

# Assignment 5: Low-fi Prototyping & Pilot Usability Testing

## Flutter

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### Introduction

#### Value Proposition

Declutter meaningfully.

#### Problem/Solution Overview

People often find themselves keeping a lot of clutter. Many of these objects stay because they hold sentimental value, but not necessarily functional use. Flutter adds emotional security to the decluttering process, allowing people to find others who will value or add meaning to the item. Users can give an item, find other items, and track the journeys of items they have passed on.

### Sketches

#### Overview

We first created concept sketches exploring various ways of organizing items (eg. through locations on a map, via item listings, as milestones in a game), conveying stories (eg. using a timeline view, following a bird's life metaphor), and [onboarding/navigating](#).

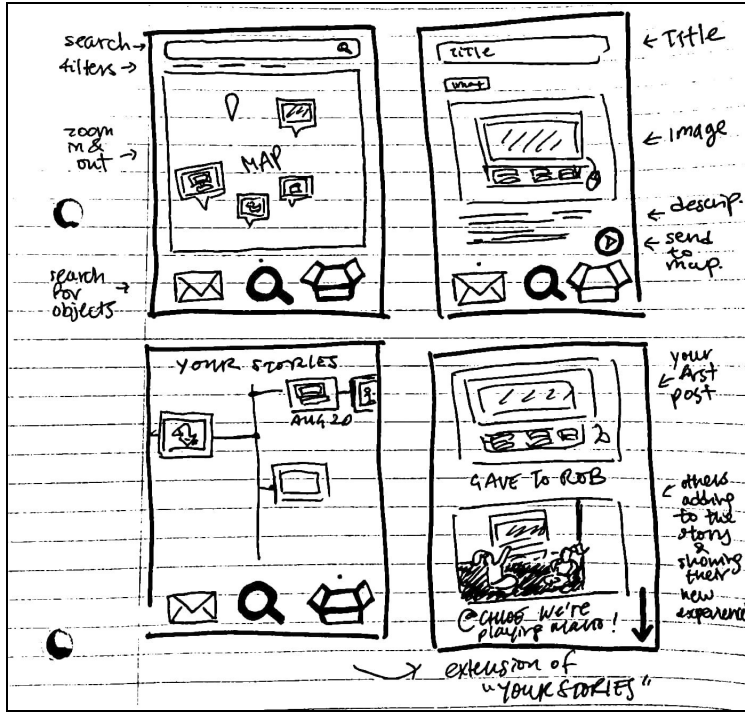


Figure 1: Map and timeline

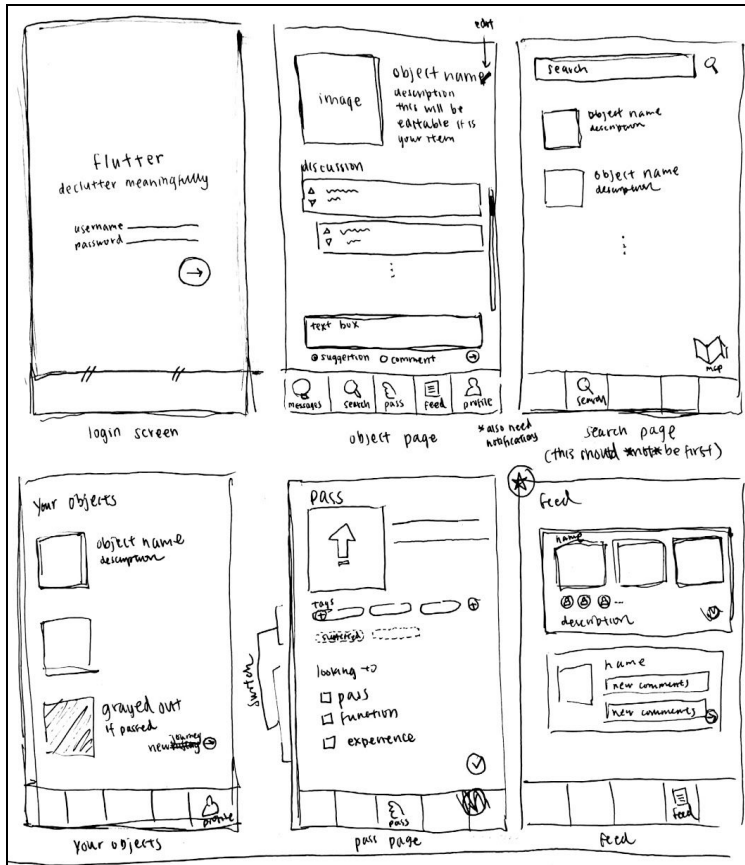


Figure 2: Listings



Figure 3: Bird themed



Figure 4: Gamified

## Top Two (Detail)

From these, we dove deeper into the map-based and game-based designs.

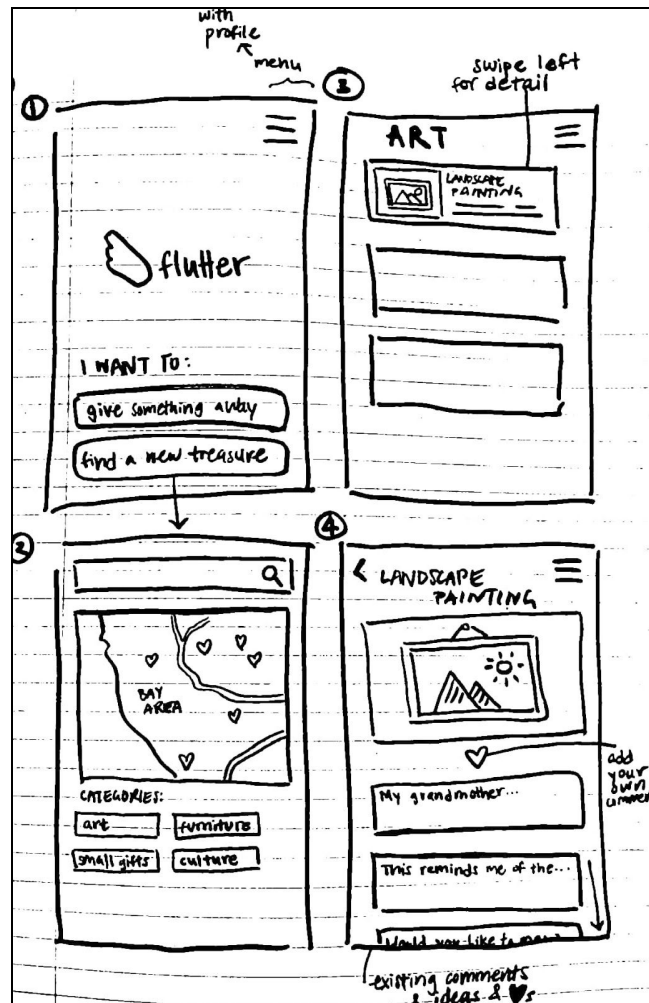


Figure 5: Map

### Pros

- Simple context emphasizes the items' meanings
- Focus on location encourages face-to-face experiences
- Global map could allow for exchanges between different cultures

### Cons

- Privacy concerns related to location data
- Focus on location may constrain searches to local items



Figure 6: Gamified

#### Pros

- Fun and engaging
- Milestones motivate continued usage

#### Cons

- Emphasis on collection of items creates incentives that pull away from the items' meanings
- Displays numbers of interactions, which conflicts with story/sentimental emphasis
- Complex design (more parts required)

## Selected Interface Design

### Selection Reasoning

Since data from our experience prototypes had shown how much people value knowing that their sentimental items will be meaningfully treated, we felt that our pros/cons lists pointed us toward the map design.

## Functionality

The map design's core functionality includes:

Finding items (Figure 7)	Users can browse items displayed on a map. Additionally, users who know what they want can search keywords or select from categories/thumbnail images.
Giving away items (Figure 8)	Users follow a quick workflow to list an item, which includes adding a title, choosing a photo, and describing the item's meaning.
Connecting givers and receivers (Figure 9)	Users can comment on a uploaded item's discussion page. The users are encouraged by placeholder prompts to describe how they would use or appreciate the item.
Viewing an item's story (Figure 9)	Users can view an item's story, which includes its original meaning, any public interactions, and its journey after passing hands.

## Storyboards

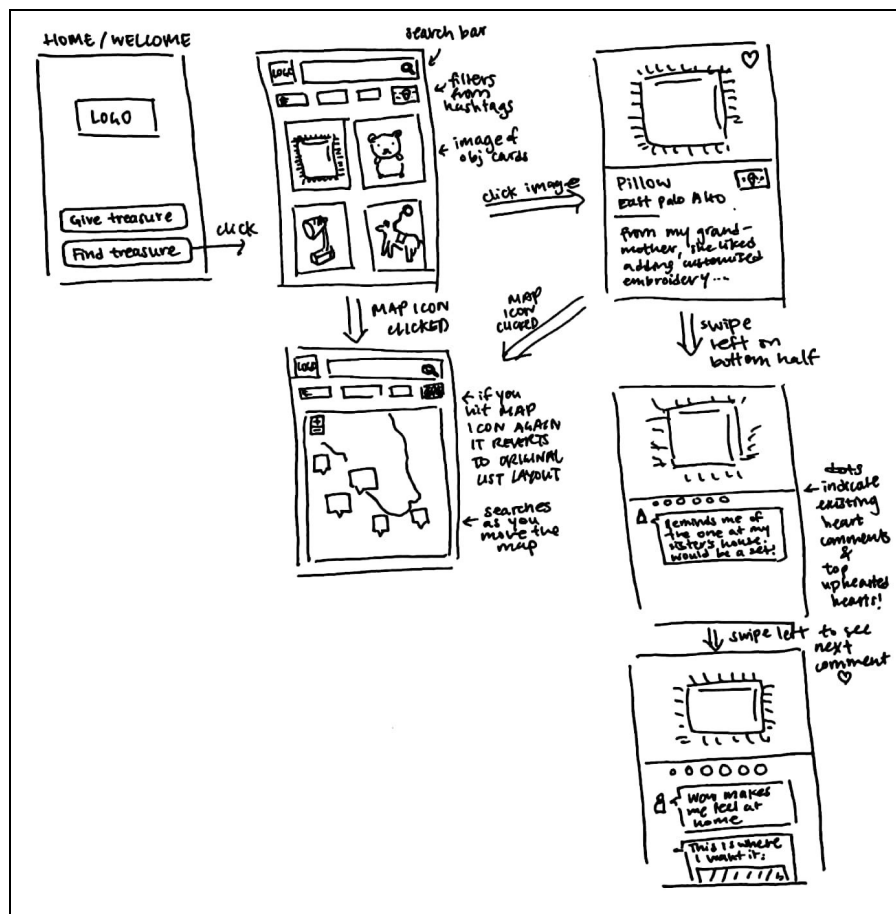


Figure 7: Task 1 (find an item)

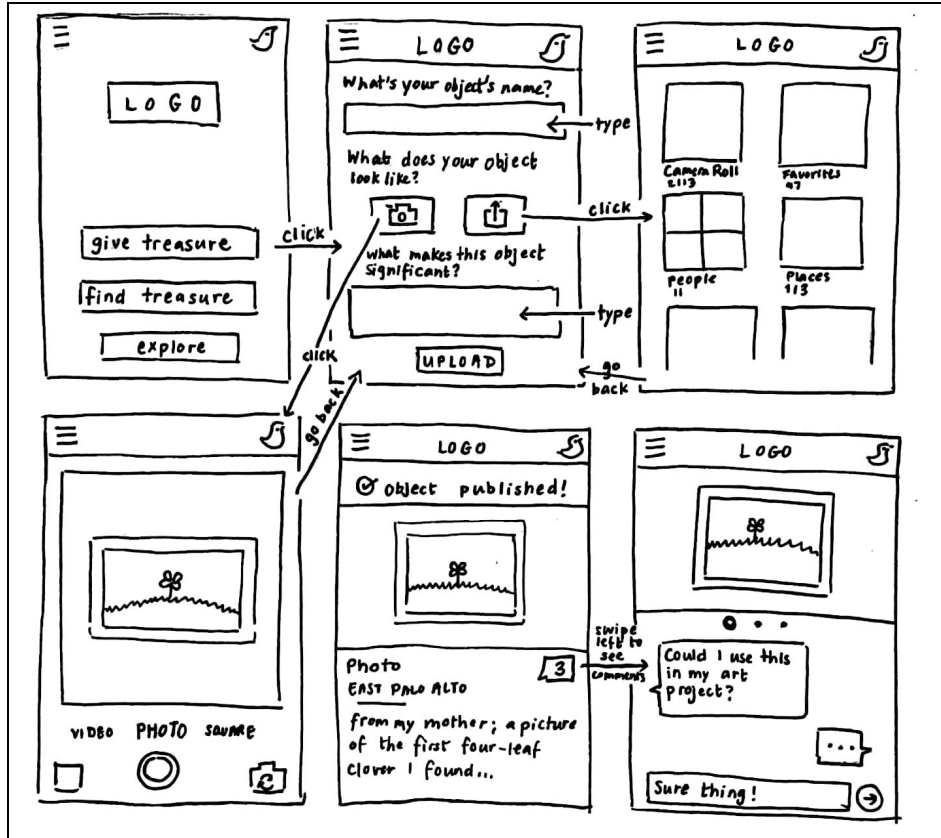


Figure 8: Task 2 (give an item)

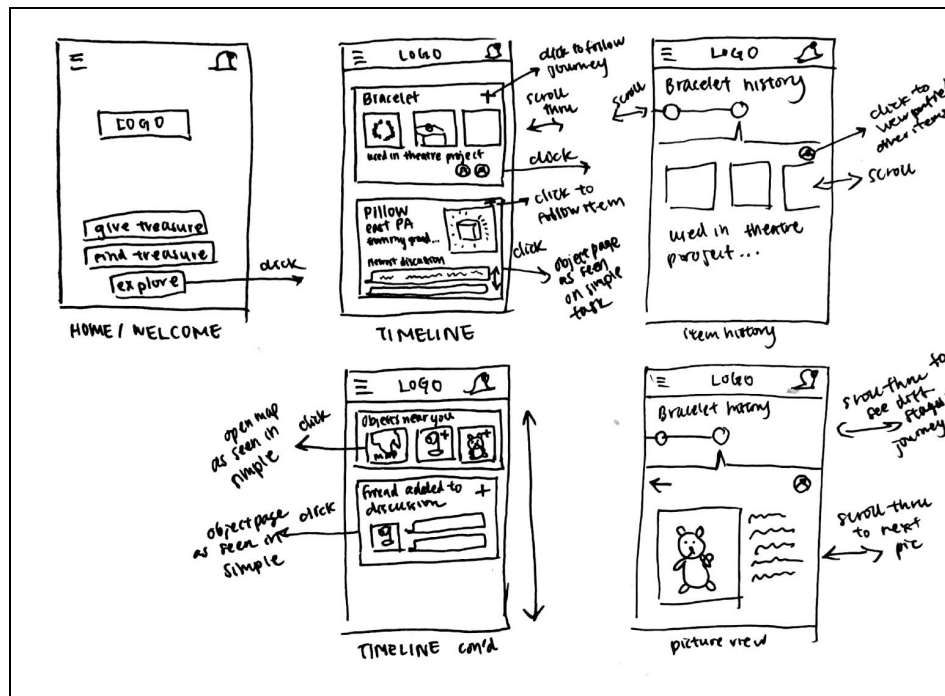


Figure 9: Task 3 (connect and create new experiences)

# Prototype Description

Our design uses touch input to move through visual screens. To simulate this, we created a low-fi prototype using index cards and sticky notes. We incorporated each of the [core functionalities](#) mentioned above (Figures 10-13), as well as several supplementary interactions:

View profile (Figure 14)	Users can visit their profile to view the items they've uploaded.
View messages (Figure 15)	Users can view and send messages directly, to facilitate exchanges and face-to-face experiences.
Notifications (Figure 16)	Users are notified when people post to their items' discussion pages.

## Task Flows

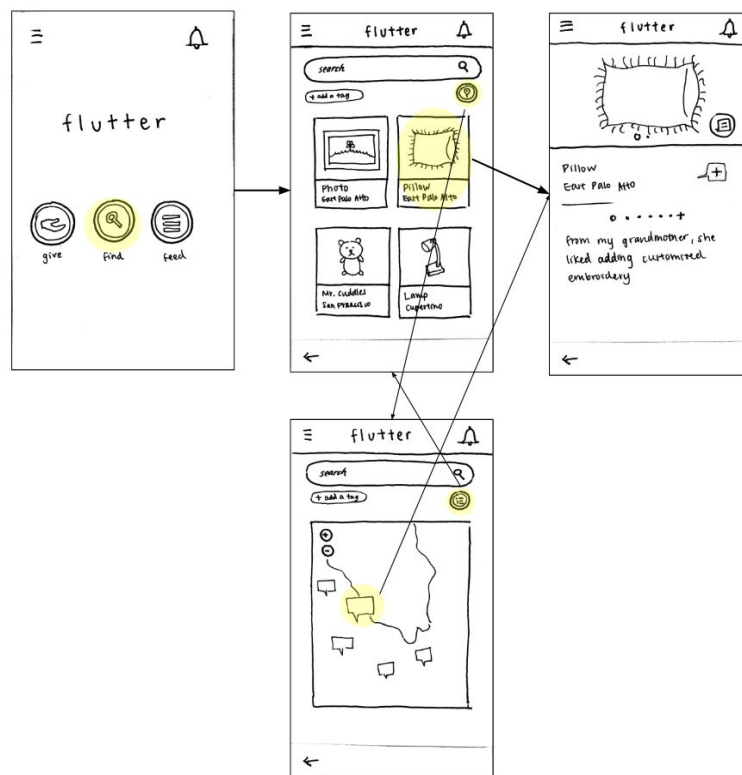


Figure 10: Find



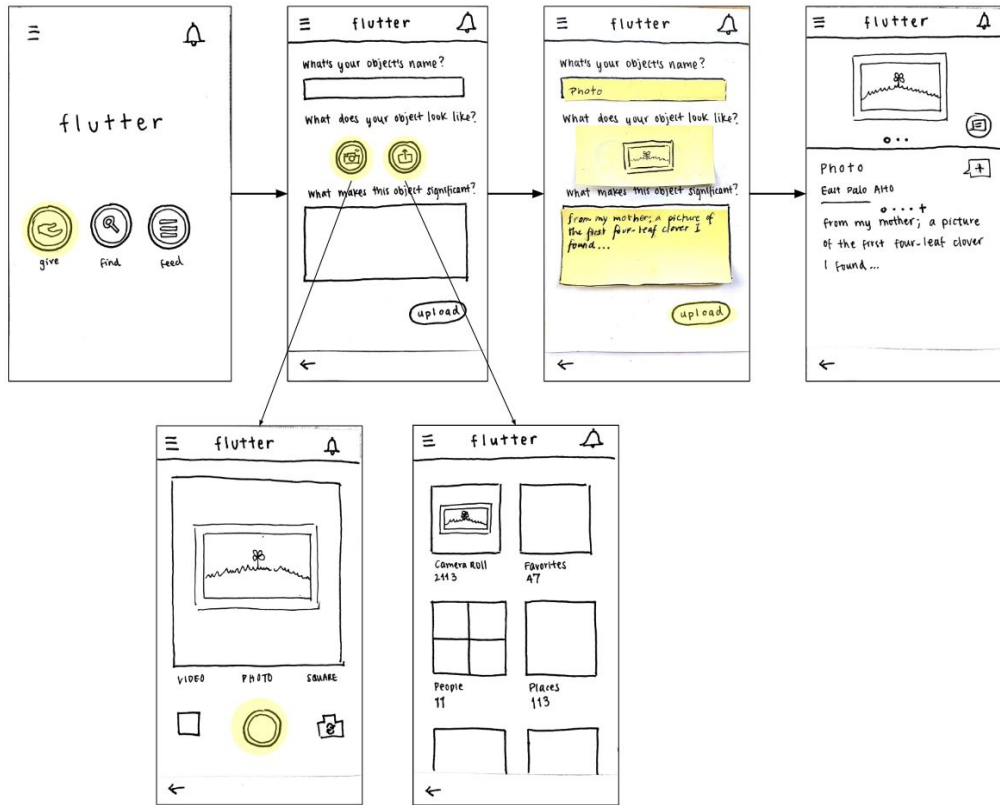


Figure 11: Give

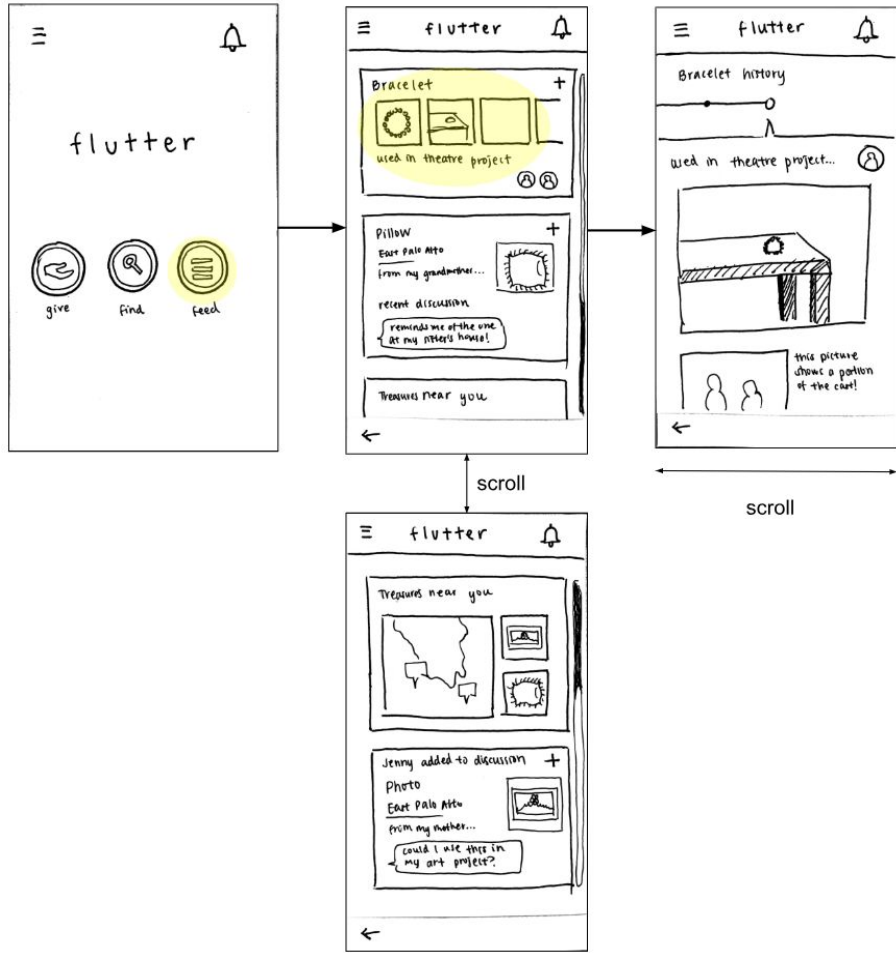


Figure 12: Feed

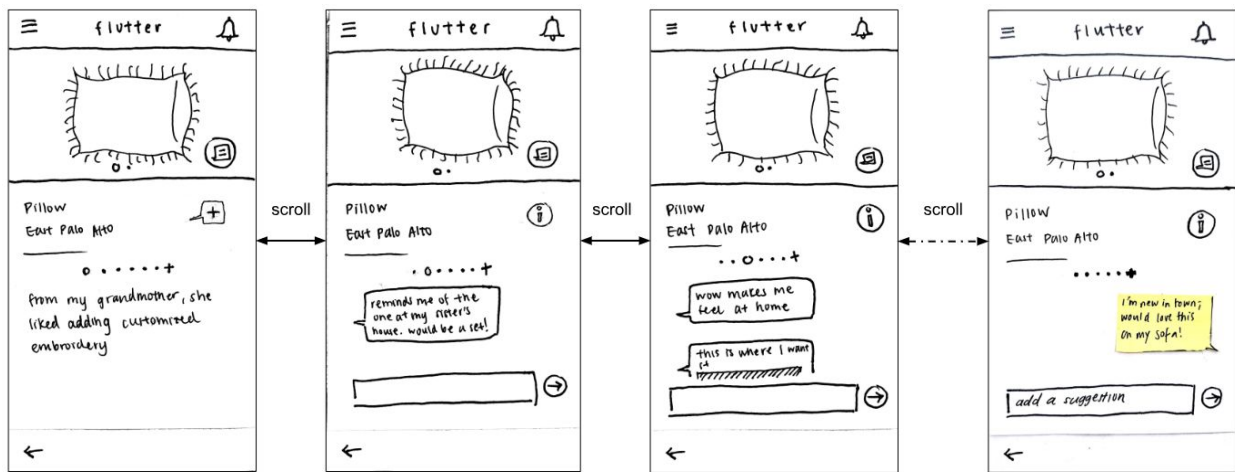


Figure 13: Item discussions

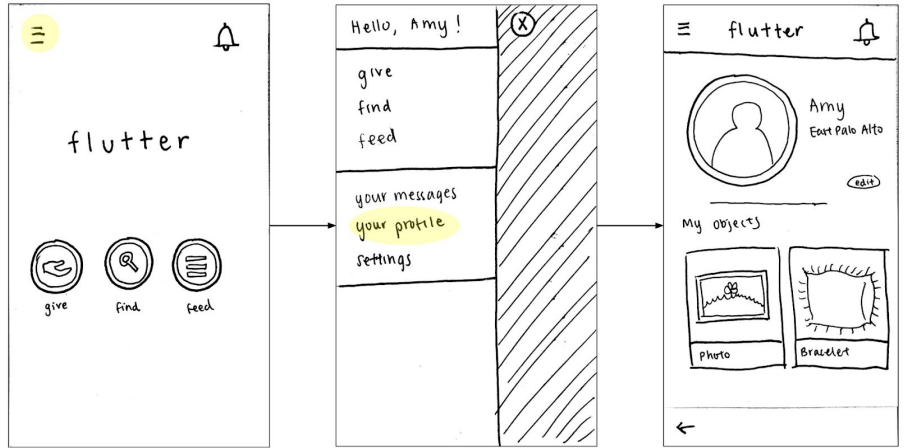


Figure 14: View profile

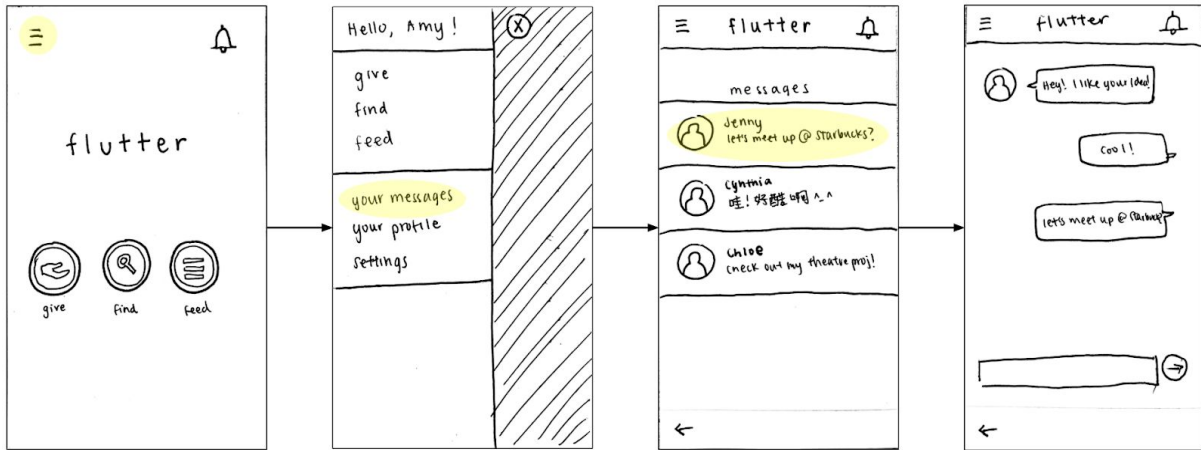


Figure 15: View messages

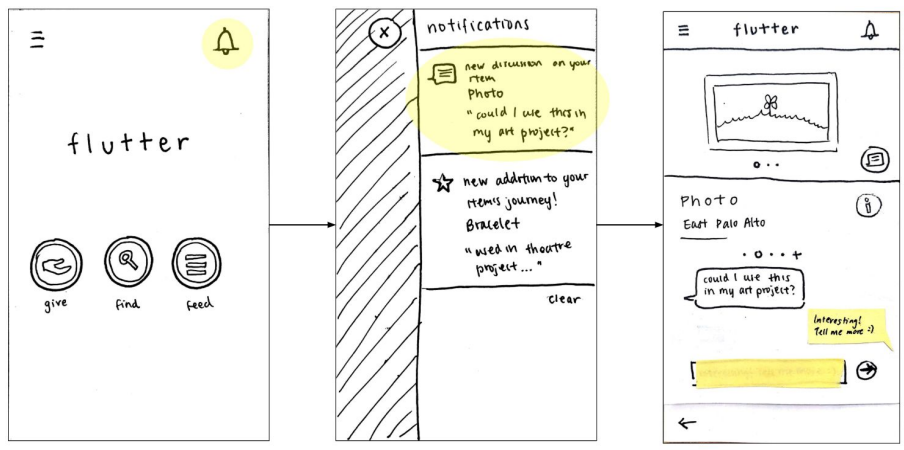


Figure 16: Notifications

# Complete System

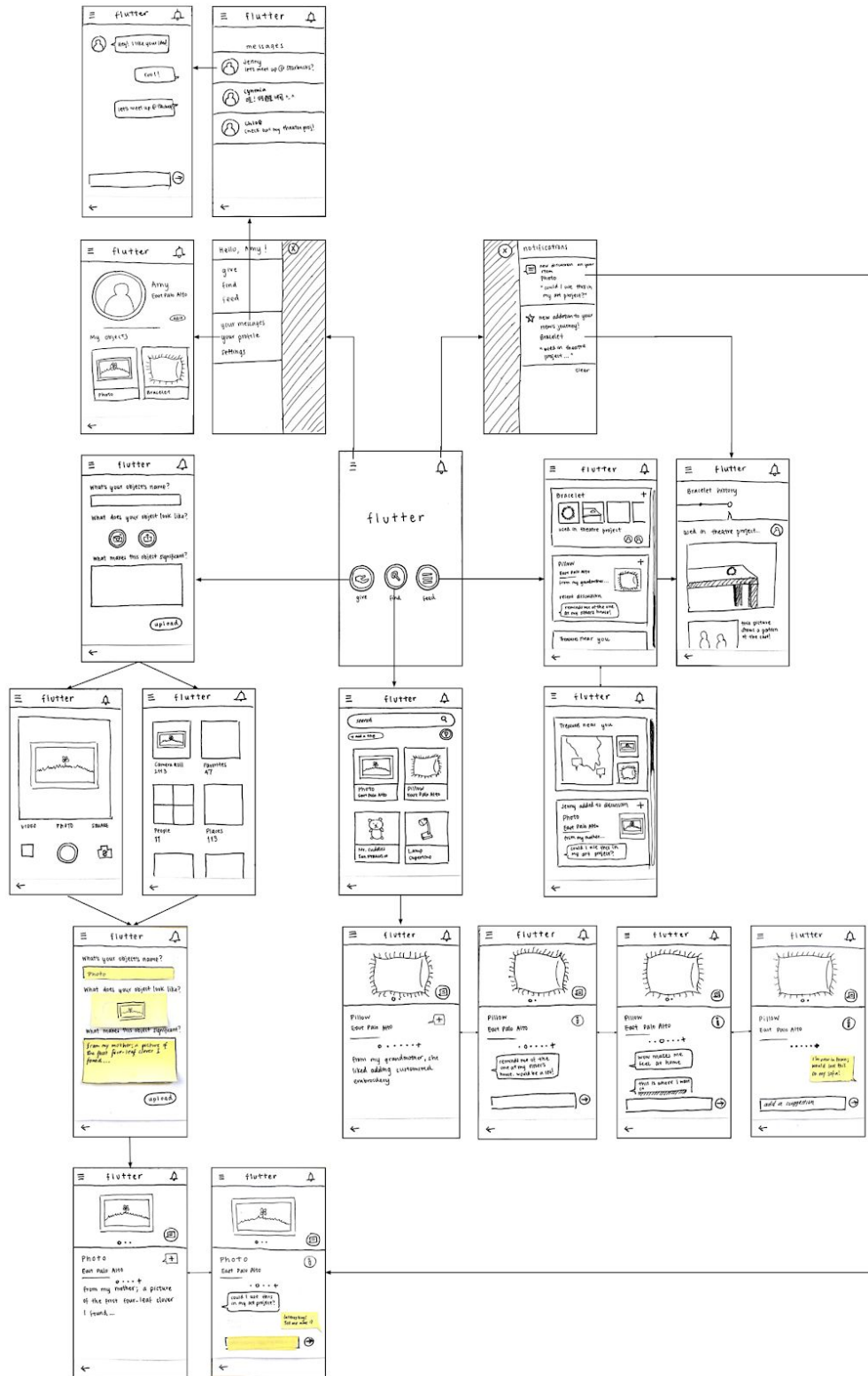


Figure 17: Complete system

# Method

## Participants

We recruited people who were early in their careers, since we had previously found that meant they were likely to have less space, move more often, or desire minimalism, and thus want to declutter:

1. A producer and sound engineer recent grad.
2. A Stanford art practice major who expressed an explicit desire to have fewer things.
3. A physics researcher who recently moved.

## Environment

Two participants were interviewed at Roble Arts Gym. One was interviewed at Tresidder Union.

## Tasks

1. Find a pillow for your new home (Figure 10).
2. Give your four-leaf clover photo (Figure 11).
3. Follow up on the journey of the bracelet you recently gave away (Figure 12).

## Procedure

1. Described the main goal of Flutter.
2. Placed paper prototype in front of participant and demoed "View profile" (unrelated to tasks being tested)
3. Asked participant to execute specified tasks.
4. If participant hit a dead end, asked participant to backtrack and try again.
5. Record test observations.

## Test Measures

- Where participants hesitated or seemed confused about the next step.
- When participants went down the wrong path or used roundabout ways to achieve their goals.
- Which additional features users tended towards. We included many screens that weren't necessary in the tasks we asked participants to complete, and wanted to know which were most intuitive and/or likely to be used.

## Team Member Roles

- Cynthia: greeter/observer
- Jenny: facilitator/computer

# Results

The first task was to find a pillow to add to the user's new home. Participants 1 and 2 were able to successfully find the pillow in the smallest number of steps; participant 3 included a search before clicking on the pillow. Overall, our prototype presented an easy workflow for finding items.

Task two required users to upload a photo of an item to give. All three participants intuitively included a photo and pressed the upload button. At this point, we expected users to view the discussion on their uploaded item and communicate with a person to exchange the item, but all three participants hesitated and didn't know what to do after uploading.

The third task was to look into the journey of a bracelet the user had recently given away. Participants 1 and 3 were able to locate the feed and complete the task without trouble, but participant 2 went down several dead ends (opened the side menu, viewed profile, looked through currently active objects, verbally expressed frustration).

When transitioning between tasks, participants tended to press the back button multiple times to return to the initial home screen, instead of performing quicker actions, such as opening the side menu. Participants 1 and 2 commented on the repetition but did not discover the easier way of switching tasks.

# Discussion

## Learnings

We found that two aspects of our design were particularly intuitive:

- Finding an item is easy for users who know what they want.
- The workflow for uploading an item to give is easy to use.

We also discovered:

1. When transitioning between tasks, users want to be able to "reset" by going back to the main screen. Since we did not include an obvious home button, users pressed the back button repeatedly to achieve this goal.
2. When users navigate an unfamiliar app, they rarely open any side menus. As a result, users were unable to find the core functionality shortcuts (finding items, giving items, and viewing the feed) and the extra features (messages and profile) that we put in the side menus. After testing, we realized that most apps put things like Settings, Notification Preferences, and Log Out in side menus rather than features.
3. Users are less likely to make distinctions between active and inactive objects than we expected. In our prototype, we had discussions for items that were active (pillow and clover), and a feed for items that were no longer active (bracelet). Likewise, in "View profile" we only included active items. As a result, users felt frustrated after looking for

inactive items on their profile, and hesitated and/or incorrectly added comments when confronted with their item's discussions.

4. When exploring the app, users tended to ignore the map and other location features, indicating that we should reevaluate their importance.

## Limits of experiment

There were two limitations to our user testing that we need to consider as we iterate on our design:

- We tested with a single user at a time, which makes it harder to evaluate our app's success in encouraging interaction between two users.
- Location features are much more difficult to simulate and test than other aspects of our app, which could partially explain why users tended to ignore them. While we need to reevaluate the location features, the solution might be to make them less prominent rather than removing entirely.

## Design changes

In future prototypes, we will incorporate several changes corresponding to our discoveries:

1. Improve general navigation elements by adding a home menu and clarifying the back button.
2. Move features out of the sidebar and into the main flow of the app. This is particularly important for messages and profile, since the home button will allow easy access to the core functionality flows.
3. Explore ways to combine the discussion and feed into a single feature. Additionally, make sure pages that list items (such as "View profile") show all items.
4. Consider dropping location features or making them less prominent.

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# Appendices

## Additional Figures

In our concept sketching stage, we came up with a few designs that addressed focused portions of the app, but not the entire system.

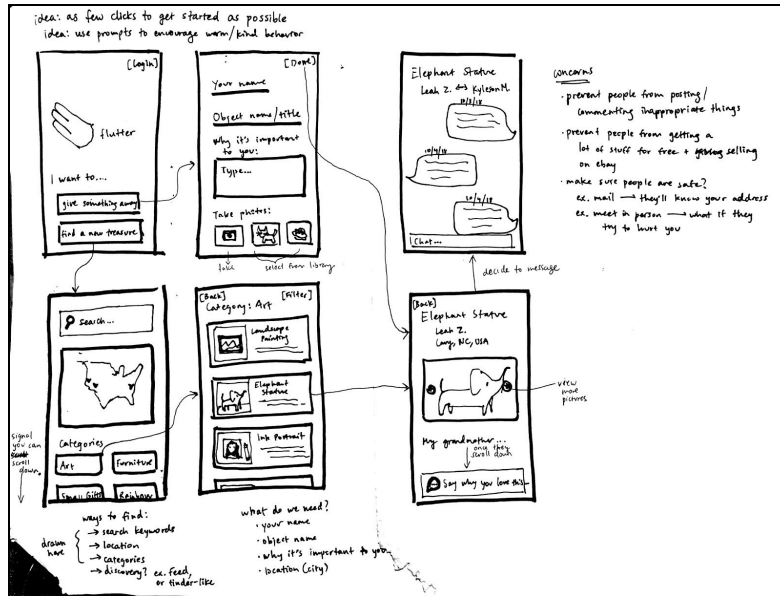


Figure 18: Onboarding in fewest clicks possible



Figure 19: Sliding cards in navigation menu



## Heuristics

Task	Incident	Location	Severity	Possible Solutions
1	Difficulty finding shortest path to find	Find	1	User included search; may be due to prototype limitations
2	Adding discussion on own item	Give item page	4	Implement login authentication; remove message feature from user's own items
2	Confusion/hesitation after upload; difficulty locating discussions	Give item page	3	Make discussions more visible
3	Difficulty locating feed	throughout	3	
All	Repeatedly pressing back button	throughout	2	
All	No home button	throughout	1	Create a clear home button

## Forms

### Consent Form

The FLUTTER application is being produced as part of the coursework for Computer Science course CS 147 at Stanford University. Participants in experimental evaluation of the application provide data that is used to evaluate and modify the interface of FLUTTER. Data will be collected by interview, observation and questionnaire.

Participation in this experiment is voluntary. Participants may withdraw themselves and their data at any time without fear of consequences. Concerns about the experiment may be discussed with the researchers (Chloe Barreau, Cynthia Liang, Amy Xu, Jenny Zhi) or with Professor James Landay, the instructor of CS 147:

James A. Landay  
CS Department  
Stanford University  
650-498-8215  
landay at cs.stanford.edu

Participant anonymity will be provided by the separate storage of names from data. Data will only be identified by participant number. No identifying information about the participants will be available to anyone except the student researchers and their supervisors/teaching staff.

I hereby acknowledge that I have been given an opportunity to ask questions about the nature of the experiment and my participation in it. I give my consent to have data collected on my behavior and opinions in relation to the FLUTTER experiment. I also give permission for images/video of me using the application to be used in presentations or publications as long as I am not personally identifiable in the images/video. I understand I may withdraw my permission at any time.

Name \_\_\_\_\_

Participant Number \_\_\_\_\_

Date \_\_\_\_\_

Signature \_\_\_\_\_

Witness name \_\_\_\_\_

Witness signature \_\_\_\_\_