

## **1. Title/Team Members**

### *unGuided*

Kevin Zhai - Manager / Design

Tyler Brown - Documentation

Sujeet Gholap - Development

Samuel Gonzalez Portilla - User Testing

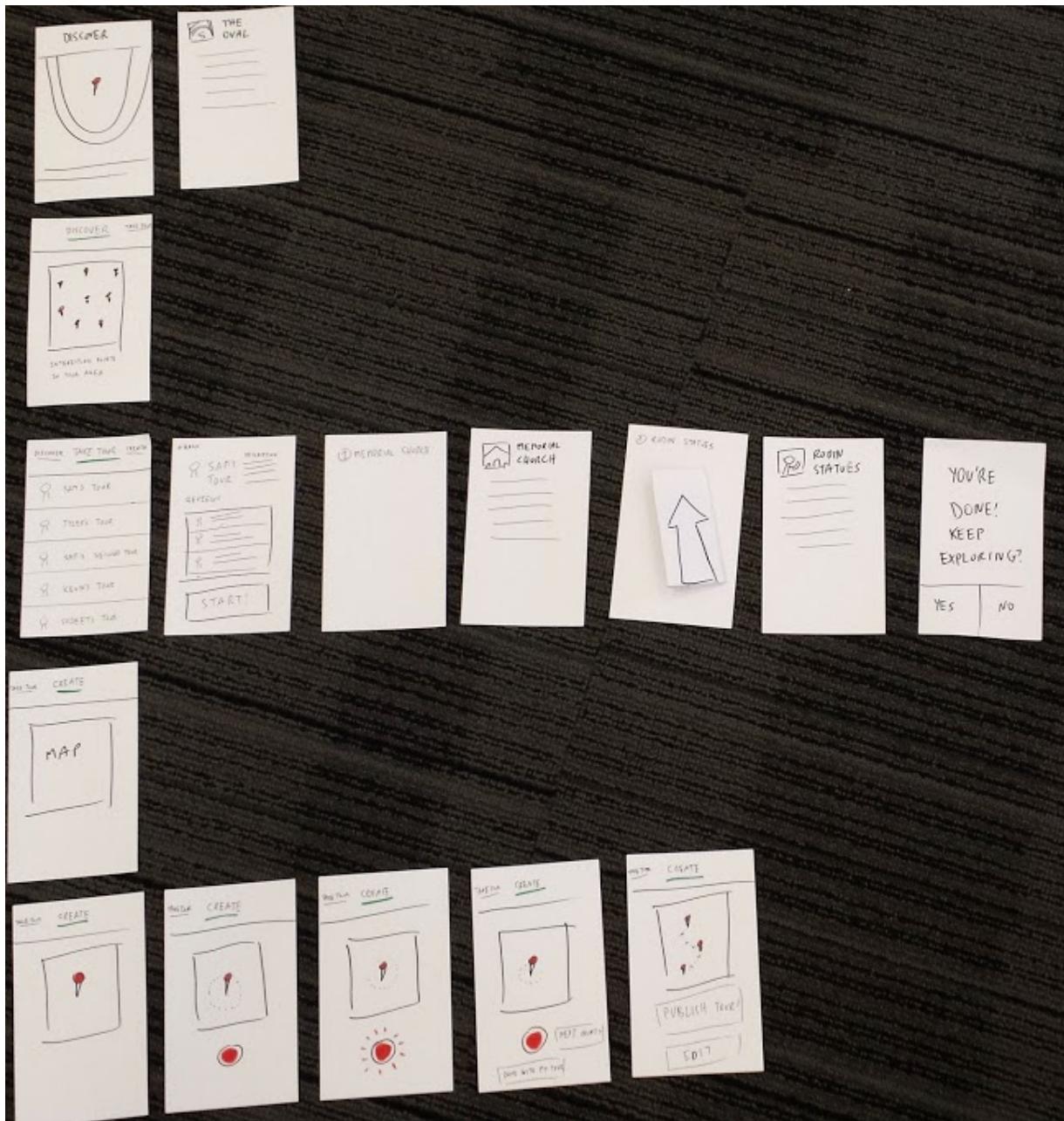
## **2. Introduction and Mission Statement**

Our mission is to design a mobile application that lets visitors experience tours from multiple perspectives, in customizable directions, and at their own pace—and that enables people passionate about a place to create and share their unique stories and insights.

Building on our work from the past few weeks, we were ready to test our application, unGuided, on key consumers. The purpose of the experiment was to determine how intuitive the interface we created was, and to discover what functions real users wanted from the application that we had not provided. We built our low-fi prototype and contacted people we knew with stories to tell and, in some cases, experience with “standard” tours: A Stanford tour guide, a graduating senior, and a travel enthusiast.

## **3. Prototype**

We based our low-fi prototype on the storyboards from our last assignment. The functionality covered the three tasks we wanted to test: Creation, taking a tour, and discovering new points of interest. We decided on a mobile phone platform for our application and used touch as the main interaction point because users would already be familiar with touch-based applications. In order to mimic the touch-functionality with our low-fi prototype, we opted to use POP, an application that allowed us to take photographs of our sketches and map them to interactions on a phone screen.

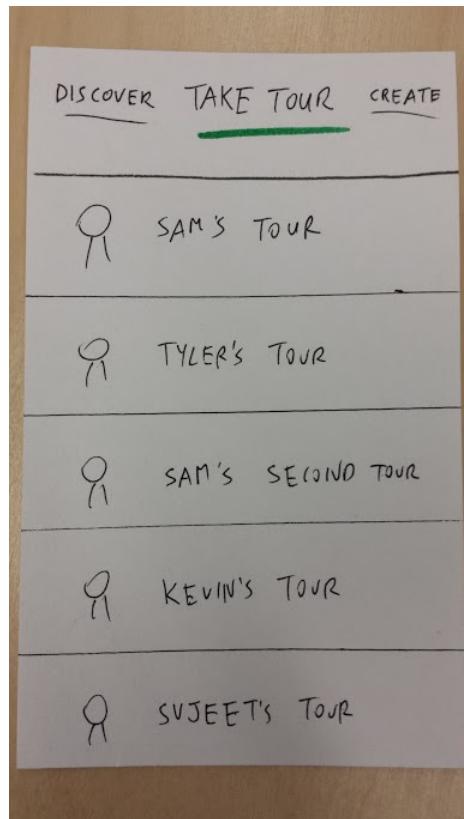


**Figure 1:** Application map

The homescreen begins on the “Take tour” function (Figure 2) because we assumed this would be the most common task for a user. Feedback here included the desire to know the estimated length of a tour. User 3 said he wasn’t as interested in seeing the creator’s name as he was in the content and length of the tour.

The next screen (Figure 3) shows a description and reviews of a tour that would help a user decide whether the tour was suitable for his or her needs. Navigation for the tour was implemented with a directional arrow that the user would follow until he or she reached the point of interest, at which point the audio narration would automatically begin. The audio narration was done by Tyler and was told from the perspective of an American Studies

student at Stanford who had personal anecdotes and historical tidbits about the points we visited. Meanwhile, the phone would display information relevant to the point (Figure 4). This process would repeat until the tour was done. User 3 provided insight as to whether he would keep the phone in his pocket during the tour or if he just held it in his hand.



**Figure 2:** The home screen

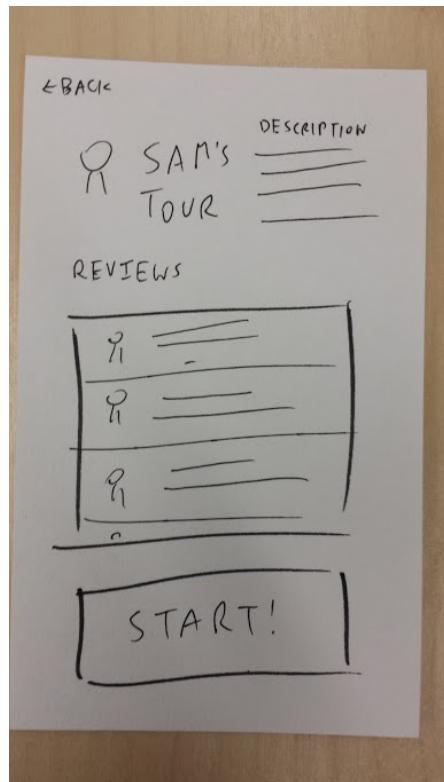


Figure 3: Reviews and start tour screen

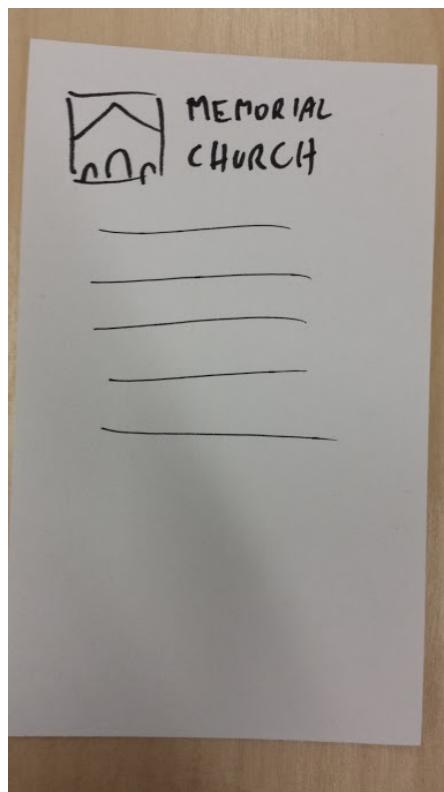
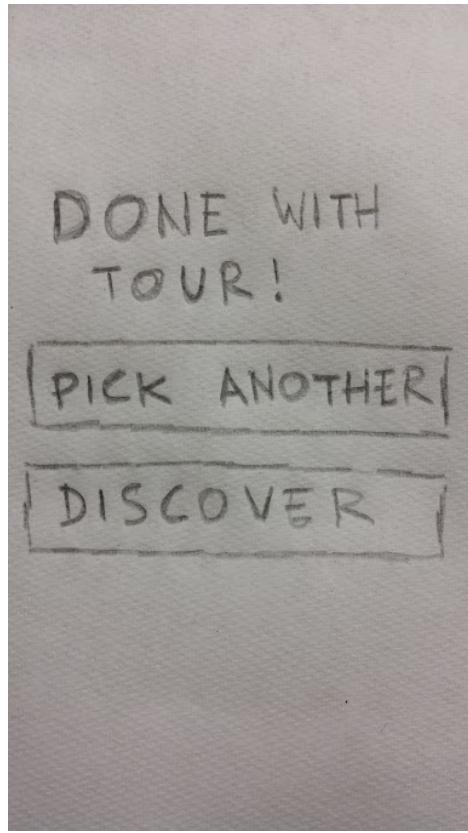


Figure 4: Information relevant to a point of interest.

At the end of the tour, the user would be allowed to continue exploring (Figure 5) and begin the “Discover” task of our application. In our prototype, this was hardcoded so that the user would explore the Oval after ending the tour at the Rodin statues in Main Quad. An informational narration began playing once the user was within range of the Oval, which was meant to represent an automatically generated narration scraped from data about the place. Although not fully implemented, the option to discover and freely explore was the task that all three users gravitated the most towards, which is something we will keep in mind moving forward.

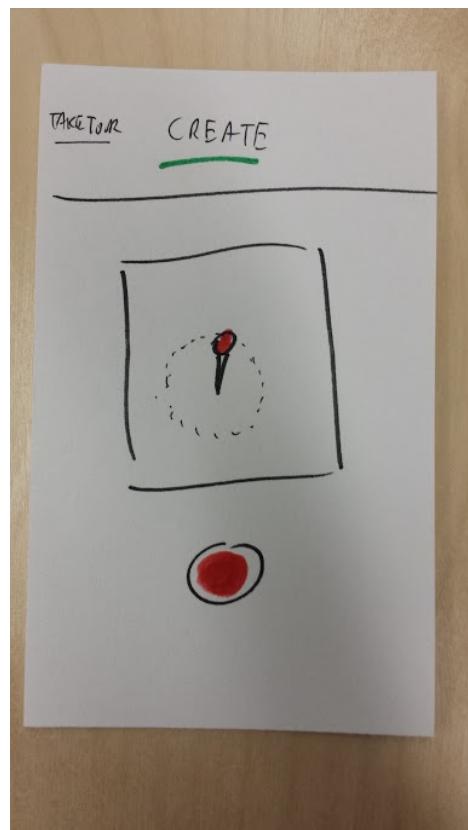


**Figure 5:** Tour completion screen

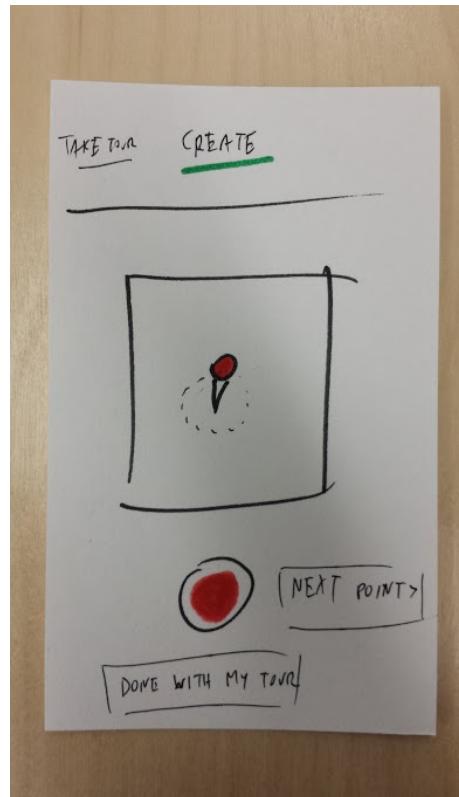
After having spent some time taking a tour and exploring nearby points, we asked the user to create their own tour in order to test the “Create” task. Our lo-fi prototype allowed the user to drop a pin on a “map” (Figure 6), which represented whatever location they were thinking of. Once the user had set the radius for the pin (something we automatically added for the sake of the prototype), the user would then begin recording narration (fig. 7). This cycle could repeat for more points of interest until the user decided he or she was done with creating the tour (fig. 8). Before publishing the tour (fig. 9), the user could preview the route and go back to edit their tour if he or she wanted to. For the purposes of the lo-fi prototype, we did not implement necessary features such as going back to edit the tour, more advanced trimming features, or adding a title for the tour. However, these were all functions that our users brought up during testing.



**Figure 6:** “Create” landing screen



**Figure 7:** Map and record tour component



**Figure 8:** Screen prompting an additional POI or tour conclusion



**Figure 9:** Publish/edit tour screen

A future task we did not implement for this prototype was the requirement to first create an account. Other tasks we did not implement in this lo-fi prototype include adding media other than audio during the “Create” function and providing feedback during the tour.

## **4. Method**

### *A. Participants*

Participant #1 is a Stanford Computer Science Major from Phoenix, AZ. He was selected due to his affinity for technology and phone applications in general. Participant #1 travels approximately three times per year. Some of his hobbies include bike riding, watching Grey's Anatomy, and spending time with his family. To gather information about the places he visits, Participant #1 mostly uses Google, and sometimes Yelp.

Participant #2 is a Biology Major at Stanford from India. She was selected because she is a Stanford Tour Guide. She travels once every three months and she is interested in history and storytelling. Her main hobbies are improvisation, comedy, and writing. When she is travelling she uses her phone for directions and information about public transportation. She also takes advantage of any local friends she may have.

Participant #3 is a Stanford Product Design Major from Kentucky. He was selected due to his experience with user interfaces. He travels approximately once per quarter and is somewhat interested in historic places. His main hobbies include going to bars, restaurants, and shopping. To gather information about the places he visits, Participant #3 usually uses Yelp and sometimes Google.

### *B. Environment*

The test was carried out in Stanford’s main quad area. Each user went on a small tour that included Memorial Church, Rodin’s The Burghers of Calais, and the Oval. Our team surrounded each user as they walked around interacting with the prototype.

### *C. Tasks*

The first task that was tested was “Take a Tour”. Here, the user selected a tour that took him/her through specific waypoints. Our prototype acted as a tour guide offering audio and visual information about each key-point that the user visited, and guiding the user to the next waypoint. The second performed task was “Discover”. In it, the user was allowed to explore freely. When a key-point was reached, the prototype automatically offered audio and visual information related to that key-point. Finally, the third task was “Give a Tour” where the user created their own tour selecting key-points in a map and recording audio that was relevant to them.

### *D. Procedure*

One team member acted as greeter/communicator. He was responsible for getting the user to sign the consent form, explaining the tasks that were being carried out, answering any questions the user had, and asking interview questions at the end of the test. Since audio plays a significant role in our application, a second team member was in charge of audio

playback. He was responsible for reproducing the corresponding audio clip for each key-point. A third team member was in charge of taking notes, and the fourth was in charge of taking pictures. During our three conducted tests, our team rotated some of the roles.

#### *E. Test Measures*

Throughout the tests carried out, we mostly focused on measuring two main aspects: how successful overall was our prototype in carrying out the three tasks, and how effective was the user interface in supporting those three tasks. With this in mind, we placed special attention in the user's level of understanding at each point of the way. Were the users aware of what was happening, was it easy for them to transition from one action to the next or were they constantly interrupted in confusion? Secondly, we cared about the user's ease of flow through the interface's different screens. Were there particular screens, menus, or buttons that the users got confused with? Were there pieces of functionality that were unintuitive and did the users get stuck in a particular feature?

### **5. Results**

The tests carried out by our three participants were, in general, very informative. We were able to confirm some of our initial hypotheses but were also surprised to learn about some flaws that we had not accounted for.

Participant #1 sometimes felt bored when walking from one key-point to the next because there were no narrations in these transition periods. He was also concerned by the fact that the prototype in its current state has no privacy settings. In other words, when publishing a tour he wanted to know if it was being published to Facebook, Twitter, the app, or the world. Additionally, he stated that he would like to be able to pick a starting point for the tour and take alternate routes when he wants to. Other than that, Participant #1 seemed quite pleased with the functionality and interface of the application. He was particularly drawn into the "Create" mode of the prototype.

Participant #2, who is a Stanford student tour guide, would drop a pin during Creation and would narrate about all the points of interest around her. This was an interesting variation of the intended usage of a pin, which originally was to talk about the one point the user had dropped a pin for. However, this is how tour guides actually conduct their tours as well, which is something else we will have to consider moving forward. She also suggested an edit feature to the audio recording functionality. Finally, Participant #2 stressed her constant tendency to stray off of the preset tour path. Hence, she recommended to change the app accordingly.

Participant #3 made some interesting observations about the prototype's navigation system. He stated that he wasn't only interested in the direction of the next waypoint, but also on the remaining distance to it, and we had not thought about this feature yet. At some point he also got impatient with the audio recording and asked for a way to skip / pause it. Similarly to the other participants, Participant #3 also pointed out that he would prefer to discover objects as he goes as opposed to following a linear tour. It was relatively easy for Participant #3 to switch between app modes and to drop a pin in the creation mode; however, adjusting the pin radius was not very intuitive for him. He also asked for where he

could name his tour. Finally, he recommended a function that would highlight the next key-point in a preset tour to keep the user interested.

## 6. Discussion

We ultimately found that people have different ways of narrating tours, not everyone is comfortable sharing to the same degree or in the same manner, it is important to have multiple ways to keep users engaged, and to use traditional symbols wherever possible to smooth interactions.

Specific UI changes our test users suggested or that we intuited from their reactions included that there should be more media content on point of interest information pages, the share button should suggest the platform that is sharing the tour, there should be a way to edit audio clips, and the direction arrow (the direction finding component of our “take a tour” task) should be more advanced—and include elements like estimated time and distance to a location.

What we also found in our results was a deeper form of contextual inquiry. For example, User 2, who is a Stanford student tour guide, would drop a pin during Creation and would narrate about all the points of interest around her. This was an interesting variation of the intended usage of a pin, which originally was to talk about the one point the user had dropped a pin for. However, this is how tour guides actually conduct their tours as well, which is something we will have to consider moving forward.

In a future iteration of our UI, we might create a drag and drop list or "web" that allows the content consumer to rearrange components of a previously built tour and add points of interest in between what had been built into the original tour. As we kind of conceptualized in the video, "tour" and "discover" shouldn't be discrete/mutually exclusive functions. We are now asking ourselves: Do we narrow our mission statement to reflect creating and *recreating* tours? Such a design move would allow us to implement the "create" theme in a meaningful way for the consumer side of our application and, because of the increased degree of customization, really hits home with our project's name.

Our experiment was extremely effective at testing our concept and general interactions with a proposed interface, although we were unable to thoroughly test granular movements through the UI—our low-fi prototype simply did not afford that kind of testing. However, we found significant value in what was ultimately as much, if not more, “context testing” rather than UI testing per se as we gathered reactions and suggestions to how target users might wish to utilize our application based on the early framework that we provided.

## 7. Appendix

### Consent Form

The unGuided 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 unGuided. 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 Kevin, Sam, Sujeet, Tyler 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 unGuided 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 Jesus Guzman, Jr

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

Date 10/23/14

Signature Jesus Guzman

USER 1

Witness name Tyler Brown

Witness signature Tyler Brown

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Name Jhalmali Bane

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

Date 23-Oct-14

USER 2

Signature Jhalmali

Witness name Tyler Brown

Witness signature Tyler Brown

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Name Lawrence Rogeis

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

Date 10/13/14

USER 3

Signature Lawrence Rogeis

Witness name Tyler Brown

Witness signature Tyler Brown

### *Interaction script*

This is a project for CS147, the introductory course for Human-Computer Interaction. Our project for the quarter focuses on telling and listening to stories using the location-based capabilities of your phone. Essentially, you can imagine you are taking a tour with your phone. You will be doing three tasks today, using a rough prototype.

First, let me demonstrate our prototype to show how you interact with it.

First you will be taking a tour of a few points in Main Quad. Then you will be allowed to explore some other points in the area. Finally, we'd like you to create your own tour with points of your own choosing.

Let's get started by taking a tour.

(If they don't reach Discover...)

So now let's try to do some exploration. It's a little limited for this prototype, but let's imagine you were interested in the Oval.

Now that you've seen an example of the tours available in this app, try to create your own.

### *Script for Tour Recordings*

Memorial Church

Memorial Church, or MemChu as Stanford students call it, was one of the earliest interdenominational churches in the West -- I've been to Christian and Buddhist ceremonies there. I'm an American Studies major really interested in the Bay Area's 20th c. history, and in my studies learned that: Cal students commemorated the opening of the church in their 1903 Blue & Gold yearbook with their own version of a stained-glass window—featuring a scarecrow wearing a Stanford sweatshirt and flanked by vultures. That certainly didn't compare to the ornate artistry of the church... a team of 10 men spent two years on scaffolds carving the stone arches and borders inside. That same year, Ethel Rhodes and William Holt, members of the Class of 1902, became the first couple to wed in the church. There have been more than 6,000 since, including my aunt and uncle, who graduated in 1984. You won't ever find me getting married there, but sometime I want to play the old organ inside.

Rodin statues

Auguste Rodin probably never intended his statues to end up quite like this... Yeah, they're beautiful figures on display for the world to see, but they're also the most-hugged, most-kissed, most-felt-up statues on campus, and maybe anywhere. My friends and I dressed one of them up in a grass skirt, lipstick, and a coconut bra during Tree Week... Actually not the lipstick... you're not really supposed to do that, since the staff at The Cantor Arts Center try their best to maintain them, even outside. Smile and take a photo with one... it's a must-do for visiting Stanford.

## The Oval

From Stanford University: The Oval is considered to be the initial and official visual entrance to the Stanford University campus. Given this historic and esthetic status, it is in the best interests of the University community and visiting members of the public to maintain its open and pristine space, and to help preserve its natural beauty and environmental integrity. The Oval also presents the formal academic image of the University, leading directly to departments, classrooms and other academic space, and faculty and graduate student offices.

*Demographic/User Profiling Questions:*

Age

Gender

Race

Occupation/if student: Area of study

Do you own a smartphone?

How often do you travel outside of the San Francisco Bay Area or your hometown?

Do you have an interest in storytelling or history?

Top three hobbies

How do you find information about places you're visiting for the first time or want to learn more about?

What is your smartphone important to you for when traveling?

*Debrief questions:*

How well did you understand the goals of the interface?

Was there anything you felt was inconsistent or confusing/missing in the interface, or alternatively, unnecessary to achieve the goal we gave you?

Was the system offering appropriate feedback with your interactions?

Was there anything in the interface or function that was particularly difficult to understand?

If you were the designer, what are the top three changes you would make to the interface?

Are there any other modifications that you would recommend?

## Raw Recorded Data/Consolidated Critical Incidents

- Dear [redacted]  
Info for first time places!  
→ google, touristy sites, word it mouth  
→ Inconsistent confusing
- Top changes  
→ pick the starting location  
→ like or more free tours vs linear  
→ combine discovery mode + how  
for free ranging
- Walking was too boring  
- kept asking what the actual app would do  
- Had no clue what the discover page does  
- Create tour page: "oh that's cool"  
when he discovered the  
"add heat point" feature
- Was concerned a bit about ~~start~~ creating 'at a place' tour as walking  
stories
- Had a lot of concerns with  
publish the tour  
- privacy  
- who does it publish? fb? twitter?
- 185

### User 2:

- she intuitively went for create button
- she narrated the tour just like a tour guide
  - 
  - "finally you see old union"
  - How could that be in audio?
  - questions, violence are not recorded.
- Concrete?
- Audio editing wanted
  - How was the experience?
  - made a lot of sense at handway.
- was there a perfect feedback
  - want simple & direct & explicit - it was.
- What 3 changes?
  - while you are walking, want to change the destination
  - ability to see all the hotspots
    - can follow my own path
  - don't want to be on the whim of the tour guide
- demographic: How often go out
  - once every 3 months
  - interested in story telling

- improv
- comedy
- chemistry

How new places?

- yelp
- wiki
- ask people

major - Lio

- script home

- direction

- time

- public tour times

- signing up with per

### User 3 - Task 1

Tapped initial on tour

Effects were off

It was easy

→ Would double click several times

to change direction

At quick pt would want to readjust  
direction

→ Stopped audio - long pathway then  
and moved to next location

- went to linear history/hall way

- Might want to "discover" stuff on the  
way - "what's that"

Tyler's handwritten notes, including the above and a continuation, are virtually illegible to mere mortals and are retyped here:

## USER 3

### Task 1

- Tapped instinctively on “Tour” button
- Expected scroll on tour list
- Starting tour was easy
- o Would want to re-check the directional arrow several times to confirm accuracy of movement, but would likely hold and put away phone sometimes
- o Commented that map and distance would be helpful
  - Got impatient with audio tour and skipped to next tour location
  - Might want to “discover” stuff on the fly, rather than be stuck in a linear tour
  - Suggested option to start a component of a tour manually, rather than by radius
  - Likes to listen and look at the same time

### Task 2

- User thought it would be cool to have pictures and other media on phone, even for significant POI like MemChu – a guidebook component or article component

### Task 3

- Switch to “create” mode was immediate
- Dropping points was conceptually easy; radius setting was not as much
- Record button was intuitive (but low-fi prototype didn’t get point across well); user tapped record because it was the only button
- Wanted to name the tour
- Wanted to know how the tours show up after they’ve been created (i.e. some UI indicator)

### General comments

- Could be used for a progressive—sharing a route per se with friends
- o E.g., a goofy stupid video, a protest, etc.
- For T3, might like privacy settings, but would be okay with most things being public
- Asked about how ranking system worked, how to manage tour length, and get previews. Didn’t care as much about the identity of the tour creator
- Liked sound aspect.
- Would add smaller details—need extra notification to go to next thing like a “next up” indicator.

### Demographics

- Age 21, male, mixed race, Product Design/HCI, owns smartphone. Travels about once per quarter. Likes historical places. Hobbies involve bars, food, and shopping – would enjoy something like a “best thrift store route.” Commonly uses Yelp or Google to learn about new places. Phone is critical for traveling the way he does.