Social Parking - 2d: Design Research Review
Kathryn Chan, Sepehr Hakami, Adilene Pulgarin, Umang Sehgal

Summary of key findings or takeaways
During our interview process, we decided to interview drivers who have different parking strategies in order to find out what factors they take into consideration when looking for an available location. We decided to focus on people who drive to the UW campus regularly because there are various parking options, each of which would require different strategies. It was interesting to learn that although the two main forms of parking locations are street parking and campus lots, the three interviewees seemed to have very distinct strategies on how to accomplish this task. However, despite those differences, all three drivers took price and location as their most important factors.

Design research participants
Roger is a junior majoring in Aeronautics and Astronautics. He commutes to campus daily, but the location in which he parks varies on many factors. There are times where he is need of long term parking and it is during these times that he decides it is better to pay for a parking pass. Upon purchase of this pass, he assigned to the commuters parking lot, E-18 located next to the IMA. He finds that although this is a far location from some of his classes, he is guaranteed a spot. When he does not require long-term parking, Roger chooses to either park on campus lots, with the help of his friends when they are available, or on street parking spaces. He decides where to park based on what is most cost effective and on the location. When he able to find a street parking space, he decides that this is his best option because he only pays for the amount of time he requires. On most occasions, however, he uses his friends help to get the carpool rate at the campus lots. Another option that differed from the other interviewees was that he also decides to rent parking spaces from friends who have open spots.

David is a cook at the UW District Market. He commutes to campus five days a week and often finds that he spends more time looking for parking than actually commuting to campus. He stated that on average it takes him between 20 and 40 minutes to find parking. He usually frequents residential areas towards the South end near the I-5 bridge. The reason for this is that the area is not regulated so he is free to park wherever assuming he finds a spot. Although there is no price to parking there, he pays the cost of having to walk 25 minutes from where he parked to work. While this is not ideal, he seems to be okay with it because he does not have to pay. He also expresses another concern that none of the other interviewees mentioned which was safety. Since he parks in a residential area, he says that there have been reports of kids breaking windows to cars. David hopes that one day UW will create public parking or at the very least, free parking for employees because it is a problem he encounters daily.

Arielle is a senior majoring in Computer Science. She lives in Bellevue and commutes to campus daily. Her daily commute is about 20-45 minutes depending on the route and she regularly parks at a campus lot by the Fisheries building located in West Campus. Her experience with parking differs the most than the other interviewees because she would rather pay the full rate of parking than spend time looking for a cheaper location. She mentions that location is her main priority and the fact that she lived on campus the last three years, she finds that her current location in West Campus is actually not much different than the distance she walked when she lived on campus. When asked

about parking in general, she said that she allows herself no more than 15 minutes to find parking before deciding that it is not worth her time to find a cheaper location. She mentioned other strategies in which she could get free parking by parking off campus and then commuting via bus to campus, but she decided that this is not worth her time either and she would much rather pay the $15 to park on campus to decrease her commuting time and her distance from the destination.

Design research themes

Of the three people we interviewed, the most common factor they considered was price. This was more evident during our conversations with Roger and David who expressed that they would rather spend more time looking for cheaper spot. Arielle, on the other hand, also takes price into consideration, but she would rather save herself time and stress by paying a higher rate if it means she is done sooner. Roger have many different strategies when it comes to finding a most cost effective solution by going as far as gathering friends to get the commuter rate on campus lots. David chooses to park 25 minutes from his work as a tradeoff to getting free parking. Although this was not expressed as much by Arielle, it does impact her parking situation which is why she also decides to park a bit farther away from campus as it is slightly cheaper.

Another common factor among the three was location. While Roger opts for a cheaper spot, he expressed his concern over location various times throughout the interview. He finds that E-18 as the only option for commuters with a parking pass is unfair because it may be the case that it is across campus from his destination. He also mentioned that when he can, he will choose to use street parking because it is most often closer to his destination. David also shares the same concern as his parking location is still quite far from his work. However, as mentioned before, he would rather prioritize cost to this factor. Arielle seemed to have this as her most important factor. She chooses to pay UW daily parking rate because it means that she is nearer to her destination. She also mentioned that when it comes to other events, she will choose to pay and park in the provided parking locations because she is able to arrive earlier to the location. She finds that often times, finding a cheaper spot, which is usually only a couple dollars less, means that she has to park in a farther location and this does not seem reasonable to her.

The last factor express among the three were safety concerns. This factor was most evident when speaking to David, but Roger and Arielle also keep it in mind when parking. David mentioned that some of the cars parked in the area he frequents have been vandalized. He worries that one day it may be his car, but he chooses to continue parking there because finding another location may be too much work. Roger and Arielle do not express this concern as much because they find themselves parking on campus most of the time. They find that locations near campus are safe so they don't need to stress about it too much.

After completing the interviews, it was easy to see that each person has different priorities of parking factors, and it supports our design to have characteristic of sorting by different factors. In doing this, we are able to appeal to a majority of drivers by letting them decide what their priorities are rather than imposing what we believe is more important.

Task Analysis Questions

1. Who is going to use the design?

Any driver who is interested in finding parking according to what they consider to be the most important factor (price, location, etc.). This includes drivers who have a hard time finding parking spots in places that they frequent as well as locations that are new to them like attending a special event in an unfamiliar are for example. People who overlook parking resources could also be benefitted from our design by managing their properties more efficiently. It may be the case that they are being overlooked because they don't consider one of the factors that people consider the most while looking for parking.

2. What tasks do they now perform?

Drivers currently spend a lot of time searching for parking locations in different areas, including some far from their destination, in order to save money. This means that in addition to their usual commute time, they take into account the additional time spent looking for an open location. Parking in unknown areas can also put their vehicle at risk of damages due to the unfamiliarity of what is a safe area. Others prefer to pay the higher rates than waste their time searching and to avoid stressing over parking. Some drivers also prefer to rent out parking spaces from other people in order to avoid the stress of searching as it guarantees them a spot. Another common strategy among drivers is asking their friends for advice on the best locations to park and forming carpools to get a lower parking rate.

3. What tasks are desired?

People are interested in being able to find affordable parking in a reasonable location within a reasonable amount of time. As of now, one or more of these factors are prioritized over the others in order to be able to find parking. In addition to this, people are interested in being directed to parking locations instead of the actual destination.

4. How are the tasks learned?

No training should be required. There are some relevant existing technologies like Google Maps, Waze or Airbnb that assist people to search and have access to similar user data.

5. Where are the tasks performed?

The tasks are primarily performed at the user's destination and while they are in the car looking around for parking spaces. Alternatively, users can plan for their upcoming drive and select their desired parking location using their mobile phone or even reserve and pay for a spot before they hit the road.

6. What is the relationship between the person and data?

User data is collected as they are driving and parking can be recommended based on their prior parking habits and preferences. Personal location and destination data is stored privately for each user and is not shared. However, user reviews and feedback on previous suggestions and parking availability can be shared among different users.

7. What other tools does the person have?

Most drivers have access to a smartphone with various navigation apps and since self-pay parking is available at several locations around town, most users will probably have various payment methods like credit cards and PayPal.

8. How do people communicate with each other?

Users can leave reviews and share their parking experience and resources so others can find parking more easily. They can also share certain information with their friends in case they are carpooling together or need to split parking costs.

9. How often are the tasks performed?

For people who commute, this is a daily task. This is more common among drivers who don't have a set parking space and instead need to search for a location every time they drive. For some other users, they may only use our product when they go to events as they normally do not drive to campus.

10. What are the time constraints on the tasks?

Generally users prefer to spend as little time as possible to find parking. As expected, people believe that parking should be a subtask to arriving at a location that requires little to no effort. This, however, is not the case which causes the driver to have to plan ahead what their parking strategy will be to avoid being late to their event/destination.

11. What happens when things go wrong?

If people cannot find a prefered parking within a reasonable time, they will neglect some of their concerns to park. For example, people will pay more to get to a big event on time. Other drivers will prefer to simply leave the area as they find that they have spent too long looking for a space and they are now too late in arriving to their destination.