Quest

Lab Usability Study

The Team

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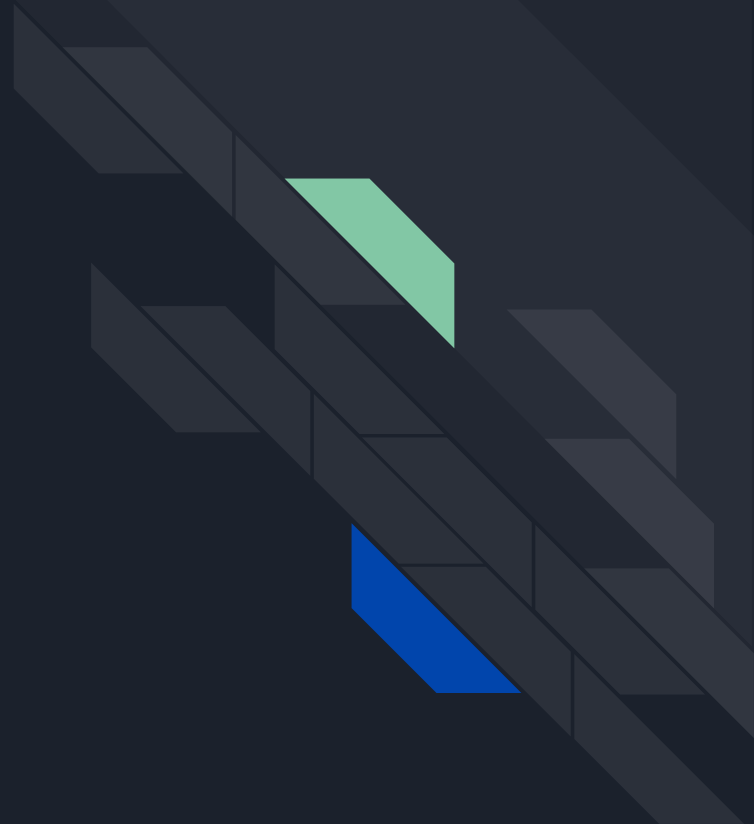
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Prototype Changes

Added real AR!

Floating coins

- 3D coins float along Quest path
- Disappear when user walks through
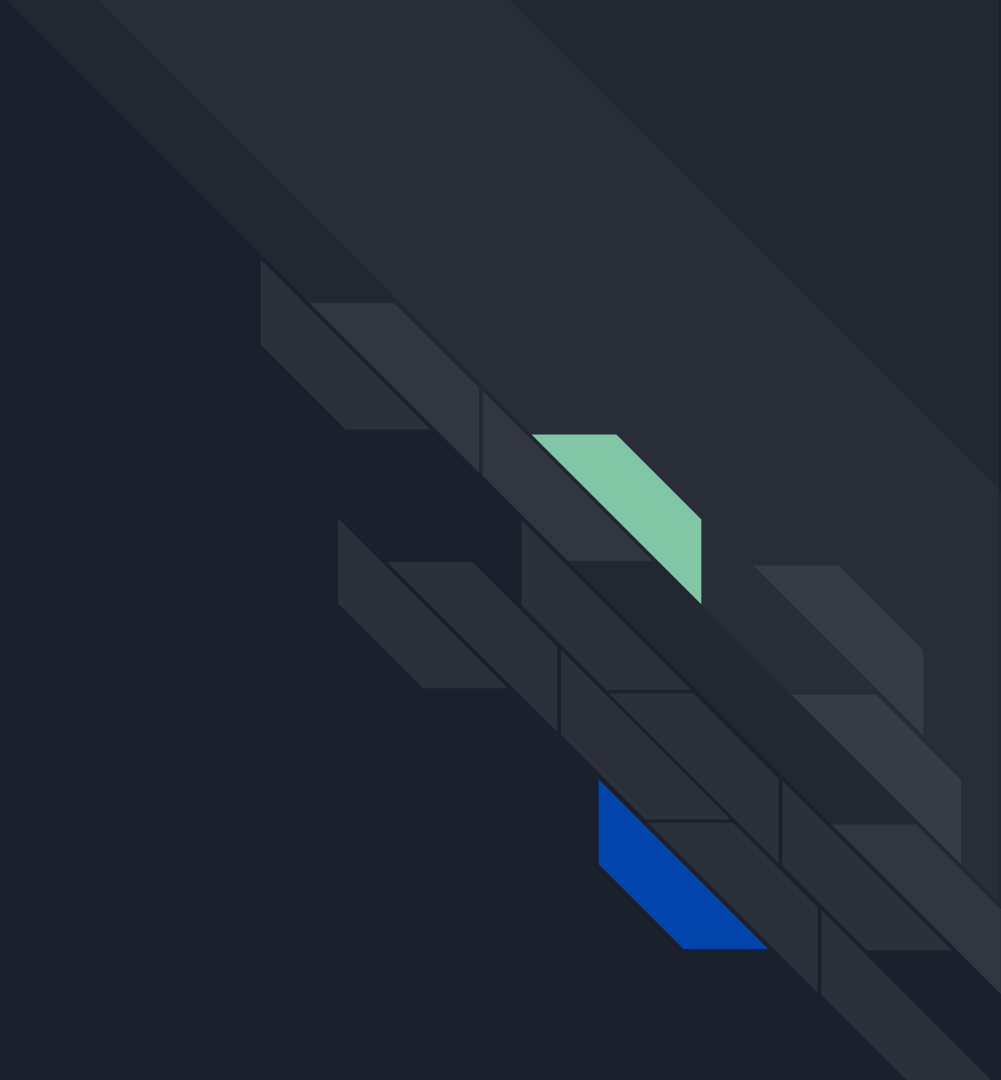- User gets points for collecting coins while retrieving a Quest

Added real AR!

Floating Quest box
- ○ For virtual Quest messages
- ○ 3D box floats in mid air
- ○ Disappears when user walks through
- ○ Reveals the virtual Quest

Methods

Participants

Sample size	n=5
Gender	3 female, 2 male
Age	20-26 years old; mean=22.8
Education	2 undergrad, 2 grad, 1 post-grad
Recruitment	Convenience sampling of friends, partners, roommates, teammates, coworkers
Compensation	None; participation voluntary
Experience with similar apps	Sample included both frequent and infrequent users of apps like Snapchat

Participants

Austin

Stanford CS Student-athlete
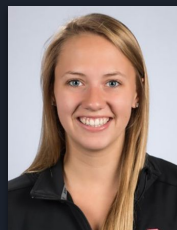-
New long-distance relationship

Thérèse

Stanford Plant Biology PhD
-
High school and college friends live across the country

Dylan

Stanford Symsys International student Student-athlete
-
Close relationship with her sister, who lives in Canada

Gavin

Recent grad Works at WikiHow
-
Has twin sister living in Brooklyn

Laura

Stanford Biology PhD
-
Very close with her older brother who lives in Colorado

Apparatus and Testing Environment

Location
- Participants' respective homes
- Quiet, away from other people
- Generally indoors

Equipment/software
- Hardware: iPhone
- Screen capture software:
  - iPhone built-in, QuickTime screen mirroring
- Video/audio recording software: iPhone built-in

Tasks 1-3

	Complexity	Summary of Task
Task 1	Complex	Design a Quest and send
Task 2	Simple	Check inventory of received/sent quests
Task 3	Moderate	Navigate to a location and open a message/gift

Task 1: Design a Quest and send

Description:
Can the user successfully compose a Quest and send it to a friend?

What we looked for:
- Selecting a friend
- Choosing a location
- Taking a photo, and writing a message

Task 2: Check inventory of received/sent quests

Description:
Can the user find his or her inventory of received and sent quests?

What we looked for:
- Navigating to Gallery
- Finding specific send/receive interactions with one user

Task 3: Navigate to a location and open a message/gift

Description:
Can the user successfully retrieve a Quest they have been sent?

What we looked for:
- Navigating to received Quests
- Opening quest
- Ability to interact with the AR
- Reactions to the AR

Procedure: Script

Hello (<u>participant name</u>),
You're here today to try out a quick demo of our high-fi prototype, Quest. If at any point you feel the need to stop, you have the freedom to do so.

First, I'd like for you to try to make a quest and sent it to any friend. Please go ahead and start. *[Wait for them to attempt this, record observations]*

Now, I would like for you to imagine that you have had a chain of quest interactions with your friend, Steven. You have both received and sent quests to this friend, and now you would like to view those past quests in your inventory. Please attempt to do so now. *[Wait for them to attempt this, record observations]*

Finally, I would like to you complete this quest that Steven has sent to you. Can you decipher how to successfully receive it? *[Wait for them to attempt this, record observations]*

Now that you have completed all 3 of our tasks, do you have any final advice for the flow/design of our app? We'd love to hear your feedback. *[Record feedback]*
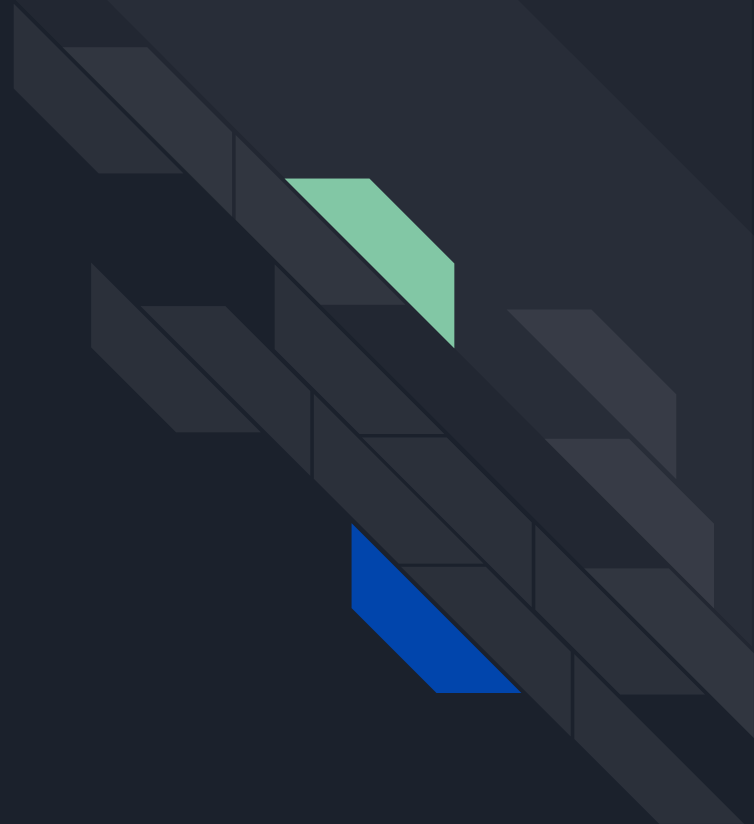
Thank you for participating, have a nice day!

Test Measures

- Overall time
  - In order to get a feel for how well the prototype is currently designed and implemented
- Overall number of errors
  - "Mistakes" users make in navigating
- Time for each task
- Number of errors for each task
- Additional comments & overall feedback
- Error rate of common errors

Results

Results

	Time	Avg # errors
Overall	7:19	8
Task 1: Design a Quest and send	3:54	4
Task 2: Check inventory of received/sent quests	0:57	2
Task 3: Navigate to a location and open a message/gift	2:28	2

Task 1 Error: Didn't understand what the pins on the map were

Task 1 Error: Attempted to place the Quest at a custom location

Results - Task 1: Design a Quest and send

Austin	• Took 1:20 to find "Compose" button for sending quest • Mentioned he didn't associate the "Send Quest" interface with the home screen
Thérèse	• Didn't understand what the pins on the map were (associated the wrong people with the wrong pins - "I think I'm the black shape? She's the orange shape?")
Dylan	• Wanted to be allowed to place Quests anywhere, not just at preset locations and favorites
Gavin	• Didn't understand the pins on the map, wanted to be allowed to place Quests anywhere, not just at preset locations and favorites • Wished you could compose a message and then choose a location instead of vice versa
Laura	• Clicked "Compose" many times before realizing she was already on the compose screen - didn't think the friend list was an intuitive "Compose" screen • Tried to place Quest at a new location, but was unable to

Task 2 Error: Got lost while using the "Back" button

Results - Task 2: Check inventory of received/sent quests

Austin	• Found it intuitive to navigate via tab bar
Thérèse	• From the compose screen, tried to go back, but accidently sent the Quest again • Expected to be able to click a friend's profile to see sent/received Quests from that friend.
Dylan	• Intuitively navigated to the gallery to look at quests that she has already received, however could not find the specific one we were asking her to find • She kept hitting the back button, which led her in circles
Gavin	• Got stuck hitting the back button, kept going in circles • Couldn't find the specific person's past message that we asked to find • Didn't know that the past messages tab could scroll down
Laura	• Successfully used the tab bar at the bottom to navigate to the gallery

Task 3 Error: AR interaction was confusing, and AR path was inaccessible

Task 3 Error: AR path was inaccessible

Results - Task 3: Navigate to a location and open a message/gift

Austin
- Unintuitive as to how to navigate to the profile - wouldn't guess by using tab bar
- Didn't associate "finishing quests" with being on the profile screen

Thérèse
- Had found received quests on the "Profile" page while completing Task 2
- Tried to click on coins, instead of walking toward them and sticking phone through
- Coins were in the middle of a tree

Dylan
- Immediately knew how to navigate to the "received quests" tab
- Coins led straight out a window, so she had to go out a door and look around in the AR to find the line of coins again

Gavin
- Immediately knew how to navigate to the "received quests" tab
- Wasn't sure what was going on when the AR mode first started; thought that he had to take a picture, since it opened the camera as when he sent a Quest
- Coins led directly into a wall, so that the first time he tried to reach the gift he couldn't because it was behind a wall

Laura
- Didn't know where to look for received Quests, went looking for it in the gallery of previously received Quests

Common Errors

Type of error	#/Percent of subjects who committed error
Had trouble with bottom navigation bar	2 out of 5 (40%)
When sending Quest, tried to place Quest in a custom location (rather than a pre-set or favorite)	4 out of 5 (80%)
Got lost during navigation due to "Back" button	5 out of 5 (100%)
Didn't know how to interact with AR (e.g. clicked instead of walking through)	3 out of 5 (60%)
AR path was inaccessible	4 out of 5 (80%)

Results - Final remarks

Austin
- Need to fix hierarchy in which interfaces are overlaid (more minimalist, correct direction)
- Back button should not bring you "back in time" (shouldn't be able to "unsend" Quests)
- AR safety

Thérèse
- Wondered if you really need to get all the coins in order to retrieve the Quest; "would be hard if the coins are inside Christmas trees"
- Suggested a notifications badge on the bottom tab bar when new Quests are received
- Suggested a short tutorial for how to interact with the AR

Dylan
- Home screen should direct you to perform the most relevant task - sending a Quest.
  - Navigation from other screens could bring you back to this
- Back button should not let you go back to Quests that you just sent and send them over again
- AR safety: Having coins lead directly out of a window seems fine but not if it led onto a busy highway, for example

Results - Final remarks

Gavin
- Back button "just goes in circles"
  - Back button should not let you go back to Quests that you just sent and send them over again
  - Stated that he wished back button "progressed linearly back through the path you took"
- Suggested that when the AR mode opens, a message such as "you are now starting a Quest" should appear (visually differentiate AR-mode)

Laura
- Thought the AR interaction was more exciting than touching the coins on the screen
- Suggested that the Quest box should be animated as if it were breaking open; was confused when she put the phone through the Quest box, and the message popped up on the screen; expected some visual signal that she had done something to interact with it
- Was confused that the home page was the "Compose" tab - "I didn't realize I was already here (at the compose tab)", but soon realized the other tabs were grayed out, and could be clicked
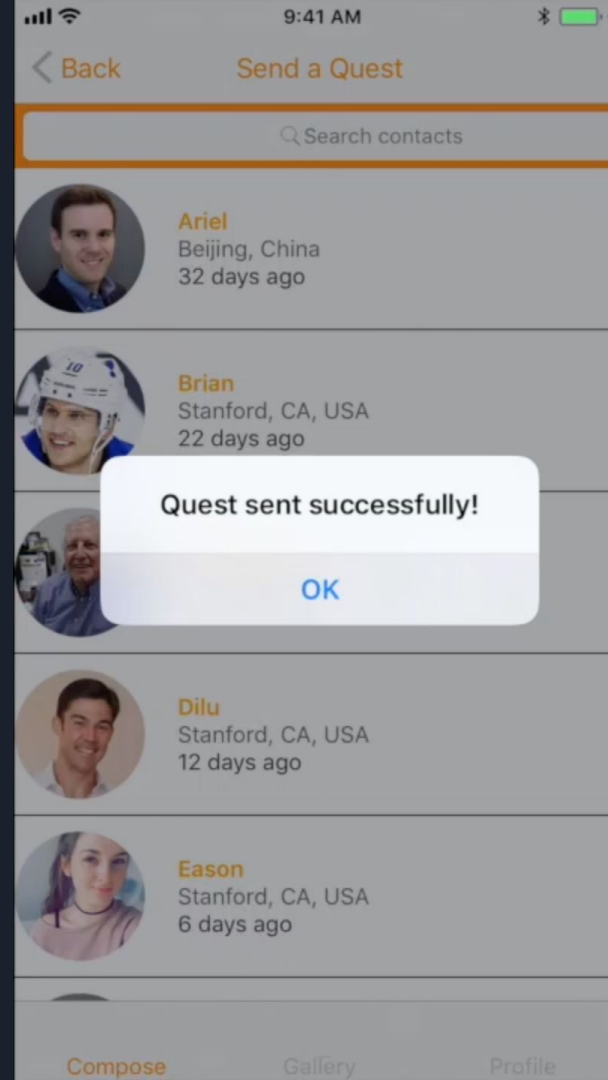
Discussion
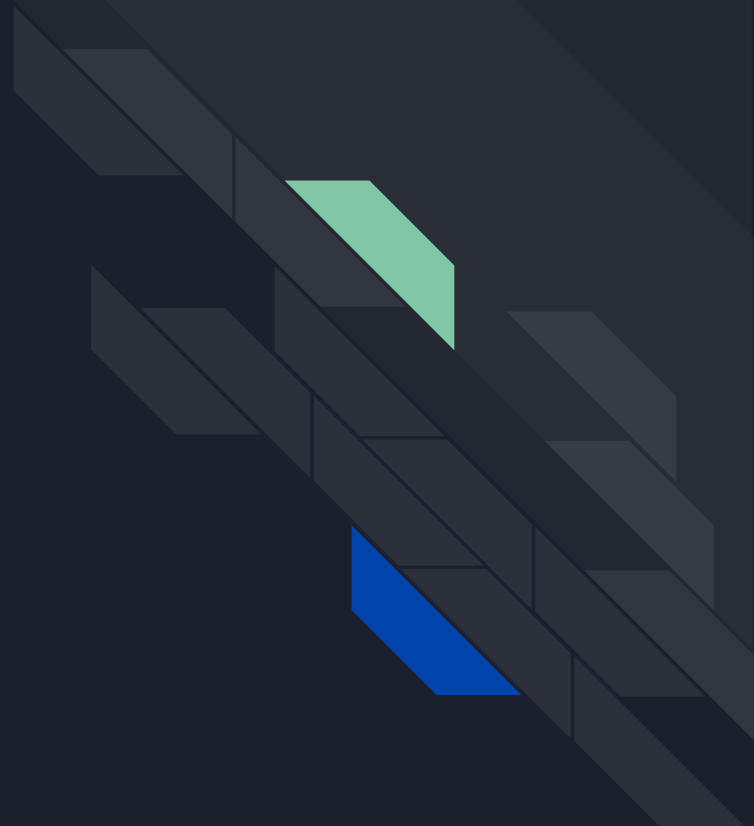
Changes to be made

(for a larger experiment)

1. Revisit user interaction design; app hierarchy
2. Add the features that users expect
3. Go beyond AR implementation to AR interaction

Revisit user interaction design

Rethink "Back" navigation

Back button is confusing, needs to be re-implemented. Currently allows user to re-send Quests that were just sent

9:41 AM

< Back   Send a Quest

Search contacts

Ariel
Beijing, China
32 days ago

Brian
Stanford, CA, USA
22 days ago

Quest sent successfully!

OK

Dilu
Stanford, CA, USA
12 days ago

Eason
Stanford, CA, USA
6 days ago

Compose   Gallery   Profile

Revisit user interaction design

Change landing page

Need a more clear "Home" screen - users commented that the landing screen shouldn't be the tab of your friends list, it should be something clearly letting you send a Quest right away
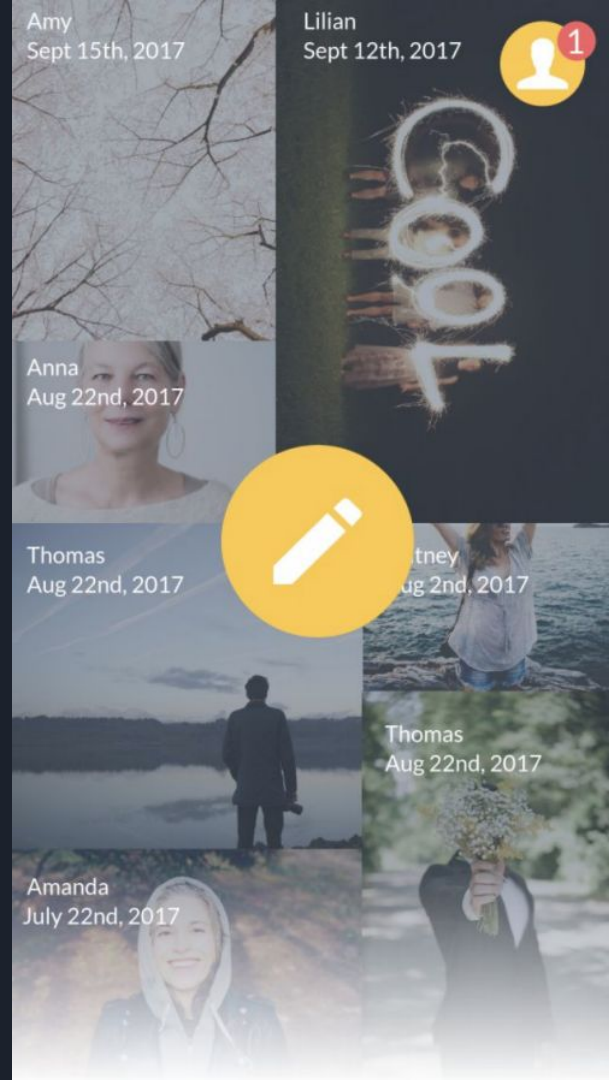
Revisit user interaction design

Re-design bottom navigation bar

Bottom navigation bar needs to be larger, tabs may need to change (e.g. profile?), could provide more informative (e.g. notification flags)
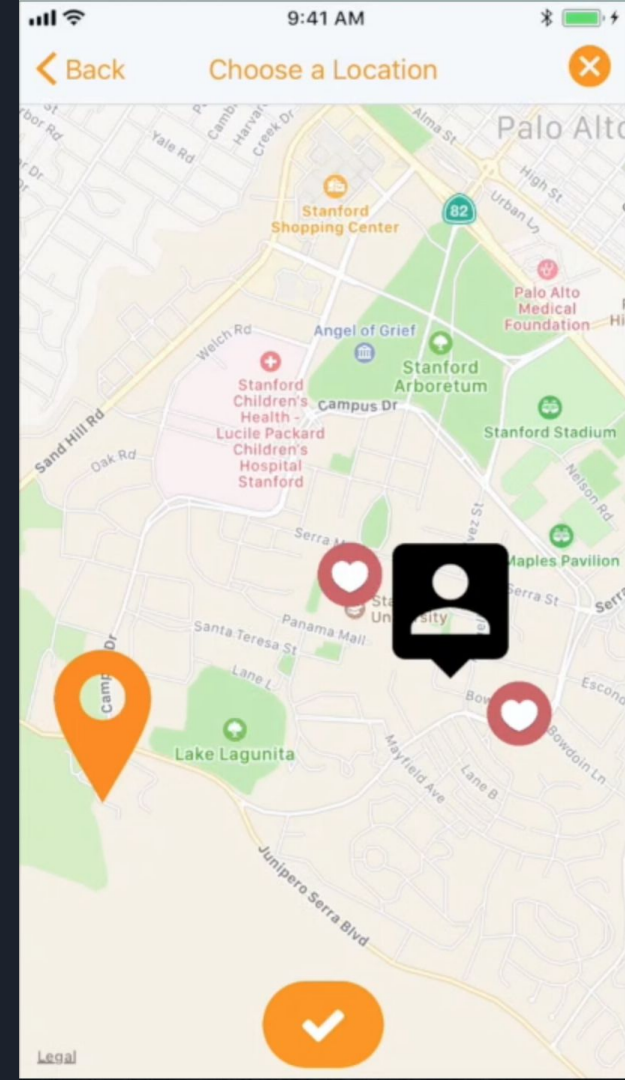
Old:

New:

Add the features that users expect

Add custom locations - When sending a Quest to a location, the user needs to be able to choose any location, not just presets and favorites

Go beyond AR implementation to AR interaction

Consider AR safety, and possible workarounds

Users need to be safe while using the app. The AR should not lead users into obstacles, or other dangers.

Possible solution: allow user to click coins if they the coin cannot be reached on foot

Go beyond AR implementation to AR interaction

Add an AR tutorial - Create a short tutorial that new users swipe through to learn how to interact with the AR

Implications for a larger experiment

- Broaden sample
  - Extend to a wider age range
  - Extend beyond the local Stanford community
- Standardize the meaning of an "error" across researchers
  - If they try to click a coin 5 times, is that 5 errors or 1?
- Scale video, audio, and screen capture for all participants; revisit Lookback.io for React Native?
- A/B test different navigation interaction designs, to see which flows are most intuitive

Summary

- Added AR to high-fidelity prototype
- Redefined tasks
- Tested our high-fi prototype with a diverse sample of potential users
- Sought feedback on 3 tasks: sending Quests, viewing inventory, and receiving Quests
- Consistent feedback across the board gives us clear areas to focus
  - Home screen / landing page
  - Navigation
  - Customization of Quest locations
  - AR interaction and safety
- Corroborates feedback from Elizabeth Lin, who gave feedback on our visual/interaction design
  - Reconsider landing page
  - Make icons more informative (e.g. friend's photo at their pin on the map)

Thank you for your time!