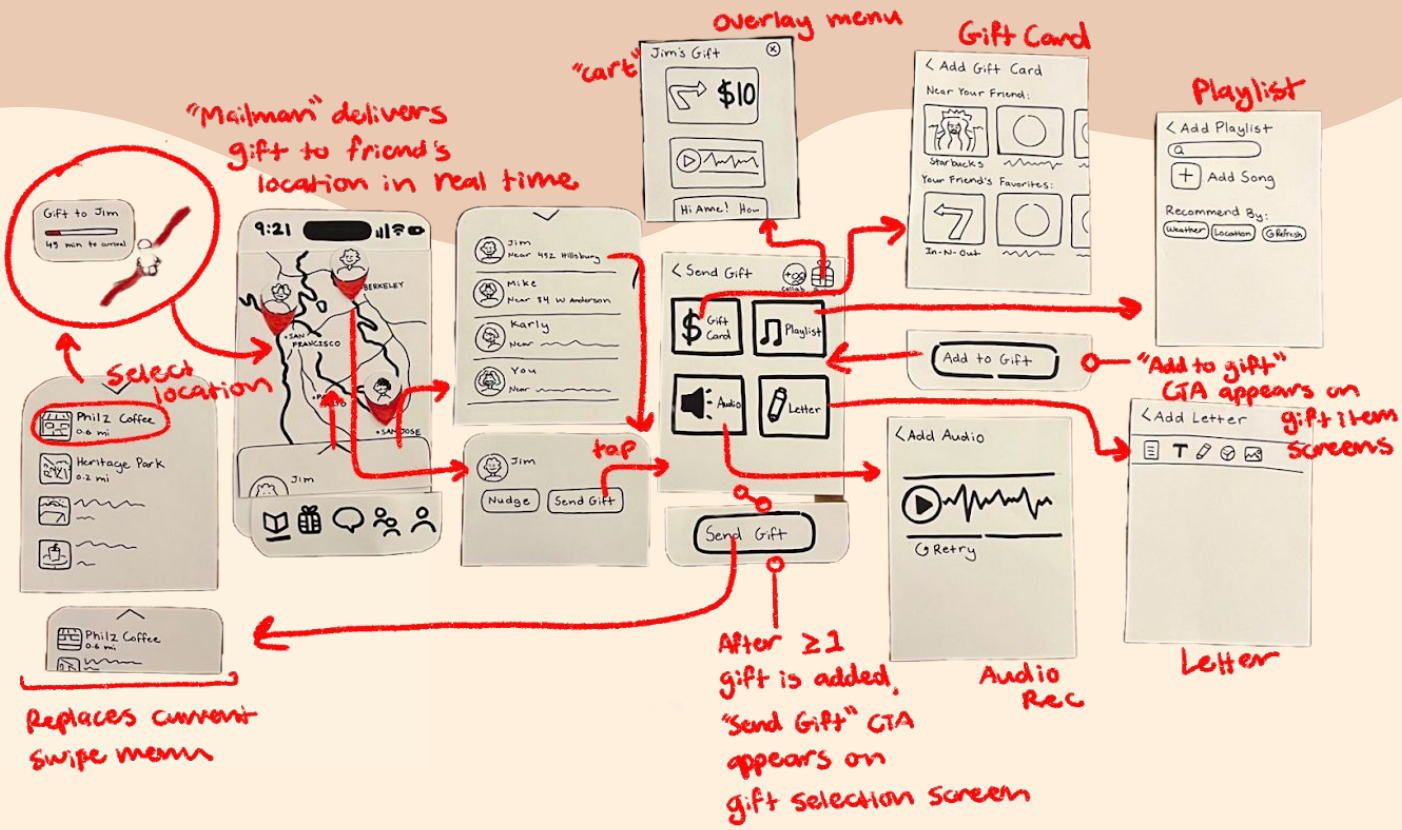
Lo-Fi Prototype

Task Flows

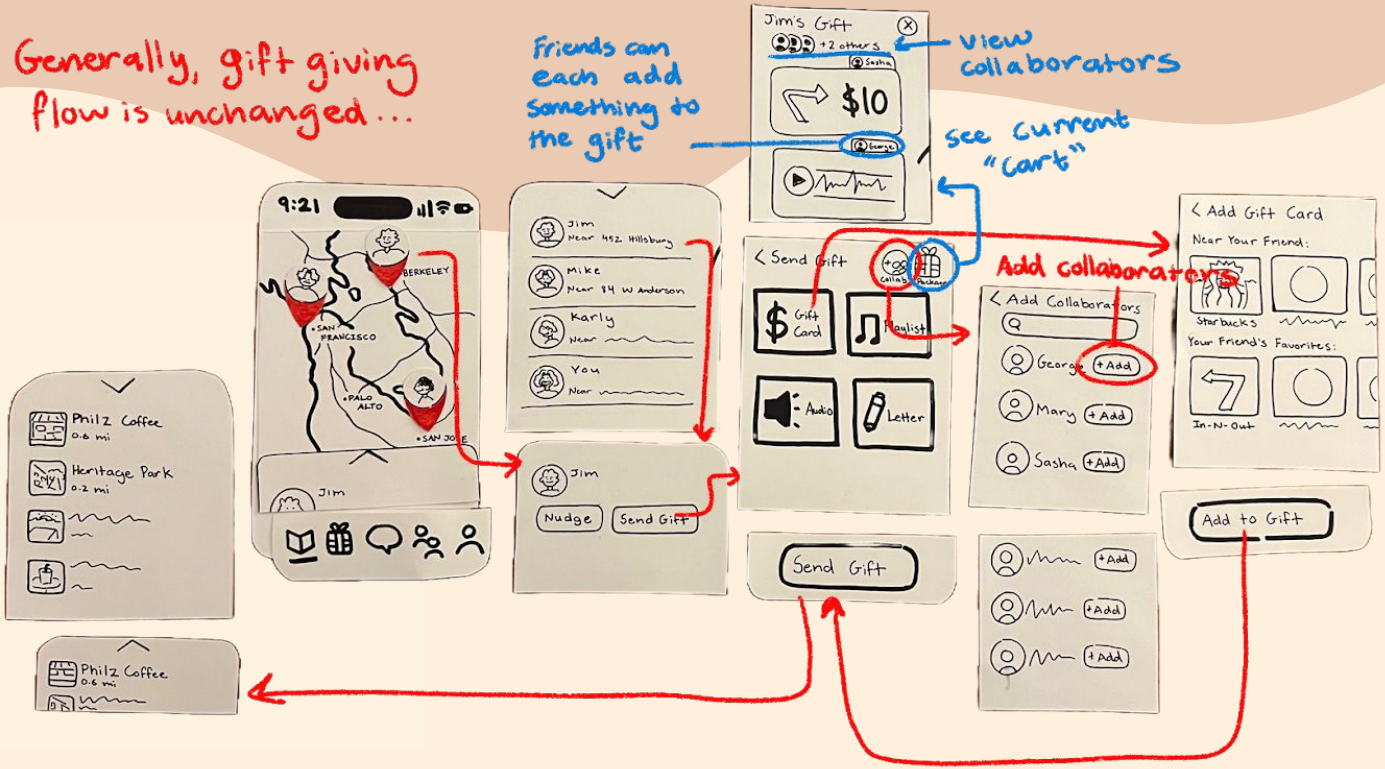
Prototype Task Flows: Simple



Prototype Task Flows: Medium



Prototype Task Flows: Complex

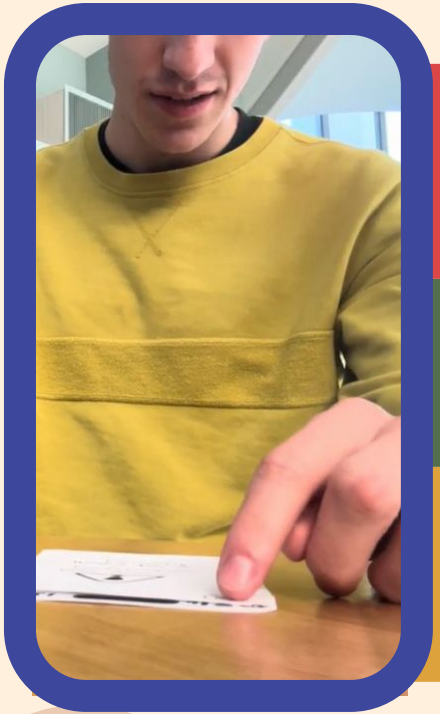


06

Testing Methodology

Participants, environment, procedure

Testing Methodology



Participants

Joe (20) — SWE, Lucy (29) — Financial Analyst,,
Meghan (26) — Graphic Designer, Joshua (28) — SWE

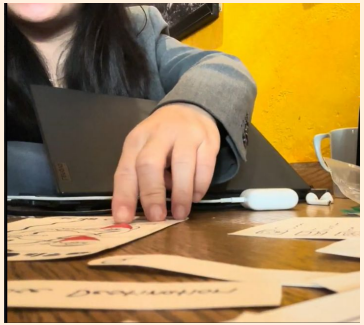
Environment & Apparatus

Downtown Palo Alto

Procedure

Leo (Computer), Hallie (Facilitator), Katerine (Note Taker). Compensated with verbal appreciation.

Procedure



1 **Prescreening**
Ask participants for background information and ask for context

2 **Introduced Project**
Provide an overview and goal of our project

3 **Test Features**
Go through screen by screen and have the user test the features

4 **Debrief Experience**
Finish by asking for any feedback on design and the user experience

Usability Goals & Metrics

Goal 1: Effectiveness
Does the user understand what is happening at a given state in the app?

 # Misclicks

 # Help Requests

Goal 2: Efficiency
How easily the user can accomplish a task via manipulating the app?

Avg. Time Taken to Complete Each Task

 # Clicks to Complete a Task

07

Testing Results

Observations, Data

QUALITATIVE DATA

All participants were **confused at the "choose a location step of gift giving".** Some interpreted as choosing a location for the gift card (i.e. choosing a specific starbucks location to gift), some interpreted it as a real delivery person delivering a physical gift card.

Three participants **wondered whether or not the gift was sent** (by the time they reached the location selection — after selecting gifts to add to their basket — they thought that they had already sent the gift)

QUALITATIVE DATA

Three participants questioned the purpose and value of the location aspect of the gifts. For instance, I someone asking **“why does location matter if it’s a digital gift?”**

All participants **misclicked while navigating between screens and tasks.** Two went to the “add a friend” tab when asked to create a collaborative gift or clicked the gift history tab to send a gift. Three initially gravitated toward the nav bar rather than the core map features.

BOTTOM-LINE DATA: EFFICIENCY

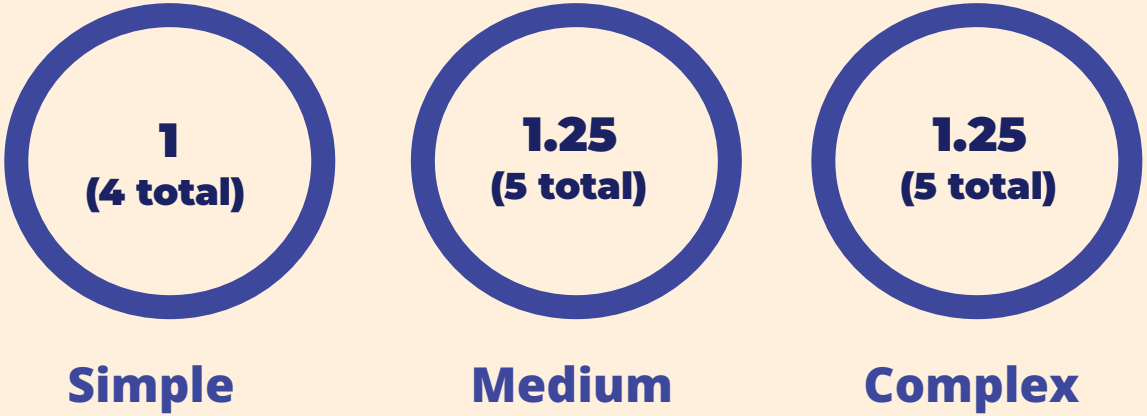
Average Time Per Task (Minutes)

BOTTOM-LINE DATA: EFFICIENCY

Average # Clicks Per Task

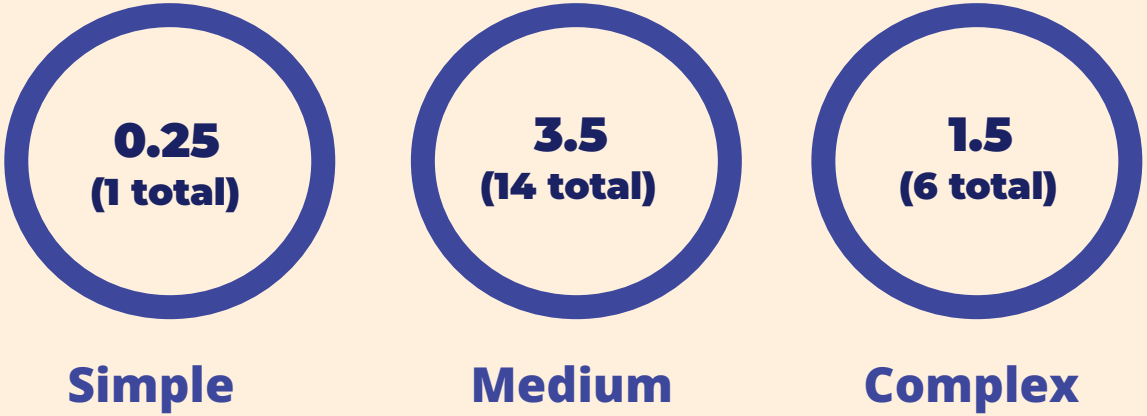
BOTTOM-LINE DATA: EFFECTIVENESS

Average # Misclicks Per Task



BOTTOM-LINE DATA: EFFECTIVENESS

Average # Help Requests



OTHER OBSERVATIONS

Mental Model Gap between Physical vs. Digital Gifting: Many users assumed they were sending physical items or real deliveries rather than digital gifts

Uncertain Beginning: Users followed habitual schemas from existing messaging apps, starting from nav bar rather than map interaction

Learnability vs Intuitiveness: Tasks like sending or collaborating on gifts were learnable after repeated attempts. Users formed accurate mental models through trial and error.

Assessing Overall Success

Effectiveness

This goal was partially met as average misclicks and help requests across three tasks were minimal but not none. There were noticeably more help requests and point of confusion in the moderate task, particularly around the sending gift and choosing location functions.

Efficiency

This goal was met as users were able to complete all three key tasks in a minimal number of steps (~<15 clicks) and amount of time (~40s to 4m)

08

Discussion

Implications

IMPLICATIONS (QUALITATIVE)

Takeaway

Users were **unsure whether the gift was actually sent** — confusion around the “Send Gift” button, basket, and notifications.

Design Changes

Introduce a clear send confirmation (e.g. “Gift Sent!” animation).

Distinguish “Add to Gift” vs. “Send Gift”

Integrate location into the gift creation flow rather than a follow-up step.

Add a checkout page for gift.

IMPLICATIONS (QUALITATIVE)

Takeaway

Users **misunderstood or questioned the purpose of choosing a location** — several thought it was intended for physical delivery or pickup.

Design Changes

Include context or explanation for choosing a location (e.g., “Choose where your friend will unlock this gift”).

In addition to displaying delivery man after gift is sent, include visual cues on map to clarify digital gifting process as user is creating their gift — use icons, animations, or tags like “unlock here” or “viewable in this area.”

IMPLICATIONS (QUANTITATIVE)

Takeaway

Users **misclicked navigation items frequently** — confusing the friend list and gift history with core map interactions.

Design Changes

Simplify the navigation flow (clearer labels, fewer redundant buttons).

Use progress indicators or animations to show where users are in the gifting process.

Minimize context switching by introducing modal overlays and reducing # of full-screen transitions

IMPLICATIONS (QUANTITATIVE)

Takeaway

Users averaged under a minute for the simple task, while the **medium and complex tasks tripled in time** due to hesitation and confusion.

Design Changes

Use animations and progress visuals to clarify next steps

Present one task at a time to keep users focused and reduce confusion

GAPS

Gap
Users didn't connect the emotional purpose (surprise + place-based meaning) to the mechanic

Next Steps
Prototype story-driven onboarding that frames why gifts are tied to place

Gap
The map didn't visually cue users to take action

Next Steps
Explore spatial triggers (e.g. dropping a pin to leave a gift) to make the map integral to sending and receiving

Gap
We only tested the prototypes from a sender perspective

Next Steps
Build a receiver-side prototype to study anticipation and satisfaction when unlocking gifts

Thank you!

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Appendix

Full Pro/Con List

	Pros:	Cons:
Ring	- Wearing the ring builds emotional attachment and presence awareness between users - Surprise element as users notice ring's color shifting The hands-free aspect of the realization makes it more convenient - Transforms abstract digital messages into an experience that you can physically feel.	- Required upfront investment in the ring excludes a large user base - Requires users to remember or learn a symbolic mapping between color and meaning - Color-based cues will not work for color-blind users - More limited in the interface which reduces the information sharing
AR	- Seeing a message in the real place it was meant for deepens the level of sentiment conveyed and received - High aesthetic appeal due to glowing icons that can enhance the physical world - Familiar AR model (e.g. Pokemon Go) so learning curve is reasonable, despite novelty of the solution - Creates an intuitive link between action (sending a gift) and context (location)	- Required upfront investment in the expensive glasses excludes a large user base - Hard to use outdoors in bright light or bad weather - Cognitive load could be high due to needing to interact with virtual objects in real time - Safety concerns as visual overlays can divert attention from the physical environment
App	- Cheapest (no upfront cost) and easy to onboard (i.e. just requires download) - Is the backbone for Ring/AR realizations - Can support multi-modal message creation and sending (nudge, text, voice, gifts, collectibles, playlist, etc.) - Preserves mementos from exchanges between users in database Centralized platform that reduces friction between various actions	- Less immersive experience - May pose accessibility limitations for users with impaired vision (i.e. sending message primarily relies on sight; text size limited to a phone screen) - Generic visual language - icons and pins are basic - Less integrated into daily life flow

Link to Testing Logs

Script

Intro & Framing
We're testing an early paper prototype of a social app called WAYN - Where Are You Now? The idea is to help friends stay connected even when they're busy through quick nudges and location-based digital gifts.
We're testing how the design communicates its ideas. Some screens might look rough or incomplete. As you go through, please think out loud: tell us what you're trying to do, what you expect to happen, or if anything feels confusing.
Warm-Up
Before we start, can you tell me a bit about yourself and your background?
Now imagine you've just opened WAYN. You'll see a map of your friends. I'll be swapping paper screens when you tap or tell me what you'd click.
Task 1: Send a Nudge
Try sending a nudge to one of your friends

Task 2: Send a Gift
Now, you want to send your friend a small digital gift, maybe a coffee card or a short message. You can try to send one.

Task 3: Collaborate on a Gift
Next, you and a friend want to collaborate on a gift together.

Debrief (after each task)
How did those interactions feel?
How easy or difficult was the task?
What moments were you not sure what the app was doing?
What moments were you unsure about where to go next?