

The Helmsmen

Project: Wayfinding

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Introduction

Project Context

Our project is focused on tackling the issue of navigation on campus. This idea came from our observing prospective students and families who were visiting UCSD. Their body language, expressions, and gestures conveyed to us that they were confused and having difficulty finding their way around the campus. Our big picture design problem statement initially started out with: how to users struggle navigating around campus and how can we intervene in a way provides a solution to the struggles of navigating around campus.

During the initial brainstorming session, our team exchanged insights and observations related to navigating inside UCSD campus such as identifying specific buildings or confusing locations which were often inaccessible. These observations set a foundation which helped us formulate possible interview questions to ask to our stakeholders and gather information on what users do currently to navigate around UCSD.

Stakeholders

In the early stages of our design process, we categorized our stakeholders into users who struggled with navigation most. Our primary stakeholders consisted of students (ex: undergraduate, graduate, incoming, transfers, professors, campus visitors) and our secondary stakeholders were staff members at the UCSD transportation center and campus mobility.

However, throughout the course of the project, we observed some similarities and differences among our stakeholders. The stakeholders held different methods and problems regarding campus navigation. It became evident to us that there were users who were more confident and knowledgeable in their ability to navigate around campus and users who weren't. This observation lead us to a new organization of primary

stakeholders: unfamiliar users vs familiar users. Unfamiliar users consisted of mainly freshmen, incoming students, and transfer students. These users lacked the general information and layout of the UCSD campus layout and struggled more when navigating around, they did not have a foundational set of knowledge which would allow them to solve their navigation problems as they arose. The familiar users consisted of mainly upperclassmen or other users who had a stronger knowledge of the UCSD campus and were more confident in their ability to navigate around it. For these users, when it comes to finding a new location on campus, they are able to use their understanding of the campus to problem solve more easily.

Discussion of the Design Problem Addressed

The re-identification of our stakeholders helped us to redesign and specifically state our design problem. Our goal with this project is to scaffold the learning of navigating around the UCSD campus. We hope to provide a way to allow unfamiliar users to perform on a close level to the familiar users through the quickest, efficient, and most sustainable means.

We came to this design problem through our definition of these two user groups. There is a definitive difference in behavior between the unfamiliar and familiar users when it comes to finding a location on campus. The unfamiliar users must rely on other means such as asking directions, trying to use maps on campus, or using mobile devices with maps on them. While familiar users may employ these methods as well, they are able to more quickly and, with higher confidence, reach their destination. As we saw through our data collecting, these familiar users have a mental map of the campus which related spaces and notable locations to one another in order to help contextualize these locations. This cognitive system enables the familiar users to reach their destinations by having a visual representation in their head from the time they get directions. As this relates to our design problem, we aimed to find a solution which would get our unfamiliar population to adapt this system more quickly. More information about how we classified our design problem is given in details below.

Overview of Design Process Phases

Milestone 1 Deliverable:

Milestone 1 allowed us to communicate, organize, and finalize our concrete topic of interest for the design project. Establishing our stakeholders and establishing participant contact with these users helped us progress our project. We were able to find a core group of users to conduct informal interviews with and gather insight in order to further articulate upon our possible design problem and several ideas that could address them. The interview responses from stakeholders communicated to us that there was a general consensus of how complicated or time-consuming it was to find their way around the campus. Through this observation, we proceeded on with our design process by formulating different methods to collect relevant data.

Data Collection (Milestone 2 Deliverables):

To begin gaining insight into the navigation process with our stakeholders, we did several forms of data collecting which included interviews, field research, and a survey. Our focus throughout this process was to gain an understanding of which concerns individuals have when it comes to finding locations on campus (what works and what does not), what is the experience of being unfamiliar with campus, and what is the mental representation of the campus for familiar users.

Field Research:

For our field research, our goal was to observe unfamiliar users, primarily student visitors, who were attempting to find the campus tour location. This research was a good way to view how a first time user navigates the school campus.

To observe, our group members were set up at multiple places where there was a high possibility of stakeholders getting lost on the way to their designated location. Visitors would make their journey from Regents West Parking lot to the Student center.

Thus, members were posted at the Regents West Parking Lot shuttle stop, PC Loop where the shuttle from Regents made its stop, PC, and the Student Center where the campus tours began. There was a score sheet to record descriptions of stakeholder(s) and their behaviors such as phone usage, asking strangers/faculty, usage of physical maps, location of errors, and any other additional observations.

After our field research, we found that there were a total of three tour guides posted at each location where our members were staked out at. One tour guide was waiting to greet and direct the users at the Regents lot, one tour guide was waiting inside the shuttle to accompany users and make sure they got off on the right stop, and one guide was waiting to walk to the Student Center with the users who got off at the PC Loop. The precise locations of campus tour guides informed us that stakeholders never really had the opportunity of getting lost, because they were provided guidance at every point.

We came to the understanding that, on these days, the campus puts in place ways to alleviate the stress on these unfamiliar users through the use of campus tour guides to direct and lead groups, maps in pamphlets, and stickers on the floor direct visitors. These interventions are very short lived as they require tour guides to be present at all times and the pamphlets did not contain a detailed map but a lower fidelity version of a campus map. Additionally, these interventions only occur on select days of the year, they do not help those who come at other times or are not students and families.

Survey:

Our group also sent out a survey and received a significant amount of responses. The survey was built with specific questions in order to determine the student's status, how they get around campus, and the issues they face doing so. Additionally, there was a section asking for descriptive directions from 3 distinct start points to 3 distinct endpoints.

1. If you are standing on Library Walk, outside the Bookstore, how would you get to RIMAC?

2. You are at the Gilman Parking Structure, next to Pepper Canyon, how would you get to Galbraith Hall?
3. Finally, if you are at Pines, how would you get to Atkinson Hall?

The questions were chosen in order to cover multiple sections of the campus and use structures which differed in their functionality; lecture halls, parking structures, dining halls, etc. The goal of these wayfinding questions was to get an insight to the mental model these users have of the campus. We were interested in the order in which directions are given, how intermediate steps are delivered, and the routes people chose most.

Link to [survey results](#) (Portfolio, pg.35)

Data Consolidation

Once we had our data collected, we had to process it in a way that it was understandable beyond just single insights. We wanted to identify the patterns associated with being an unfamiliar and familiar user.

Affinity Diagrams

Our group created three affinity diagrams based on the responses from the 3 wayfinding questions on our survey (Portfolio, pg.35).

Overall the responses from the first affinity diagram help us to gain perspective on the common issues students are having when navigating campus. When had color coded based on primary mode of transportation, but we did not see any specific dominating of a single issue by one category of transportation. We can note that most of the Car users found themselves with issues involving signs on campus. The two largest groupings we saw, Sign Issues and Maps, help provide us with direction on how to prioritize our ideation once we begin

The responses from the affinity diagram regarding route descriptions from the Bookstore to Rimac gave us a better understanding about the preferred routes that users take. From the 3 major categories of routes (Marshall-college, Marshall-landmarks,

Hopkins), we learned that there was a moderately even distribution of responses corresponding to the user's current status as a student (freshman, sophomores, etc). Seeing that there was a significantly greater number of users who provides route descriptions using building landmarks rather than using college names highlighted the importance of building landmarks as tools for better navigation.

From the responses for the second direction-task affinity diagram, we observed that there is one very popular and preferred route that users take to get from Pepper Canyon to Galbraith. It's important to note that most of the responses referred to this specific route as "stairs to revelle". Only a select few responses provided a more definite name ("stairs to Mayers" or "stairs through that one building"). We can note that even routes or landmarks that are very frequently accessed don't have an official name to it, which might make it less accessible or hard to discover for the other users that chose to take the longer route (going through Muir/SunGod statue).

Interview responses summarized:

Our interview questions were focused to gain an insight into the user's current knowledge of the UCSD campus and see how this existing knowledge varies across stakeholders. Some key patterns observed included: self-navigation was based around landmarks that users would pass on the way, stakeholders were less knowledgeable about locations further away from frequently visited areas, and stakeholders did not notice physical maps around campus and often resorted to asking other people for directions. Stakeholders also reported a lack of clearly labeled maps around campus which made it more difficult to discover new, unfamiliar locations or places on the campus.

The data from the surveys and interviews helped us progress our design project and formulate the exact design problem: Our goal with this project is to scaffold the learning of navigating around campus. We hope to provide a way to make the unfamiliar users perform like the familiar users through the quickest, efficient, and most sustainable means.

Design models:

As informed by professor Scott, the purpose of a design model is broken down into three components: 1. To focus on the context of a task, 2. Focus more on one aspect of the stakeholder's activity, and 3. To enhance immersion and empathy with our stakeholders (Scott, 2018). In order to immerse into the our stakeholders lives, our team approached this step with creating a Day in the Life model. We focused mainly on the goal of what the users wanted to accomplish, how the users arrived at the location for their activities, and how it influenced their ability to complete the task.

Day in the Life Model (unfamiliar)

Our first model told the story of an unfamiliar user: a freshman student living in Revelle. This stakeholder's activity included finding his way to Center Hall for his class. After attending his class, the stakeholder then has to find a way to get to the Marshall College room in order to attend the first General Board Meeting of a club he is interested in. The unfamiliar user resorts to asking around for directions to the destination. Once this task has been finished and the meeting is over, the stakeholder heads back home to Revelle.

Day in the Life Model (familiar)

Our second models told the story of a familiar user: an upperclassmen who lives off campus. The stakeholder leaves his apartment ahead of schedule to catch the bus and prevent possibilities of being late due to traffic or getting lost on the way to his lecture hall. During the commute, the user reviews material from his classes, such as studying for a potential pop quiz. During a gap between his classes, the user goes to LGBTRC to rest and work on other assignments. But the user leaves ahead of time to his last class in Revelle to get there on time. After attending classes, the stakeholder then heads back home. The primary activity for this user was to familiarize himself with the routes and time it takes to navigate around in order stay punctual.

(Day in Life models can be found on page 42 of the Portfolio)

Personas:

Our personas were designed to address the values of our stakeholders and/or the obstacles that the users faced.

1. Dev Pham is an unfamiliar user who values accessibility to solutions and structured systems.
2. Yoshi Keiko is an unfamiliar user who values efficiency and faces the obstacle of dealing with confusing paths around the campus.
3. Maria Jayadev is a familiar user who values social interaction.
4. Dwight Shrupert is a familiar user who dislikes maps which create friction when trying to find classes, and instead values efficiency as well.

(Personas can be found in Portfolio page 43).

Storyboards

Storyboards were created to visually lay out how we saw our ideations being implemented and used accordingly to fulfill the user's needs and goals. We focused primarily on two of our storyboards as we progressed on with our project towards prototyping.

Our first storyboard addressed the concern with problematic signage and lack of user-friendly maps around the campus. It focus on displaying the general process of how this problem will be resolved through our ideation (Portfolio, pg 46).

Our second storyboard was inspired from our user interviews and surveys regarding the current mapping system at UCSD. Users reported that current maps were inconvenient to access on mobile phones and physical maps on campus were almost impossible to find and often unhelpful in providing the correct information for wayfinding. (Portfolio, pg 46)

The insight from these storyboards and other data helped us to progress our project by giving us possible areas of consideration on how our iterations will be able to improve wayfinding for users by eliminating the obstacles while providing a more human-centered interactive feel to it.

Discussion of Key Insights, Roadblocks, Lessons Learned

From ten weeks of practicing the human centered design process, there were many roadblocks that we faced but also many lessons that were learned through overcoming those roadblocks. One of the first major roadblocks we faced was coming up with an effective field study that would allow us to catch people having trouble navigating the campus. We decided to post up at key spots from Regents Parking Lot to the tour starting location in hopes of catching newcomers struggling to find their way to the tours. What ended up happening was that the UCSD tour guides already had experience with people getting lost so there were tour guides in place to lead the visitors to where they needed to go. Because of this, we were not able to catch anybody getting lost since there was always someone there to tell them where to go. However, we still gained a key insight from the field study because UCSD had to put significant effort into making sure people weren't getting lost along the way. The route was so hard to navigate that the school had to pay student employees to tell people where to go. From this experience we learned that there are often unexpected outcomes that can be impossible to predict without actually going out there and conducting interviews and observing the real world.

Another roadblock we faced was coming up with design solutions that would be able to solve all the design problems that we found. We came up with the naming prefix solution early on but there were many failed ideas that we came up with before ending up with our final design solution. A key lesson we learned is that it is hard to come up with a solution that will be able to solve all your problems. With further testing of the prototypes it made the process easier by letting us know which parts were useful and effective and which aspects of the solution could be improved or removed altogether.

Overall, there were many lessons learned throughout the quarter from working together as a group. We all had our individual roadblocks and also had roadblocks we

had to face as a group as well. Being able to work through them in the best way possible taught us all how to navigate through the human centered design process.

Iterative Ideating-Prototyping-Testing Process

After our initial round of interviews, field research and affinity diagrams, we came up with 4 ideas in our first round of ideation. These were the Addressing System, Monuments in Colleges, Directions in Kiosk, and the Buddy System. The first round of our ideation process is as follows:

Ideating

First, with The Addressing System we wanted to focus on how we could make the finding process more intuitive to the user, as many people would just have no idea where the place is on campus if we just gave them a name of an unknown place. People were frustrated with the current naming system as it was too vague, confusing and had no intent of describing the location of a place from the address. The Addressing system if implemented would update the addresses for UCSD lecture halls and other buildings to give more contextual information about their location. For example, instead of just CCIC 120 it would be ER-CICC-120. (ER - ERC college). This system solves multiple problems as it gives the user an immediate idea about the vicinity if not the exact location of the building they want to go. The potential roadblocks for this system are teaching people how to use this system and trying to avoid to overcomplicate the addresses of the buildings for new users.

Second, Monuments in Colleges is a system where we planned to create certain monuments in each college near heavily trafficked areas to better orient students where they are and give better directions to other places in the area. This idea was originated from a pattern we noticed in our survey, that people often just forgot the names of the roads and remembered various landmarks on campus for their navigation purposes. This idea was more focused to simplify the process of how people described directions

to places on campus. The solution of creating monuments solves this problem by giving students a better way of remembering and giving directions to other people. The potential roadblock to this idea is that students have to be first familiar with the monuments and remember where they are for this work. Lastly, the construction of monuments is a cost for the college and making it remarkable is also a challenge.

Third, Kiosk idea was to place digital kiosks around campus which would inform its users with directions of where they want to go. This idea dawned from the collection of our research and data collection we compiled in our affinity diagrams. We found that people were disappointed with the existing map systems on campus, lack of mobile-friendly maps, incorrectly labelled maps, too much information and a scarcity of information centers for directions. A digital kiosk as found in malls were a great solution to these problems mentioned above as they provided an interactive way of how to get to from Point A to Point B while being accessible and user friendly with their design. The potential problem with Kiosks is its foundability by students, some people who are lost, might not find a kiosk nearby, also we will have to make students learn where the kiosks are initially.

Lastly, The Buddy System is a concept where we pair an unfamiliar user (new student) with an older familiar student. This helps facilitate the transfer of knowledge to the unfamiliar student, as they can ask the older student for directions when they are lost or go to class together. We developed this idea from our observations during our field research, where people asked other people for directions the most rather than using mobile. This design helps us focus on confrontations with people, and taking into consideration the social aspect of navigation and wayfinding. This is how people used to do it without smartphones. This system has some potential barriers as it needs a large amount of user participation and outreach, it's very socially dependent and there is no instant access to people whenever they want it.

Storyboarding

Eventually, from these ideations, due to the lack of time we narrowed to 2 ideations for prototyping testing and iteration. We made storyboards to describe the process of prototyping and how users will use it to address design problem. Each storyboard is specific to one kind of idea fleshed out as a prototype.

First storyboard is about the Addressing System, it includes a freshman who gets ready for his first day of class. The freshmen is clueless about how to find York Hall in Revelle, as he only knows how to get to Geisel from his dorm room in Marshall Freshman Housing. He tries to use the signs on campus pathways but finds himself even more lost as they don't point the right way. He then uses the new addressing system and finds the building easily and accurately. He gets to his class on time and uses the new system to find other new places on campus effortlessly. This showcases the ability of the Addressing System to solve the problem of confusing directions and non-user-friendly maps.

Second Storyboard is about the Kiosk System, the storyboard portrays an unfamiliar user in front of the Geisel Library. The user wants to go to Revelle but doesn't know how to get there. The user sees an information kiosk in front of Geisel. He then uses the kiosk to get step by step directions on how to get to revelle from his current location. He finally reaches revelle and mission accomplished. The purpose of this storyboard is to portray how the Kiosk would help in navigation while at the same time addresses the poor mapping system which exists in UCSD right now.

Prototyping & Testing

Prototype 1 which we tested was just the kiosk. We decided to make a prototype of a 360 kiosk. It was made of a cardboard box cut open, a printed panorama of the Geisel (front view), sticky notes to be used as buttons on a touch screen and a slideshow of routes. Pictures on Pages 54 to 60. We did this testing on 25th May outside of Geisel

at 10 AM when most people walk across throughout the day. It was also the time, when new people touring UCSD would show up. For this prototype, participant is given a list of 4 locations (hard to find). The places chosen are the forum, copley center, Atkinson Hall and Mandeville B-250. Then the user selects the option whose location they don't know. Then the user is presented with a panorama displaying sticky notes of the college divisions, and are asked to locate their destination from the "clickable" sticky notes. Once the user selects a sticky note, we present them with additional ones labelled with locations in that area. When the user finds the correct location we show them the route to that location from Geisel in a slideshow. They can choose the pace of the slideshow, and once they understand the route they have to go to that location. We debrief with the user after they have done the task. Questions asked are, how do you feel about the task they had to complete, what was confusing, what could be improved and what's the best feature. This prototype was met with a lot of review from our users and its testing helped a lot.

After, the first round of testing, we had a major discussion about how to include our other ideas and fix the issues with this prototype. We noticed poor user performance with this prototype due to a multitude of reasons. The major reason was the exhaustive search of options to complete the first task of selecting the right college. This is why we thought merging our addressing idea with the Kiosk could help fix this problem. This is what we changed mostly in the second prototype. Some people also were following the person rather than the landmarks in the slideshow, so we thought to fix that too. The aspects which worked in the prototype were the routing system, ease of use and most participants reporting that they could find the place by themselves.

Prototype 2, the materials required did not change, just the premade slideshows did. We also changed the testing time to around 12, because of the high volume of unfamiliar users we could attract. The protocol was the same as the first one, with two major changes. When we gave the person a place to choose from The Forum, Copley Center, Atkinson Hall or the Mandeville Basement, we also gave them the new addresses of them with the legend of what the addresses meant. This allowed them to know what

college the location was even before knowing where exactly it was. The other change was that we showed the user a person in the slideshow and put arrows in there too. Once again, the user selected a location, then was shown the route to it and debriefed at the end of the task. The legend given to the users was:-

- Muir - MU
- Marshall - MA
- Revelle - RV
- Sixth - SX
- Warren - WA
- ERC - ER
- School of Medicine - MD
- Scripps Institute - SC
- Rady's - RD
- Village - VG
- University Center - UC

After the testing of this prototype, we sat down to analyse the results and the difference in our testing. We saw an increased performance between the participants. The exhaustive search which users employed before didn't happen this time due to the implementation of the addressing system. Due to the Legend given and the new addresses, they could find the location in one go, making the process easier and faster. The new change in the slideshow with an virtual tour guide was very subjective, as people said that they followed it the most rather than the various landmarks. The arrows also helped to portray which direction to go for the user. Some users liked it, for some it didn't make any major difference.

Final Design Solution

After conducting all of the interviews and testing, we decided on the final design to consist of the 360 degree kiosk combined with the new naming scheme we devised to prefix nearly all the buildings on campus. The naming scheme adds a prefix of the campus subdivision which a building is included in to the beginning of its name.

- Muir - MU
- Marshall - MA
- Revelle - RV
- Sixth - SX
- Warren - WA
- ERC - ER
- School of Medicine - MD
- Scripps Institute - SC
- Rady's - RD
- Village - VG
- University Center - UC

This system would be incorporated campus-wide from WebReg to the kiosks and physical and digital maps such as Google Maps as well. We found the prefixes to be very useful in giving the user a first step as to where to start heading on their path to their destination. The prefixes eases the pain of knowing what direction to go and puts the user in a better position to find where they are going.

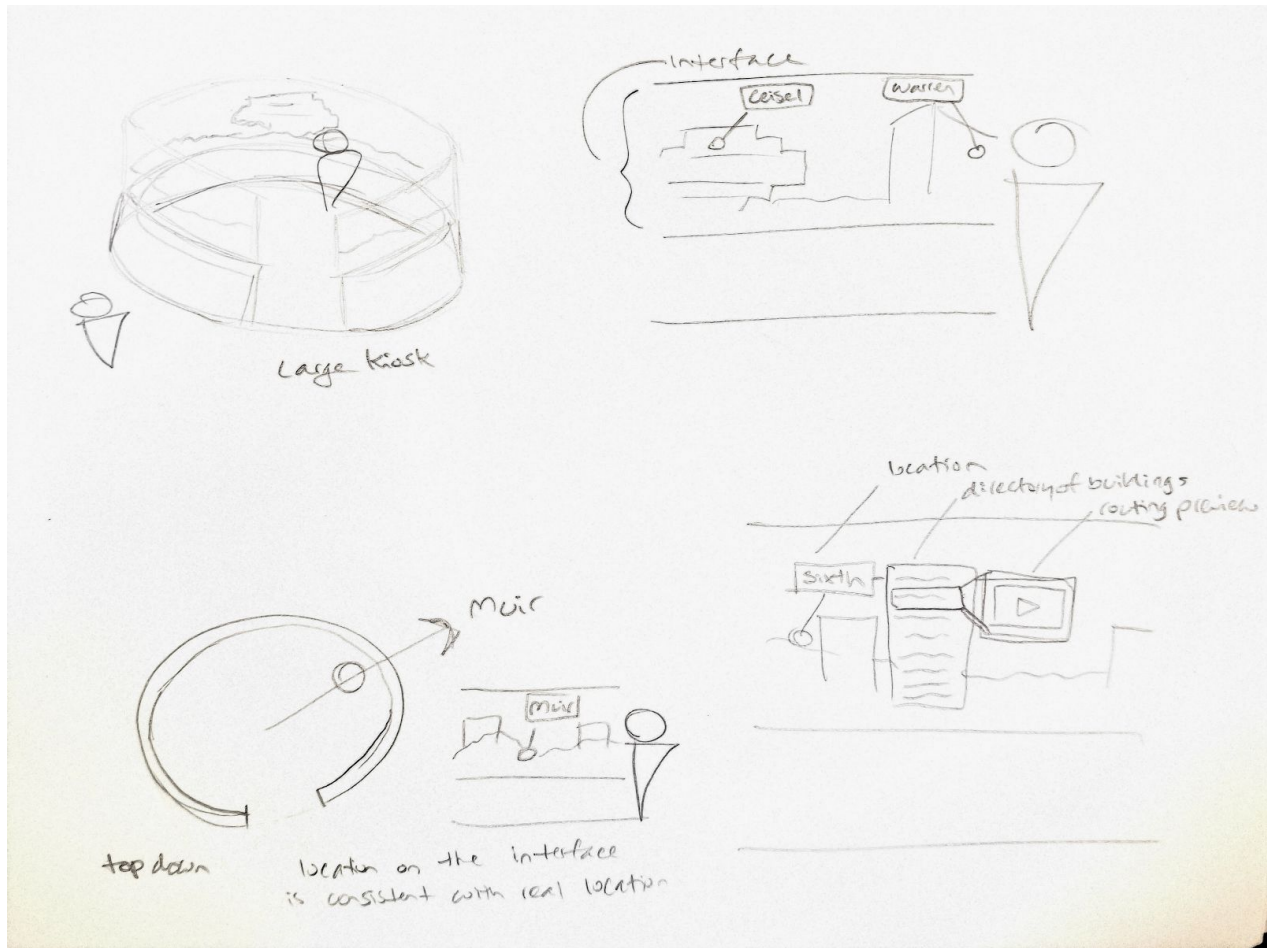
The 360 degree kiosk will be placed in the places with the highest traffic, central to each of the subdivisions we determined in the naming scheme. Additional kiosks would be put close to transportation hotspots such as the parking structures. As for the physical build of the kiosk, it would have a wrapped interface around the user, showing the perspective of the current location in a panoramic view. This enables the kiosk to orient the user's body towards their target location, similar to when asking another person for directions they would point you in the direction of your destination. After the user selects their desired location, the kiosk directs them by providing a first person point of view video of the route they have to walk in order to get to their location. Landmarks will be built into the system and all of the intermediate directions are given in

relation to the landmarks and major buildings. This allows the user to get more familiar with the major landmarks and buildings on campus and reducing their need to use the kiosks in the future. An artificial guide would also be included in the kiosk routing system which would be an alternative to using arrows to point in the correct direction. The guide provides information equivalent to the arrows except it could also give both visual and auditory information in a more human manner.

We got to these solutions by focusing on the methods that current users use today to solve their navigation problems. Through our research, most people ask others for directions when getting lost. This was due to a lack of maps or navigation systems on and around campus and the high difficulty of locating new places on a campus with an un-intuitive layout. Therefore we aimed to deliver information to the user in the most human way possible to emulate a person to person interaction. We narrowed down the major characteristics of obtaining directions from another person to incorporate into the final design solution. There is orientation information given when the person giving directions points towards the direction of the destination. Also people will tend to use landmarks rather than giving directions like common navigation systems (ie. Google Maps). They would say "Turn left at the Sun God statue and go forward" rather than remembering specific roads and paths. We also decided to show routes to the user based on the cognitive ideas of eidetic memory; recalling objects and scenes from minimal exposure. By showing the routes through the perspective the user themselves will see when they embark on their path will activate their memory when they note the video they saw on the kiosk.

Our goal with these solutions was the scaffold the learning of campus navigation to allow unfamiliar users to perform like familiar users and lowering the learning curve it takes to navigate the campus. Familiar users have built up more knowledge and awareness of the campus through their greater experience. Our solution of an interactive map kiosk with an improved addressing system provides the most important information in an efficient and sustainable manner to allow unfamiliar users to perform like familiar users quicker. This solution solves current problems users face with finding specific

locations but also aims to familiarize them with more buildings and landmarks during the process as well.



Sketch of the 360 degree kiosk and interface

Evaluation of Success

Before we can touch on the success of our solution it's important that we revisit the initial needs of our stakeholders that were discovered during the design process as well as our design problem.

For reference once again, our design problem is "to scaffold the learning of navigating around campus. We hope to provide a way to make the unfamiliar users perform like the familiar users through the quickest, efficient, and most sustainable means."

From the interviews in milestone one there were several key user needs that were discovered:

- The need for a user friendly way to find locations on campus.
 - This need came from user S-05 who stated that they often felt "overwhelmed" when using existing map solutions provided the school due to the amount of information that was presented.
- People have issues navigating areas that they are unfamiliar with.
 - This insight came from User S-03 who had issues navigating parts of campus that were located far away from their dorms.
- It's difficult to find buildings on campus due to poor addressing
 - This insight came from user S-04 who described their frustrations when discussing finding builds on campus. They stated that it was often difficult to find buildings due to the fact that the signage was poor and often misleading.

More insight on user needs were found during Milestone 2 when we reflected on our survey results with an affinity diagram. The categories that the results were broken down into were the following needs:

- I dont know/cant find it
- Maps are weird
- Problem with building addressing/name

- I need help finding

Comparing the two sets of user needs established from milestones 1 & 2 we can narrow our user needs down to the following:

- Users struggle to find new locations on campus
- Existing map solutions are difficult to use
- The addressing system at UC San Diego needs improvement

Now that the user needs are established we can take a look and see how they have been addressed.

- Users struggle to find new locations on campus
 - The map solution orients the user and gives them turn by turn
- Existing map solutions are difficult to use
 - Our prototype was easy to use
 - Mention user quotes here
- The addressing system at UC San Diego needs improvement
 - Show that between prototype 1 → 2 we had way better results because of the addressing

When looking at our final prototype we reflect on how it addressed these various needs. For the user struggling to find new locations on campus our kiosk system aims to solve this by providing step by step directions on how to get to their final destination. We feel this is need is resolved by our validation interviews in Milestone 3 where during our field testing we saw strong remarks from both familiar and unfamiliar users that they'd be able to make it to their new destination. As for the existing map solutions being difficult to use we designed our kiosk system to be as intuitive as possible. Some of the affordances we made from user research was to provide labeling of landmarks alongside the video to better orient students. One piece of feedback that was valuable from our 1st prototype was to put a person centered in each frame so it's almost as if they are following someone to their destination. Making it much easier for the user to understand the direction that they need to head in. As for the final need being that UCSD needs an improvement to the addressing system we tackled this with our proposed

changes to the labeling system for buildings on campus. During our first prototype we saw that users were exhaustively searching through all of the colleges until they found the building they were searching for. By adding prefixes to all of the building codes in our second prototype we found that both unfamiliar and familiar users were able to successfully find the buildings they were searching for on their first attempt.

Possible Future Work (if you had more time)

Although we are very happy with how our prototype ended up there are various things that we wish we would have more time to work on. There is infinite room to continuously conduct user research and improve however the following three topics are what we felt would be the most efficient use of our time if we had it.

The first being that we wish we would have enough time to determine where the most efficient locations to place the kiosks on campus would be. In order to do this we would need to score various locations on campus at various points throughout different days. The way we imagined this scoring process would go is that we would determine the 3 most critical passing period times during the day. We would also need to determine the various potential locations we believe would be highly trafficked. If you reference page 54 of our final portfolio there is a diagram with all of the places we determined could be good. In order to score we would take panoramic photos of these locations at the different times a of days and then count how many people are present in the photo. We would then average the amount of the times and select the 5 most populated locations to place our kiosks. Ideally they would be located in places such that they are equally accessible by all of the various colleges.

Another thing that we would potentially work on is focusing more on our kiosk UI. Since this course was less about digital application design and more about trying to create physical solutions we tried to avoid spending our time working on the digital side of the user experience for our kiosk. So if we were given more time we would invest in creating mockups for our UI/UX of our kiosk and getting more user feedback on that part.

The final thing that we would want to work on is an integration plan for our new addressing system. While we saw that users were able to effectively use it with our final prototype there would still need to be a lot of work in order to fully integrate it within UCSD. We would need to devise strategies to ramp people up with this new system. As well as figure out how and where these new changes would be implemented.

Conclusion and Reflection

The Human-Centered Design Process can be summarized into one word; rigorous. As Professor Scott embedded into our brains the need to always ask why in order to understand the root causes for our users' behaviors, it is important to recognize how we had to ask ourselves along the way in regards to our own actions. This means that, while design can be seen as a subjective, creative process, human-centered design is much more objective and needs to be acted very explicitly. This proves to be challenging as we found given that every decision must be explicit. We needed to know for what reason we came to a decision and for what end we hoped. The most important lesson we learned from this process; everything has to be thoughtful and intentional.

Throughout the project, this theme is apparent. Whether it was choosing our topic to focus on before we had a design problem or what we should write on the sticky notes of our prototype, we had to identify what we hoped to get out of each action. Overall, this makes the process of HCD much more arduous and time intensive. However, we could say that success in an HCD project can be seen through how many times those small actions were taken in order to clearly define our goals along the way. Additionally, this meant that any time we failed, we could more easily identify how it happened because we knew exactly what we were doing, how we presented information to the users, or what metric we were measuring. This, to us, is the biggest thing we could have taken away from this experience. It is less about the insight into the navigational experience we had gotten from focusing on a project of that topic, but it is more about design as a process that, while it has many branches and interactions throughout, can be defined

through the simple, yet pronounced idea of identifying intention and reason through asking why.

References

Scott, Taylor. (2018). COGS102C: Cognitive Design Studio, week 5 lecture [Powerpoint slides]. Retrieved from https://tritoned.ucsd.edu/bbcswebdav/pid-1284923-dt-content-rid-16829311_1/courses/COGS102C_SP18_A00/COGS102C_SP18_L10.pdf