CS 147 - Learning Studio - Assignment 8

Interactive Hi-fi Prototype

pelican

explore your new home

The Team

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Our value proposition

Pelican | explore your new home

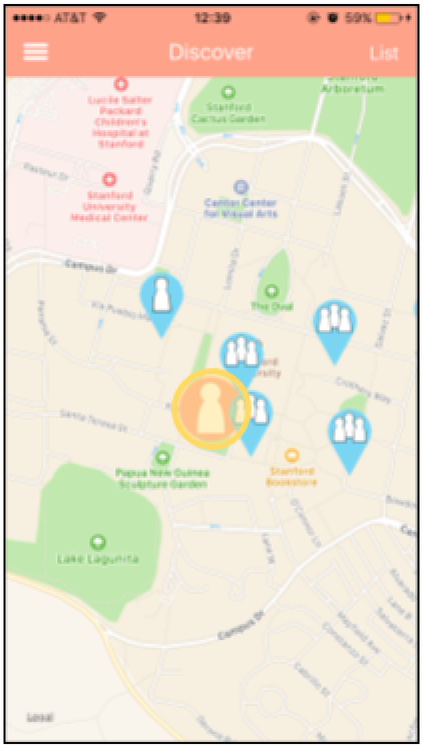
Problem and Solution Overview

People usually face hardships when they move to a new country. They are often uncomfortable or nervous interacting with locals and asking questions. They may have a hard time meeting people and developing a social circle. Pelican is an app that addresses these problems. Newcomers complete challenges that force them to get out and interact with locals. As they become more comfortable, the challenges become more difficult. The app also allows users to organize group challenges, where several newcomers meet to explore their new surroundings and develop friendships. Newcomers earn points for completing challenges, which facilitates friendly competition and encourages them to keep exploring.

Tasks

Simple: Pick a solo challenge and complete it

The user can taps on herself in the map view, which brings up a popup showing recommended challenges. She taps on a challenge, taps the arrow, and gets taken to the challenge page, which displays number of points to be earned, as well as a button to view a tip for the challenge. The user then taps “Attempt”, adding the challenge to her active challenges, which she can view in the “Active Challenges” section of the menu. From “Active Challenges”, she can tap “I did it!” to complete the solo challenge. This task allows the user to address one of her core needs--gaining the confidence to interact with new people and her new environment on her own.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Discover
List
Lucile Salter Packard Children's Hospital at Stanford
Stanford Cactus Garden
Stanford Arboretum
Stanford University Medical Center
Cantor Center for Visual Arts
Campus Dr
The Oval
Papua New Guinea Sculpture Garden
Stanford Bookstore
Lake Lagunita
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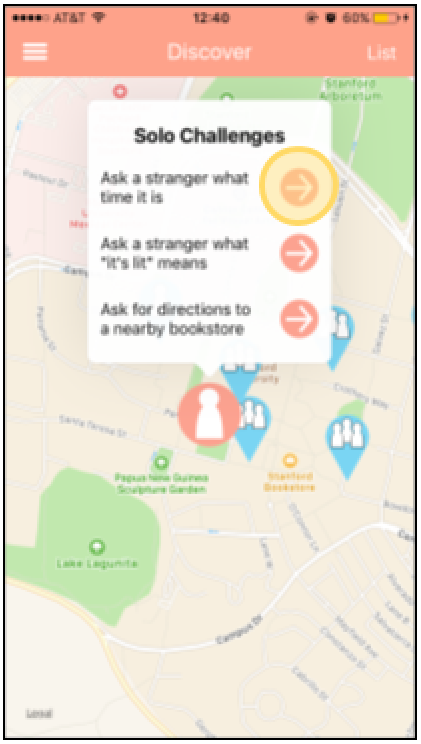
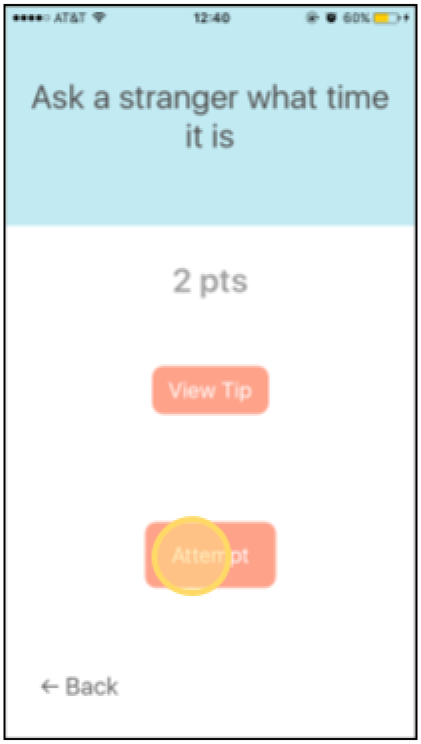


Solo Challenges

Ask a stranger what time it is

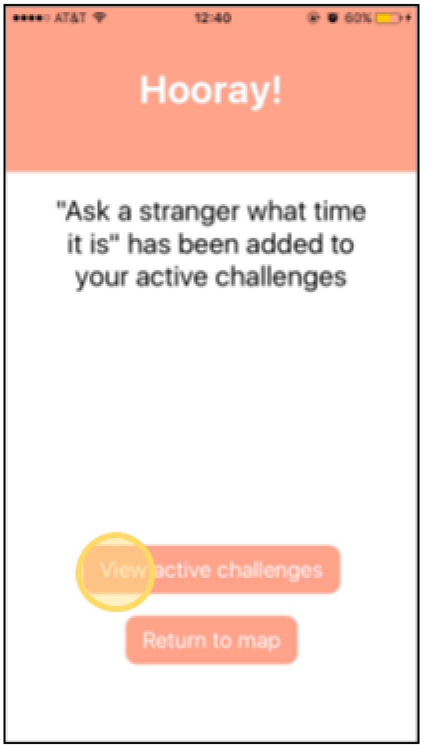
Ask a stranger what “it's lit” means

Ask for directions to a nearby bookstore

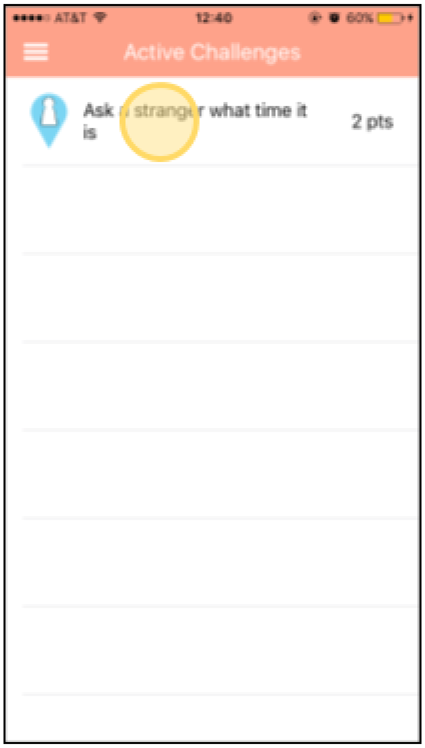


Ask a stranger what time it is

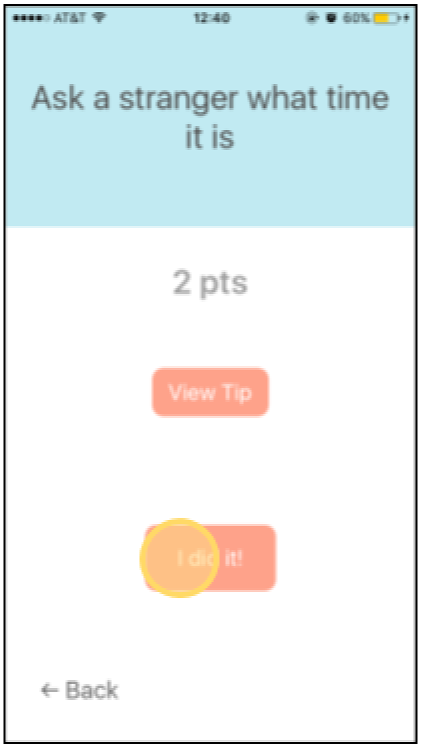
2 pts



"Ask a stranger what time it is" has been added to your active challenges



Ask a stranger what time it is 2 pts



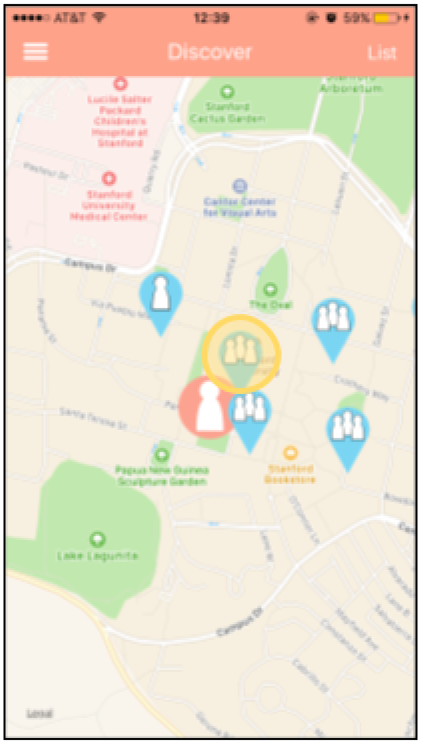
Ask a stranger what time it is

2 pts

Moderate: Pick a group challenge and complete it

Once again, the user goes to the *Discover* tab, and taps on a group pin on the map view, which brings up a popup showing a nearby group challenge. She can choose to join an existing group or create her own. If she creates her own group, she fills out some settings for the group challenge.

Then she can go do the challenge, and tap "We did it!" to indicate that she completed it. This task is the natural next step in using the app; after gaining the confidence to interact with new people on her own, our user can now complete group challenges to form friendships with new people.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Discover
List
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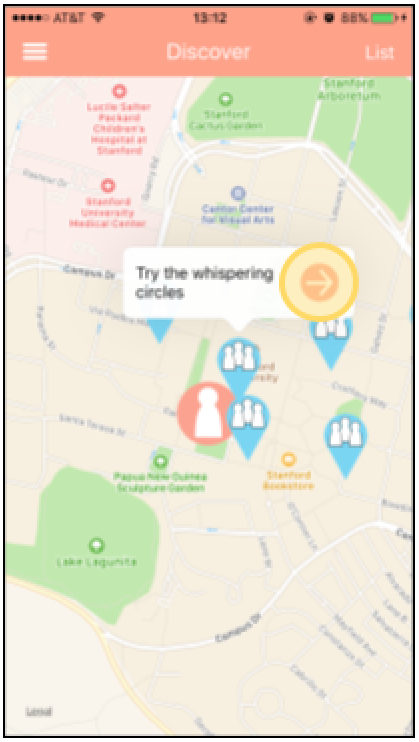
Stanford Cactus Garden
Stanford Arboretum
Stanford University Medical Center
Cantor Center for Visual Arts
Campus Dr
The Oval
Santa Teresa St
Papua New Guinea Sculpture Garden
Stanford Bookstore
Lake Lagunita
Campus Dr
Legal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Discover
List
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Stanford Arboretum
Stanford University Medical Center
Cantor Center for Visual Arts
Campus Dr
Papua New Guinea Sculpture Garden
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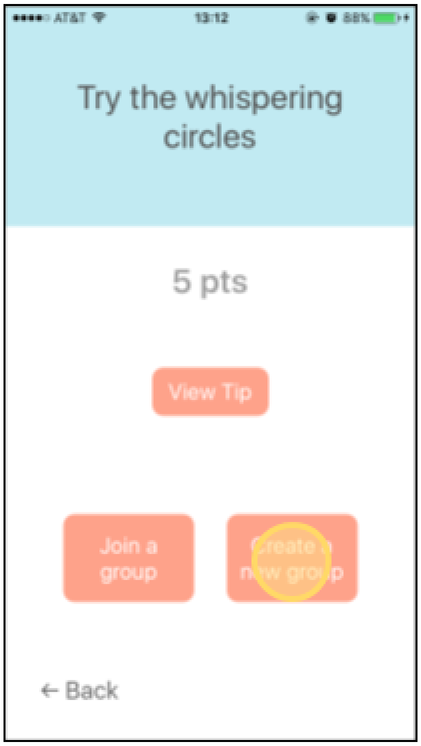
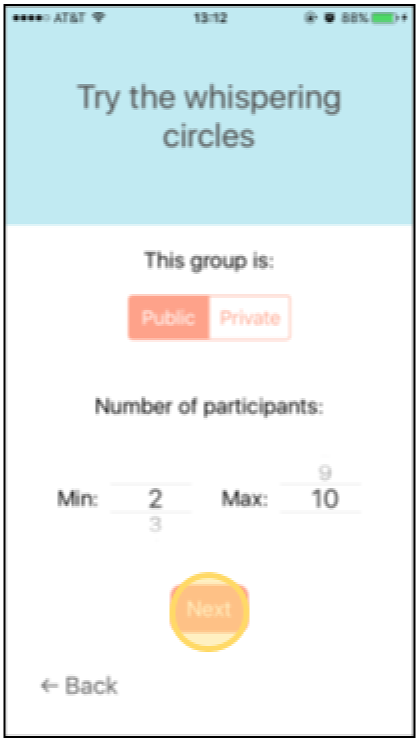
Try the whispering circles



Try the whispering circles

5 pts



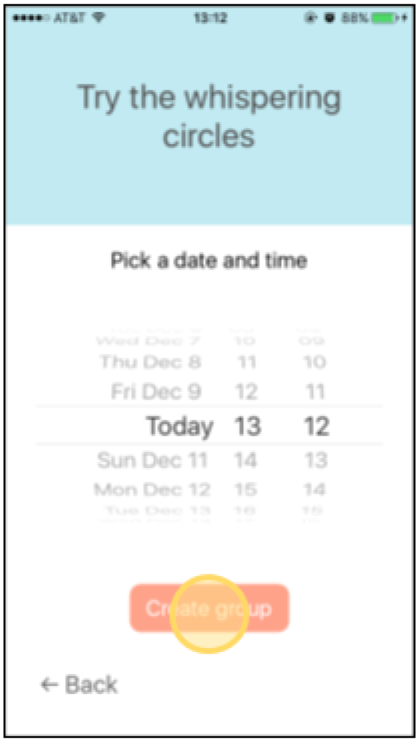
Try the whispering circles

This group is:

Number of participants:

Min: 2

Max: 10



Try the whispering circles

Pick a date and time

```
Wed Dec 7   10  09
Thu Dec 8   11  10
Fri Dec 9   12  11
Today       13  12
Sun Dec 11  14  13
Mon Dec 12  15  14
Tue Dec 13  16  15
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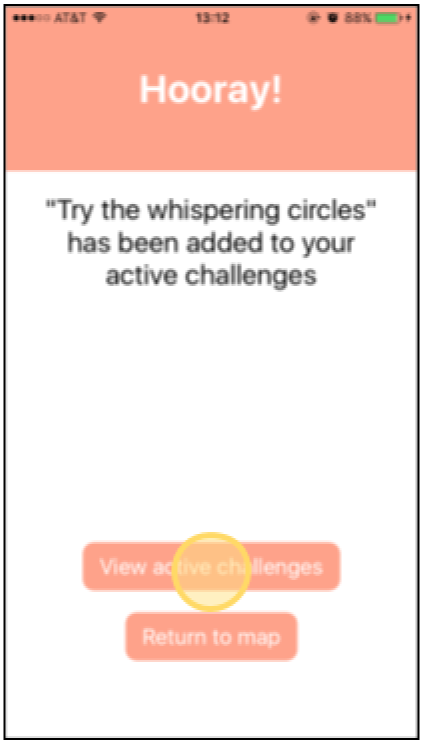
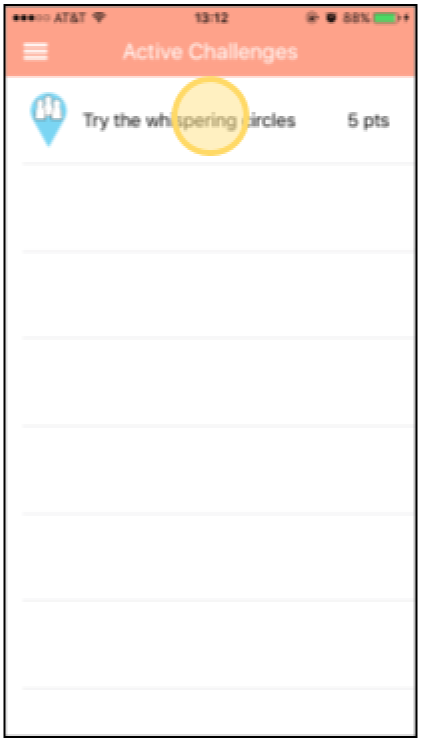
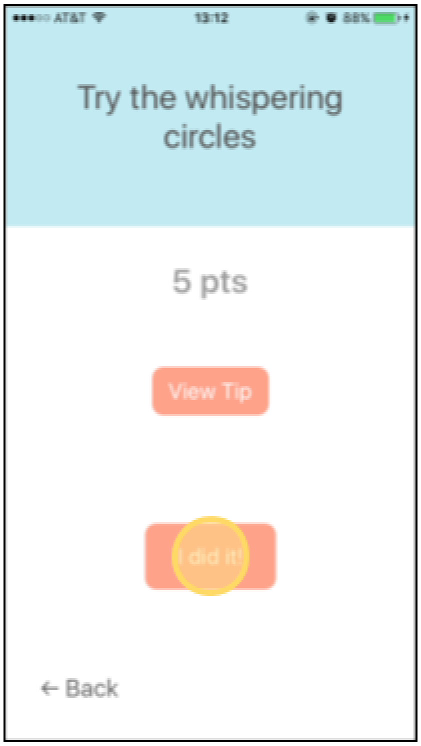


Hooray!

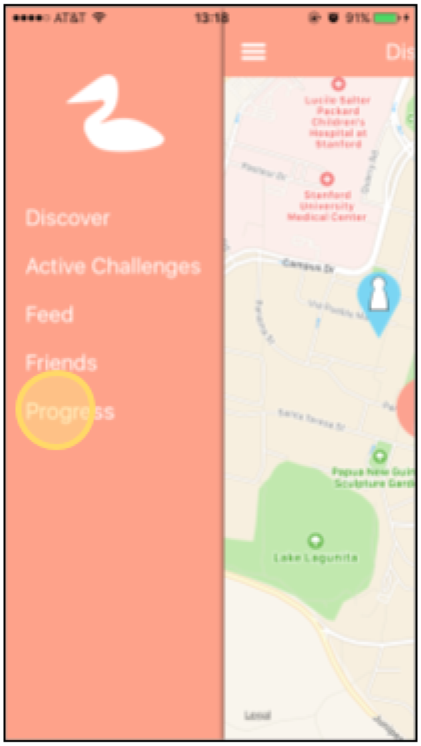
"Try the whispering circles" has been added to your active challenges





Complex: See your progress

The user switches to the *Progress* tab to view her points over time, by looking at charts of her points on a weekly, monthly, or all-time basis. She can also compare her progress to her friends' progress via the scrollable leaderboard. All of this is computed in real-time, allowing us to avoid any Wizard of Oz techniques. This task brings together both of the previous tasks by tying in the social aspect of Pelican. The leaderboard allows users to remain engaged and excited about completing tasks, as well as strengthens the friendships they have formed.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91%
Discover
Active Challenges
Feed
Friends
Progress
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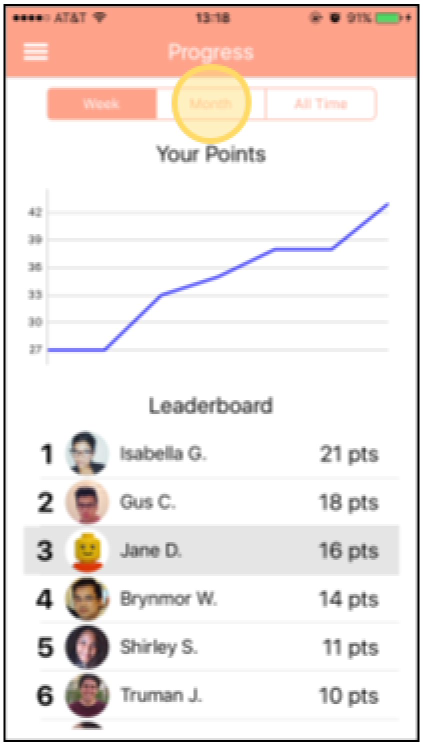
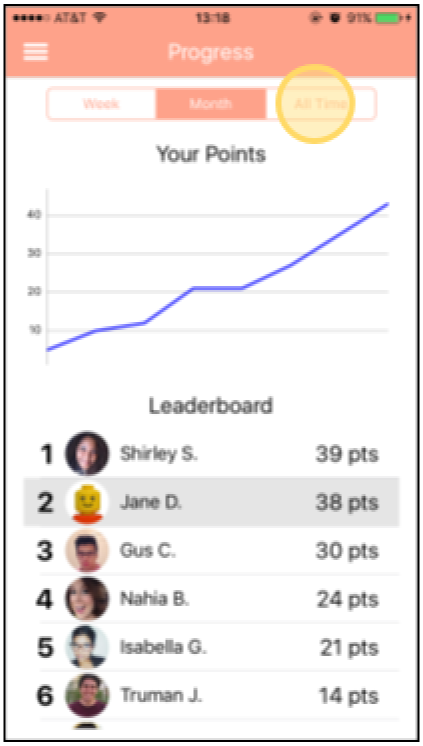
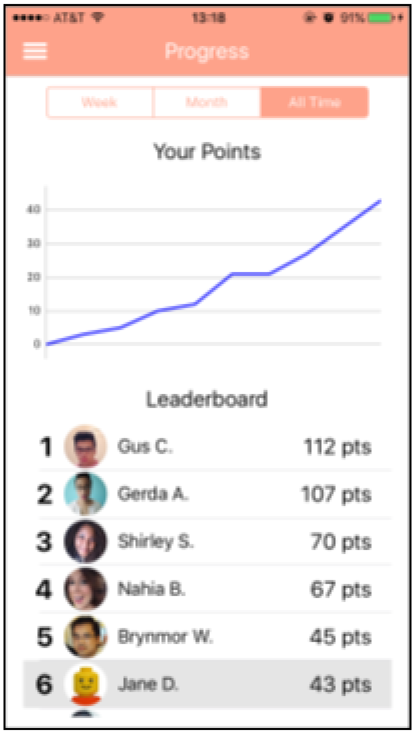
Stanford University Medical Center
Campus Dr
Papua New Guinea Sculpture Garden
Lake Lagunita



1	Isabella G.	21 pts
2	Gus C.	18 pts
3	Jane D.	16 pts
4	Brynmor W.	14 pts
5	Shirley S.	11 pts
6	Truman J.	10 pts



1	Shirley S.	39 pts
2	Jane D.	38 pts
3	Gus C.	30 pts
4	Nahia B.	24 pts
5	Isabella G.	21 pts
6	Truman J.	14 pts



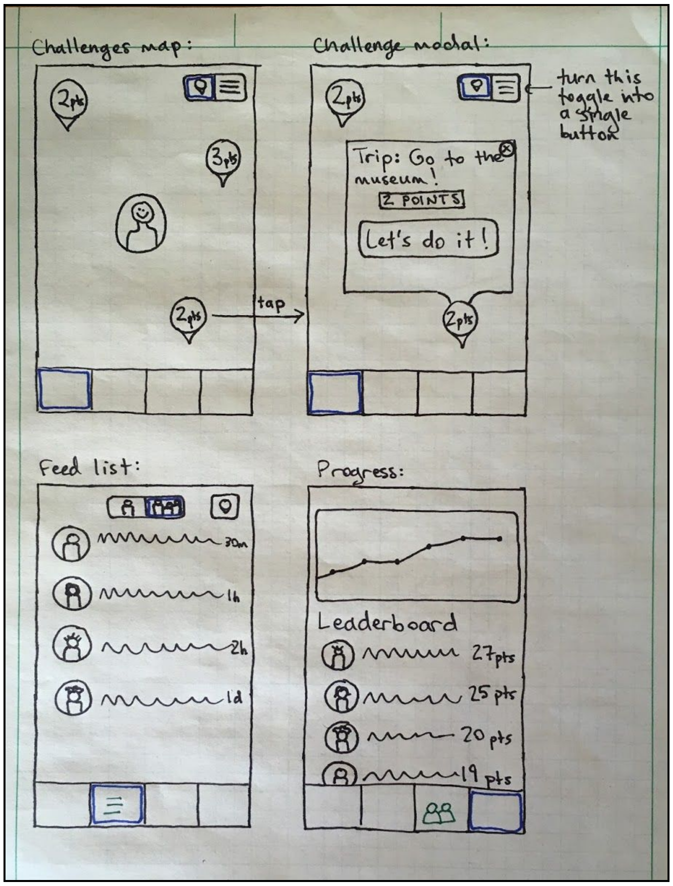
Progress

Your Points

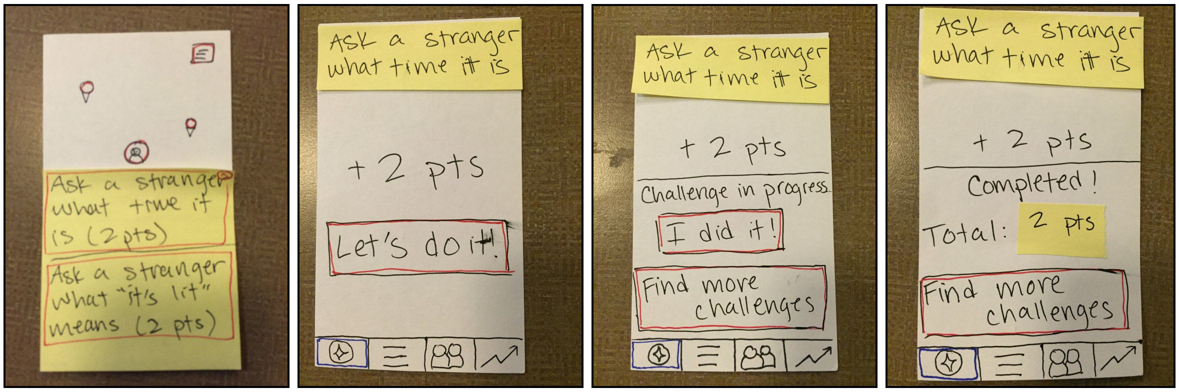
Leaderboard

1	Gus C.	112 pts
2	Gerda A.	107 pts
3	Shirley S.	70 pts
4	Nahia B.	67 pts
5	Brynmor W.	45 pts
6	Jane D.	43 pts

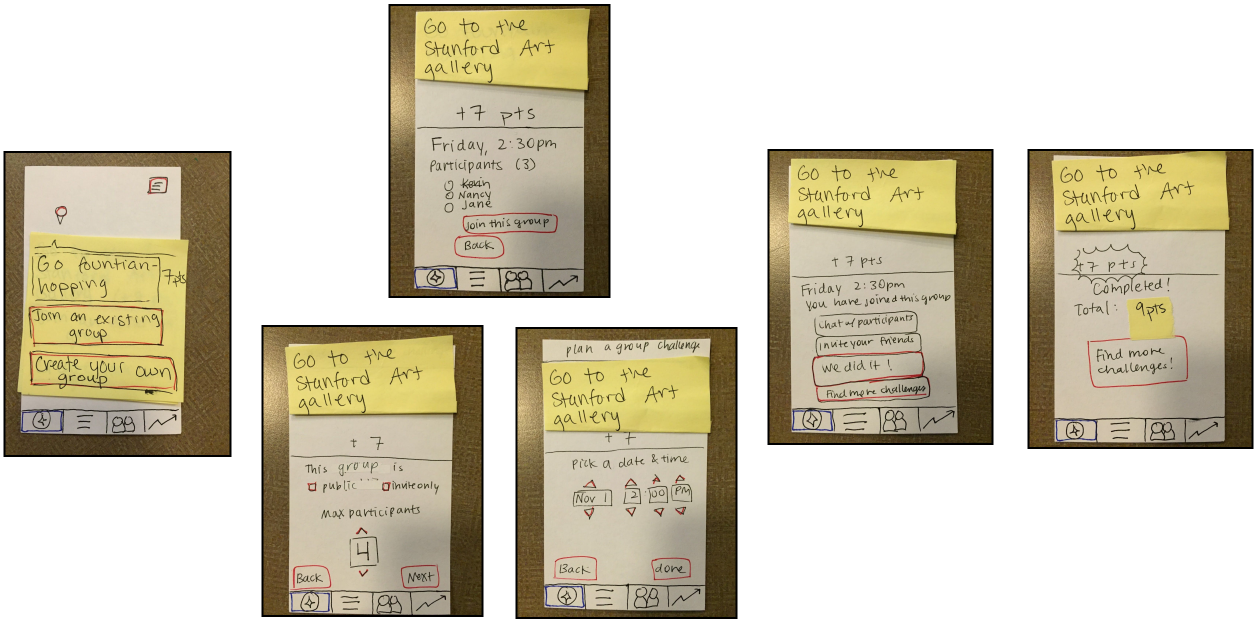
Design Evolution



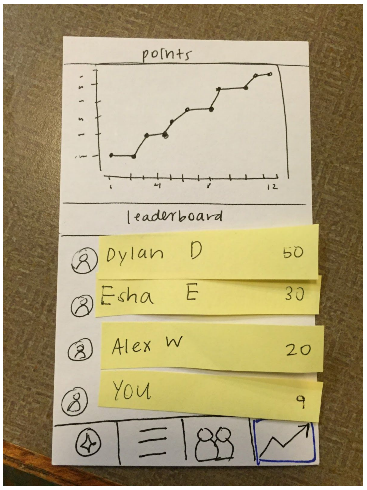
Initial UI sketch. (Figure 2)


Ask a stranger what time it is (2 pts)
Ask a stranger what "it's lit" means (2 pts)
Ask a stranger what time it is
+2 pts
Let's do it!
Ask a stranger what time it is
+2 pts
Challenge in progress
I did it!
Find more challenges
Ask a stranger what time it is
+2 pts
Completed!
Total: 2 pts
Find more challenges

Low-fi prototype: UI flow for our simple task (completing a solo challenge) (Figure 10)

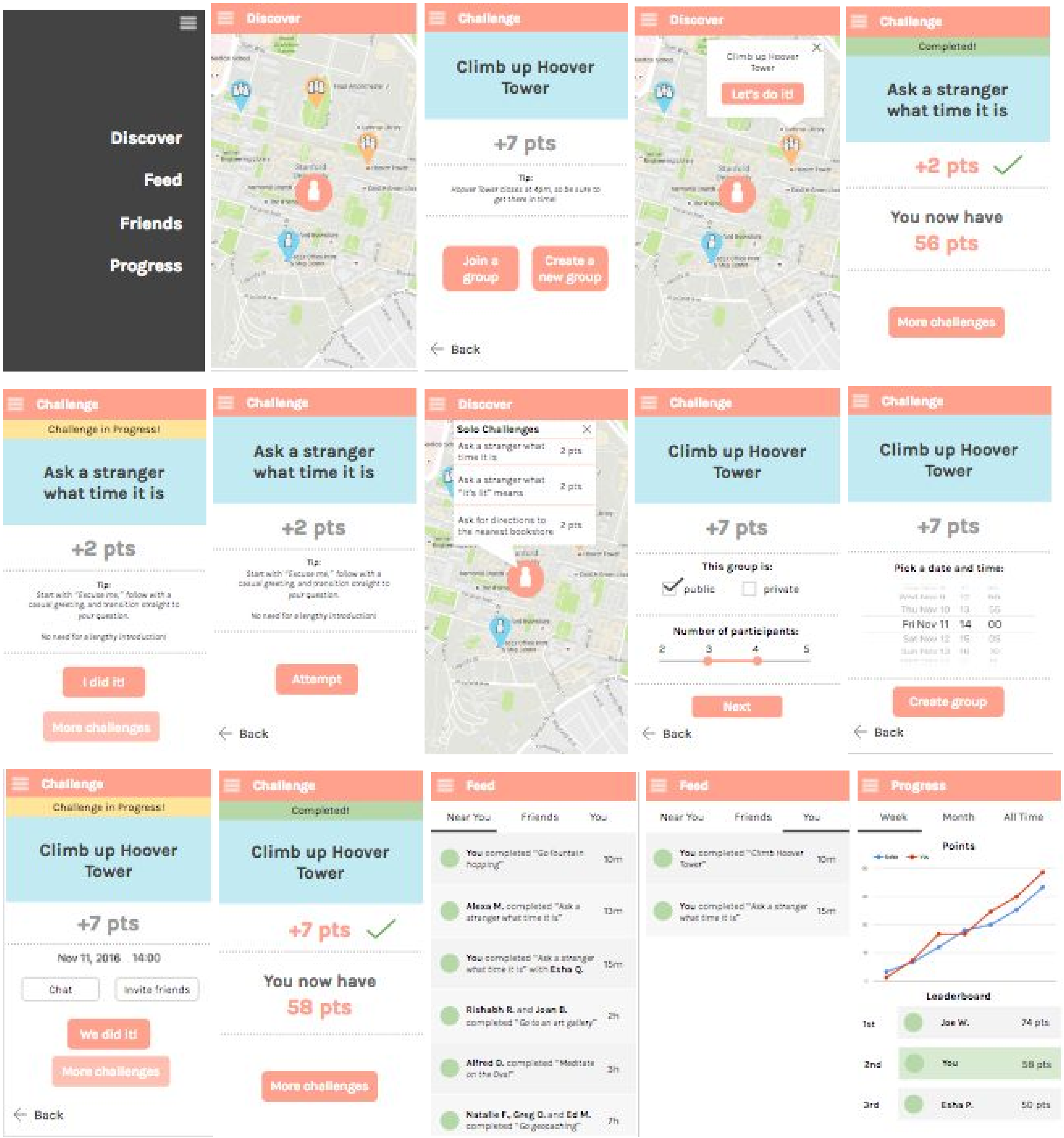


Low-fi prototype: UI flow for our moderate task (completing a group challenge) (Figure 11)



Low-fi prototype: UI flow for our complex task (checking your progress) (Figure 12)

In our initial UI sketch (Figure __), we envisioned 4 major areas of our app: Discovery, Feed, Progress, and Friends. Navigation was handled by a four-button menu bar at the bottom of the app that would always be visible. The idea was to make this largely a map-based app. In order to still display a lot of information at once, we included a toggling option on our maps to take the user to a list of the same information.. We kept this design for our low-fi prototype (Figures ___ to ___).



Tip:
Hoover Tower closes at 4pm, so be sure to get there in time!

Ask a stranger what time it is 2 pts
Ask a stranger what "it's lit" means 2 pts
Ask for directions to the nearest bookstore 2 pts

Tip:
Start with "Excuse me," follow with a casual greeting, and transition straight to your question.

No need for a lengthy introduction!

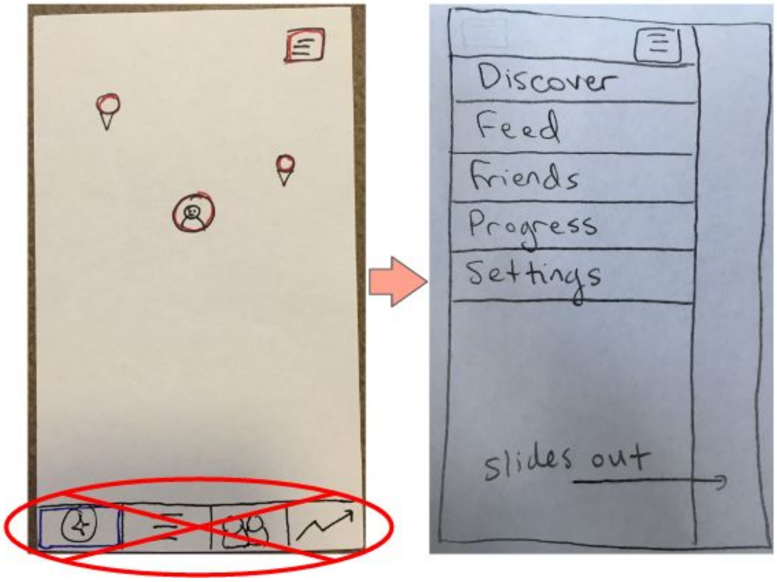
You completed "Go fountain hopping" 10m
Alexa M. completed "Ask a stranger what time it is" 13m
You completed "Ask a stranger what time it is" with Esha Q. 15m
Rishabh R. and Joan B. completed "Go to an art gallery" 2h
Alfred D. completed "Meditate on the Oval" 3h
Natalie F., Greg D. and Ed M. completed "Go geocaching" 7h

You completed "Climb Hoover Tower" 10m
You completed "Ask a stranger what time it is" 15m

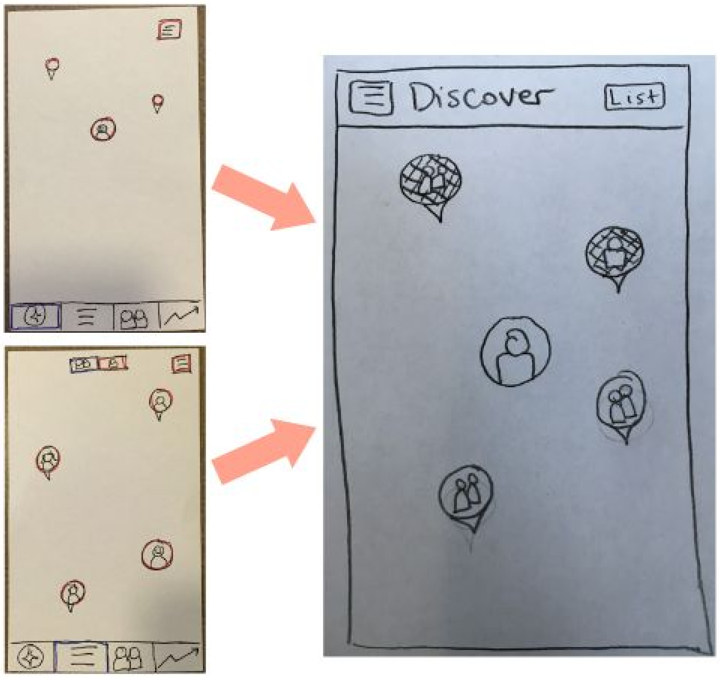
1st Joe W. 74 pts
2nd You 58 pts
3rd Esha P. 50 pts

Medium-fi prototype (Figure __)

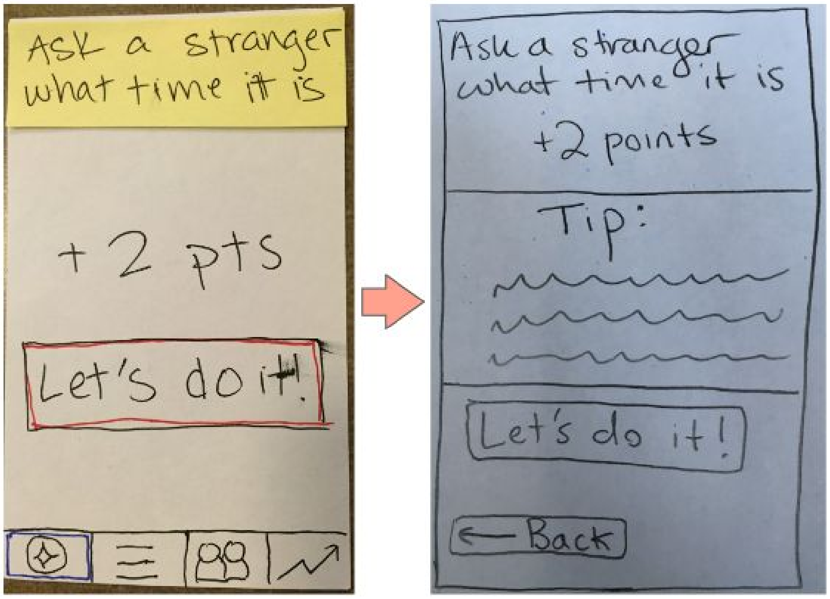
Based on feedback from our low-fi testers, we adjusted our medium-fi prototype in a couple different ways:



1. **Replacing the menu bar**
   We replaced our always-visible menu bar with an expanding menu, accessible via an always-visible hamburger menu button in the upper right. We made this change to reduce clutter, replace our unintuitive menu icons with a universally known icon, and enable adding more features in the future.



2. **Streamlining to a single map**
   Instead of having 3 separate map screens with different functions, we included only one map screen in our medium-fi prototype. Based on feedback from our low-fi users, we found that two separate map screens for group and solo challenges was confusing and hard to remember, and our third map of the Feed was an unintuitive way to display information on the Feed.


Ask a stranger what time it is
+ 2 pts
Let's do it!
Ask a stranger what time it is
+2 points
Tip:
Let's do it!
← Back

3. Adding tips

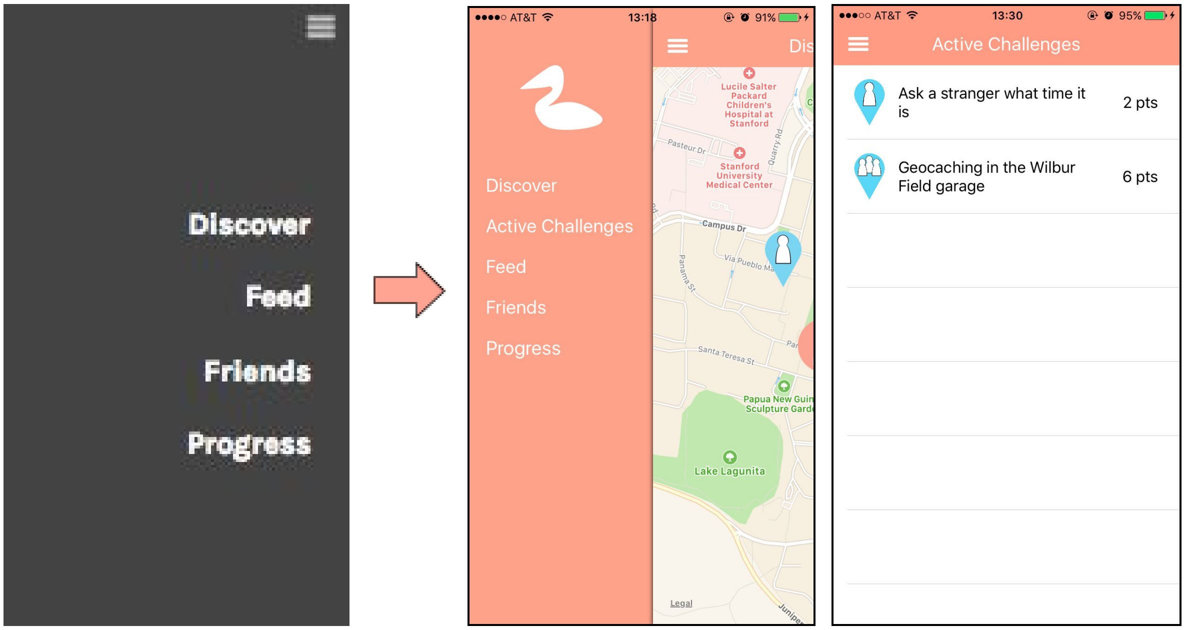
During our low-fi tests, a couple of our testers expressed interest in tips on how to complete the challenges. Given the purpose of our app, they felt it would be helpful to have more guidance on how to complete challenges; for example, the best way to approach a stranger, or typical ways to greet someone in their new environment.

Finally, we incorporated feedback from our presentation of the medium-fi prototype during section. Changes from this evaluation included adjusting the color of our expandable menu to match the rest of the app's color scheme and lessening the text on our challenge pages.

Major Usability Problems Addressed

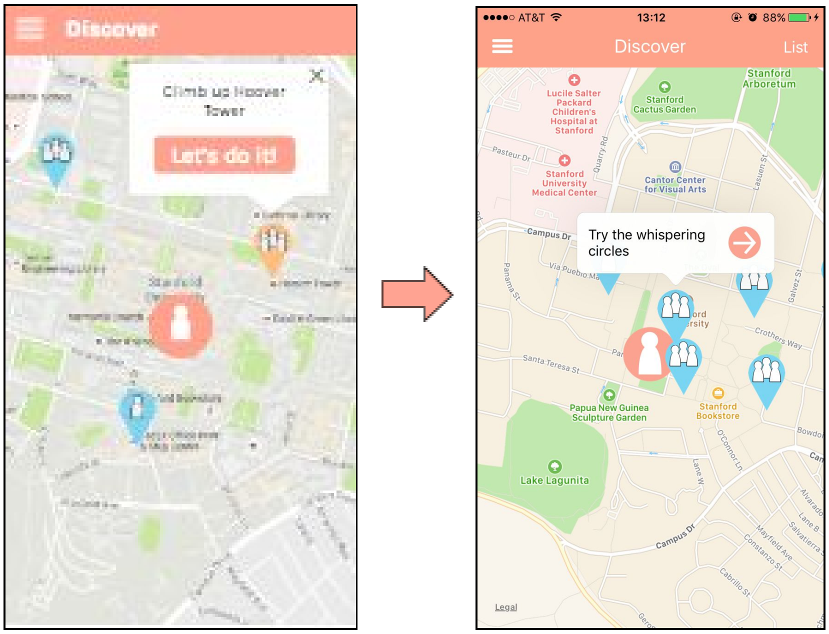
Our major usability problems (levels 3 and 4):

1. Inability to view active challenges


Discover
Feed
Friends
Progress
●●●●○ AT&T 13:18 91%
Discover
Active Challenges
Feed
Friends
Progress
Lucile Salter Packard Children's Hospital at Stanford
Stanford University Medical Center
Campus Dr
Lake Lagunita
Papua New Guinea Sculpture Garden
Legal
●●●○○ AT&T 13:30 95%
Active Challenges
Ask a stranger what time it is
2 pts
Geocaching in the Wilbur Field garage
6 pts

From our medium-fi prototype, our user had to finish a challenge after starting it; there was no way to go back to an incomplete challenge. We addressed this problem by adding another menu item, “Active Challenges.” This button navigates to a list-style screen with all currently active challenges.

2. Inability to easily exit pop-ups


Climb up Hoover Tower

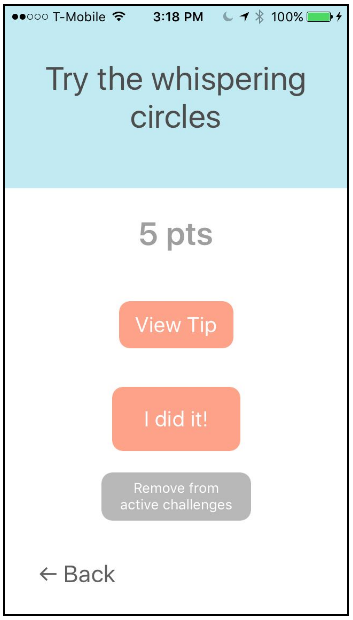
Try the whispering circles

Discover
Let's do it!
AT&T
13:12
88%
Discover
List
Lucile Salter Packard Children's Hospital at Stanford
Stanford Cactus Garden
Stanford Arboretum
Stanford University Medical Center
Cantor Center for Visual Arts
Campus Dr
Santa Teresa St
Papua New Guinea Sculpture Garden
Stanford Bookstore
Lake Lagunita
Legal

With most pop-ups, the user can tap anywhere outside the pop-up to exit. We didn’t have this functionality simply because it was annoying to implement cleanly in Marvel, but it is included in the hi-fi prototype.

3. Uncertainty about user icon

One of our heuristic evaluators did not understand the user icon on our Discovery map, and why it was larger than other pins. We planned to address this via a tutorial, which we chose not to include because Marvel would play the tutorial each time someone interacted with the app. Because the tutorial was not part of our tasks, we did not implement it for our hi-fi prototype.


Try the whispering circles

5 pts

4. **Cannot “give up” on challenge**

   In our medium-fi prototype, there was no way to simply “give up” on a challenge. We added this feature to our “Active Challenges.”

Based on some other heuristic violations, we are including the following changes:

1. Hiding tips--users can tap a button to see tips, rather than always displaying the full text of the tip to reduce clutter
2. Replacing the slider for number of participants with two drop-down menus for a more intuitive interface
3. Replacing our “Private/Public” checkboxes for group events with toggle buttons, for mutual exclusivity

Prototype Implementation

We built our prototype using Apple’s native development tools: Xcode and Swift. These tools provided built-in components including buttons, tables, and an interactive map, letting us quickly build complex functionality. The storyboard and autolayout features allowed us to easily design user interfaces with a clean and consistent appearance. We also found detailed online documentation and solutions to many of the problems we ran into during development.

However, there were some aspects of Xcode and Swift that hindered our development process. First, we had limited prior experience with these tools, so it took a while before we were able to start making progress. They were also somewhat constricting; Apple provides standard UI elements, but it is difficult to implement non-standard features. For example, Apple’s MapKit framework allows for displaying a bubble when a user taps on an icon on the map, but these bubbles have a pre-defined layout. It was difficult to bypass this layout and implement our own UI to display a list of challenges. Another non-standard feature was the use of a hamburger menu that slides out from the side of the screen. We luckily found a library, SWRevealViewController, that made this easy to implement. We used a second library, Charts, to visualize the user's points over time on the "Progress" page.

We did not use any Wizard of Oz techniques. However, almost all of our data was hard-coded: the challenges, feed, points over time, and leaderboard. The only data that updates dynamically in the high-fidelity prototype is the list of active challenges.

Many features are missing from the high-fidelity prototype. If we had time, we would add the following:

- A list view to complement the map view of the "Discover" page, with a searchable, filterable list of solo and group challenges.
- The UI flow to join an existing group challenge.
- Getting points for completed challenges.
- An x-axis with dates for the graphs on the "Progress" page.
- A different "active challenge" page for group challenges, which would show the time and location of the challenge and allow you to chat with the other participants.
- On the "attempt challenge" page (when you tap the arrow on a challenge bubble on the map), a list showing the names and profile pictures of your friends who have completed that challenge.
- An introductory tutorial explaining the design of the app, particularly how to use the discover map.

We did not add these features because they were not integral to our tasks, and we did not have time to implement them.

Summary

For many newcomers, the idea of interacting with their new environment can be difficult at best, terrifying at worst. Even once a newcomer gains familiarity with her environment, she likely struggles to make long-lasting friends. It is our hope that with Pelican, newcomers no longer need to be worried about these two problems, and inside find excitement in getting to know their new community and finding friends. Throughout the quarter, we have iterated on our application's design in order to add more flexibility for our users, and to accommodate different levels of comfort in new surroundings. We have learned how to find a real-world problem, design more solutions than we need, and prototype and test until we have a viable product. Moving forward, our goal is to continue apply the principles we learned in the creation of Pelican to future ideas.