CS 147 - LOCAL COMMUNITY STUDIO

Low-fi Prototyping and Pilot Usability Testing

coral

Value Proposition

The driver and business ecosystem

Mission Statement

Our goal is to help drivers find the resources they need while driving while also empowering businesses with a new way to increase foot traffic through their facilities.

Problem/Solution Overview

Gig-economy drivers have great difficulty finding amenities (bathrooms, showers, parking, etc.) while working in highly populated areas. Coral connects drivers and businesses, allowing businesses to publicize their amenities to drivers and enabling drivers to find the facilities they need with ease.

Meet the Team

Edward M.

Tyler V.

John H.

Alec D.

SKETCHES

Concept Sketches (15-25)

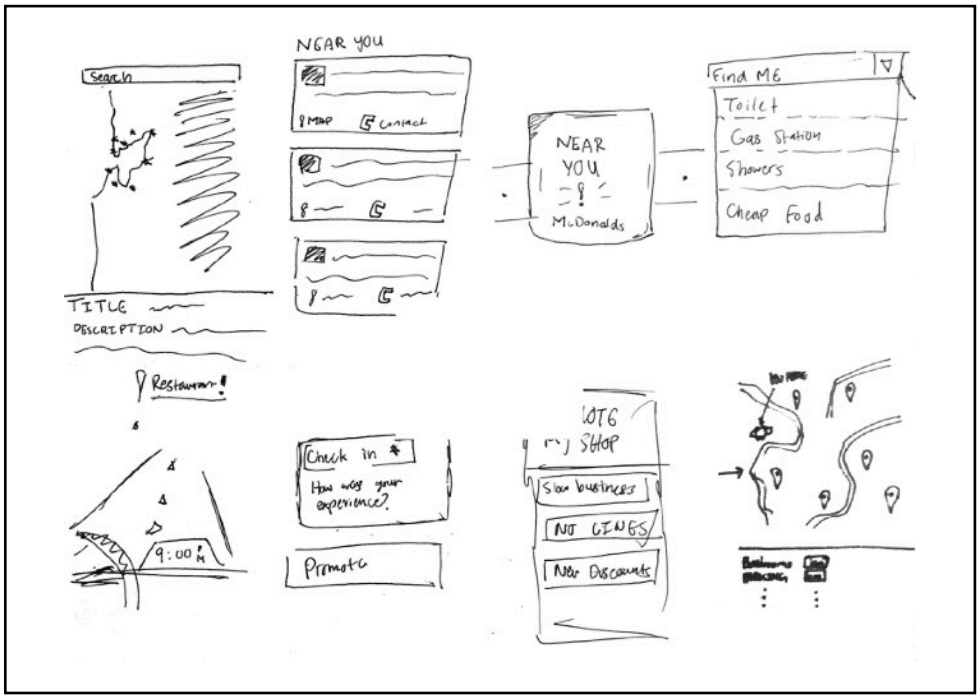

Figure 1: Various interface application sketches

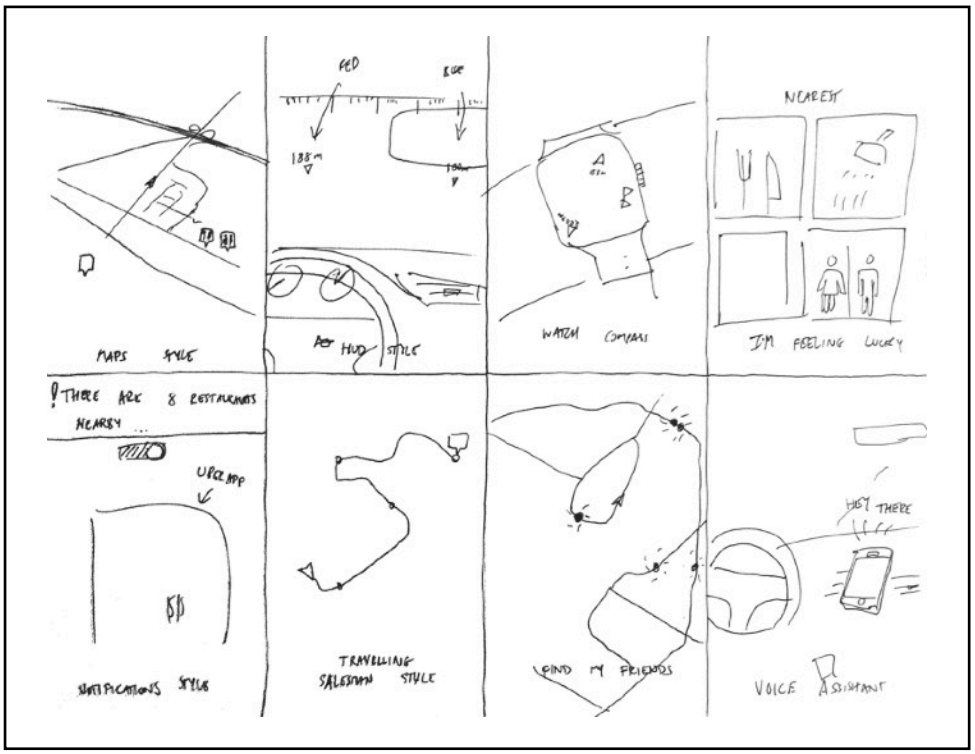

Figure 2: Mobile focused application sketches

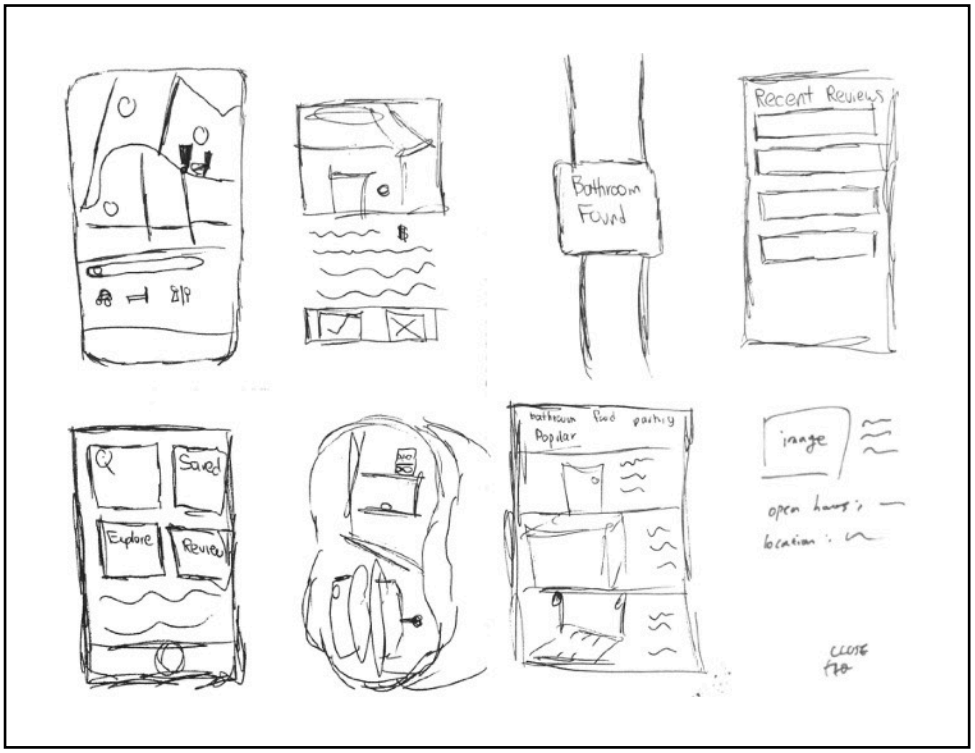

Figure 3: More interface application sketches

SELECTED INTERFACE DESIGN + UI STORYBOARDS

Top 2 Designs

The top designs we chose were a *Map Main Interface* and a *Voice Control Interface*. Below are more detailed storyboards for both designs.

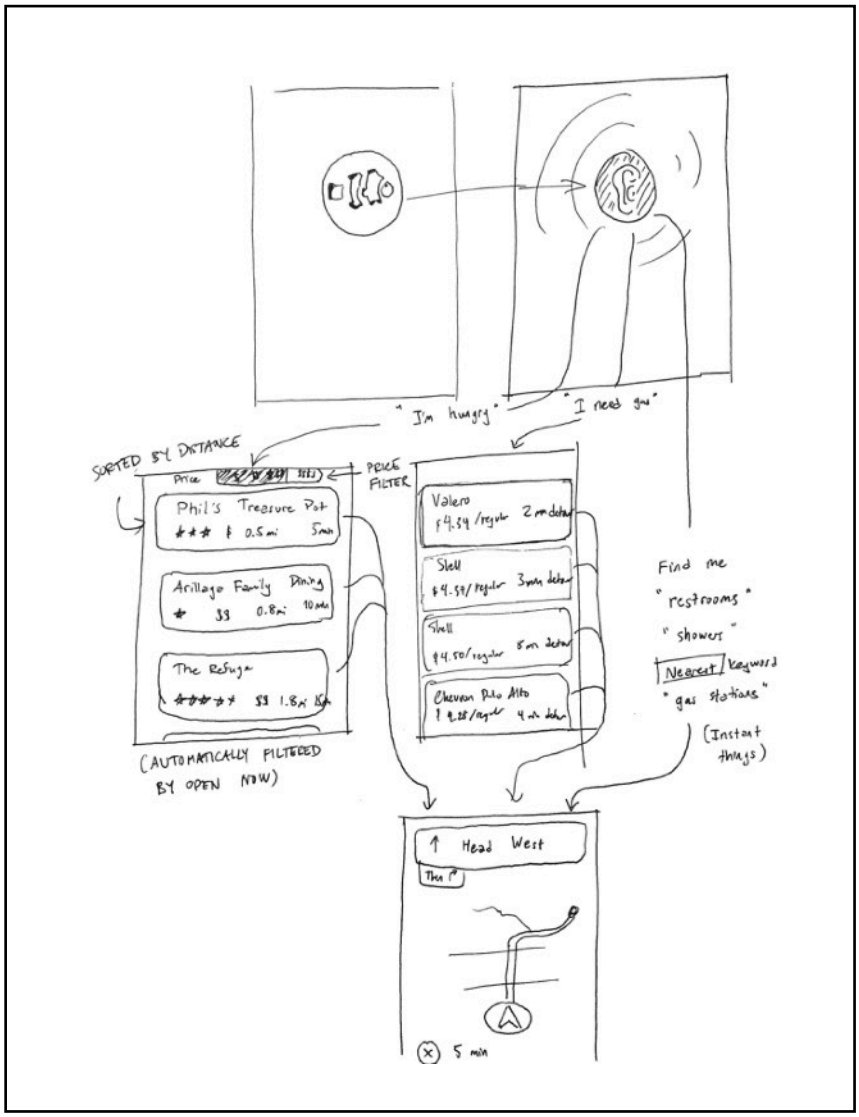

Figure 4: Voice Control Interface

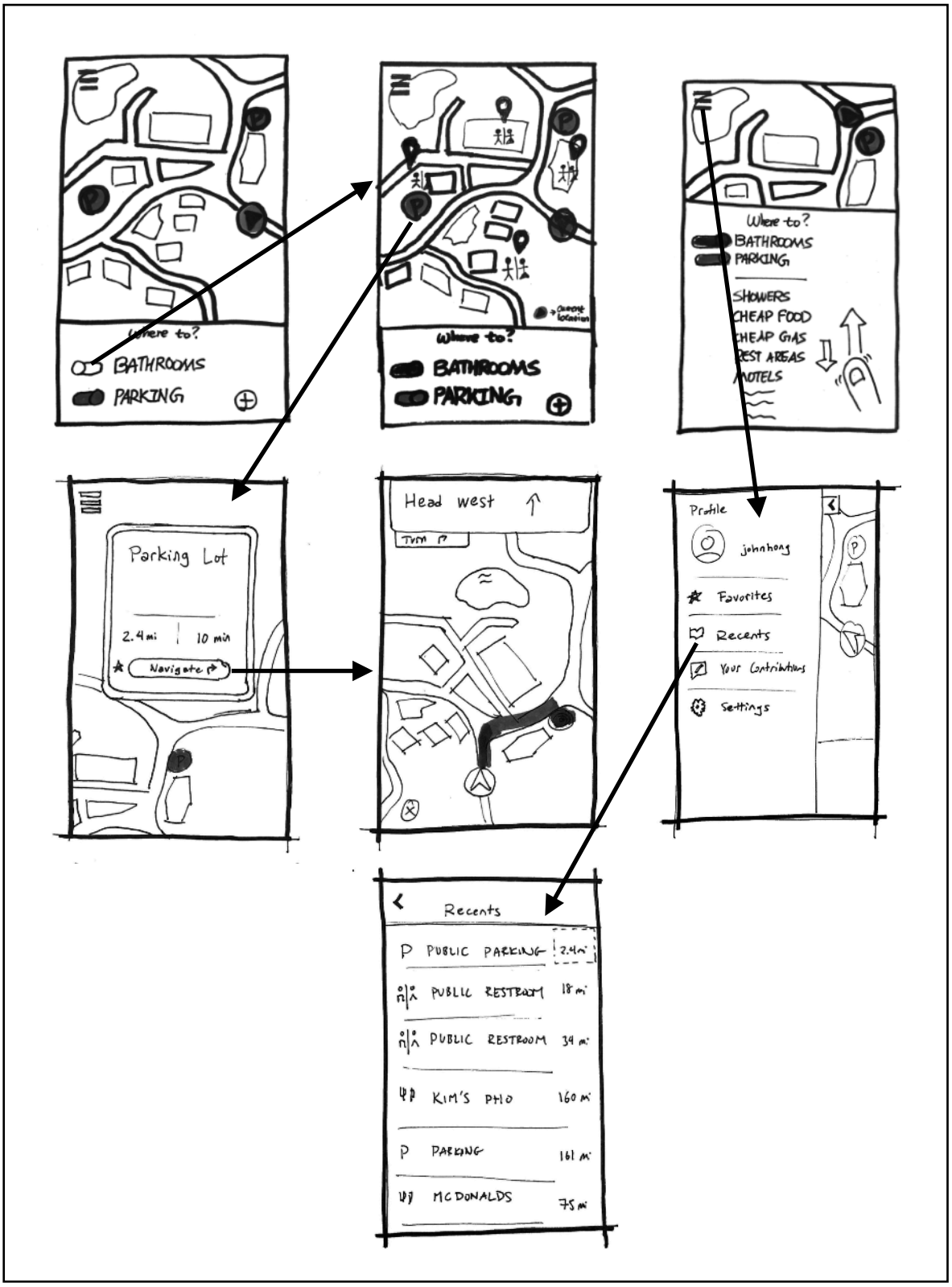

Figure 5: Map Main Interface

Map Main Interface

PROS	CONS
• Focus visually is on routing driver to the amenity they need • Easy for drivers to plan out trip in the future • Recognizable + familiar interface • Drivers already most likely using some type of map to guide them • Autonomy over options • Able to use when they're not driving/on the job • Easy interface to submit reviews/share information	• Distracts drivers attention and hands while they are on the road • Can be overwhelming with information and options • Can be slower for drivers to get to the solution they need

Voice Control Interface

PROS	CONS
• Minimal friction between driver and solution • Minimal buttons being pressed • Direct voice command to solution • Easy to understand to use • Faster for drivers to use • Allows driver to focus on driving and on the road	• Easy to mess up voice recognition (drivers can mispronounce action) • Lack of precision and autonomy over what amenity to choose from • No immediate visual representation of all of the amenities • Harder for a driver to plan out a trip in the future Voice command -> immediate amenities • Not intuitive for more complicated actions/tasks

Reasoning

Our team decided to choose the Map View design because it is a more intuitive interface that provides the most options and autonomy to the driver. Because drivers are already familiar with a mapping interface in their day-to-day job, having a map view to display all of the available amenities would enable them to make an easy transition across apps. Additionally, by providing the mapping option, drivers can strategically plan out complex routes beforehand. Moreover, the map interface provides the driver with the most number of search querying options for them to review over. Drivers can look at the map to visually see the closest amenity near them, use the search bar to find and filter through specific amenities, and a list view for them to scroll through all of the available options and read through the reviews.

Although we recognized that the pure voice command interface would be too unfamiliar and somewhat limiting for drivers, we do still want to incorporate some aspects of this design. Ideally, we would want to have voice command options for the drivers in addition to our current interface.

Storyboards for 3 tasks

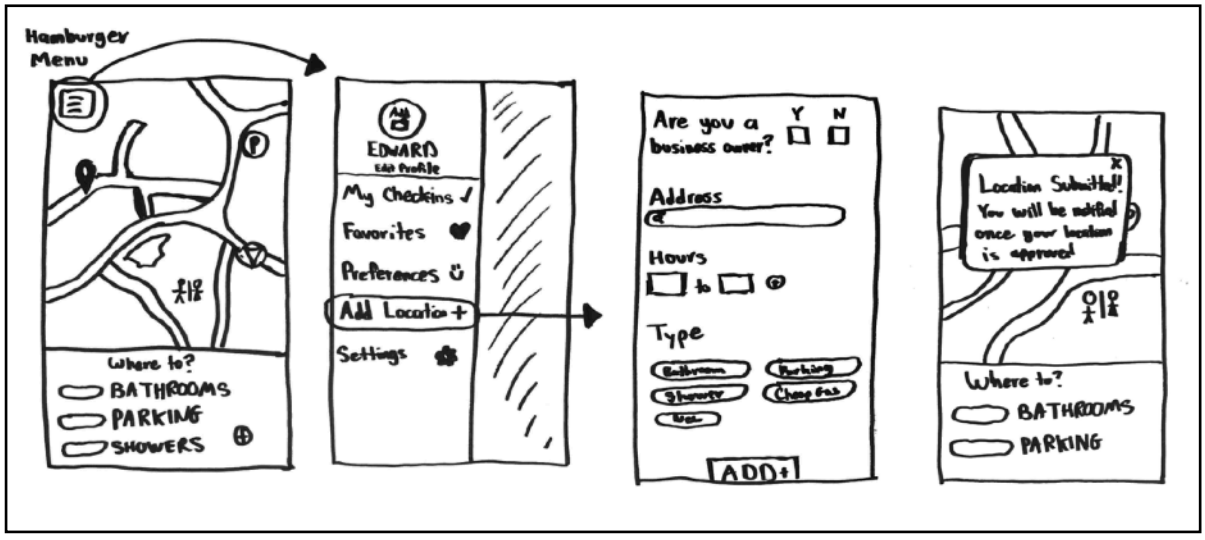

Figure 6: Simple Task - Upload the location of an amenity

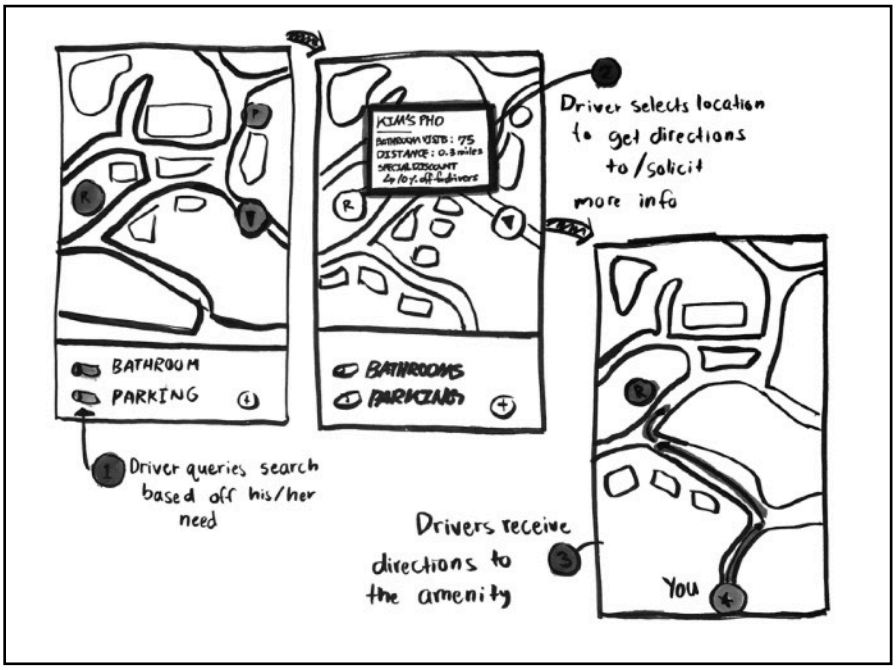

Figure 7: Medium Task - Find and route to an amenity

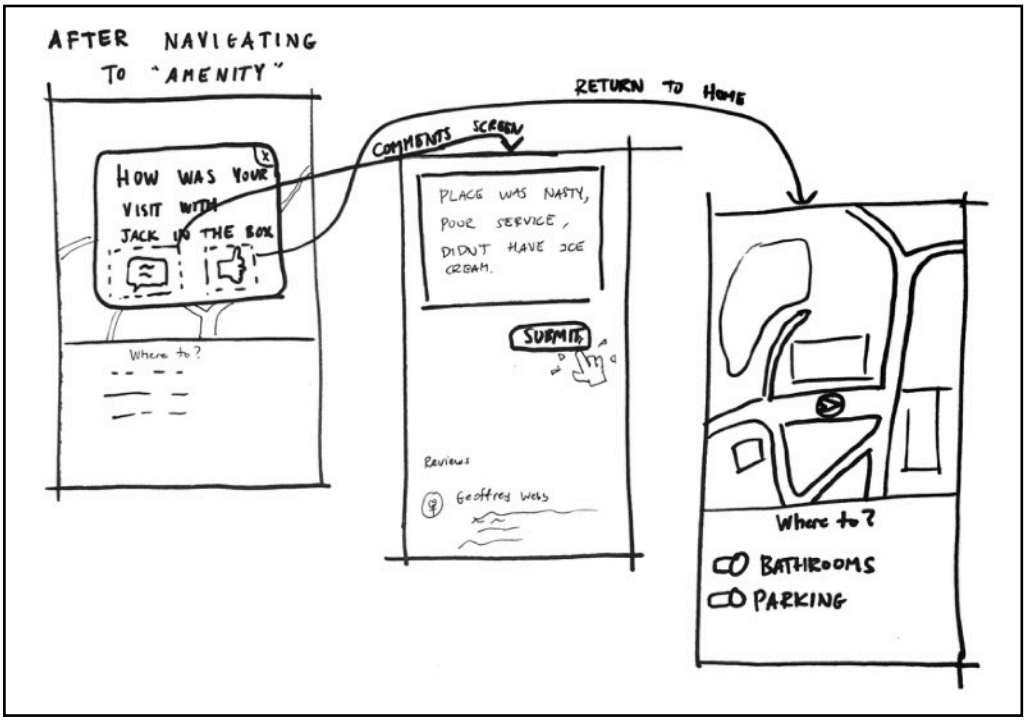

Figure 8: Complex Task - Submit a review of an amenity/facility

Design Interface	Functionality and Reasoning
Map Main Interface	A map displaying nearby amenities is both the starting and main interface of the application. The reasoning behind this decision is because a map is familiar and intuitive and also allows the users to spatially understand where exactly the amenity is relative to them. Lastly, it allows drivers to strategic plan their day based on the location of the amenities.
List View Query Filter	A slide list view query filter is available for drivers to swipe up from the bottom of the screen. This slide list view can be used for drivers to quickly filter the types of amenities and searches they want to see on the map. This design is light-weight and requires little to no additional finger motion for the driver to filter the results.
Side Bar Pop Out	The slide bar pop out list can be accessed by pressing a small button at the top left corner of the design. When the list view is open, drivers can look through personal account information and miscellaneous action options such as driver's favorited amenity and recently visited amenity. This is purposefully placed to be unobtrusive because it is not intended to be used as a primary function.
Amenity Select View	When a driver taps on an amenity on the map, an informational box is shown displaying all of the relevant information needed for the driver. The popup allows for the driver to control what information they see and is much more simple than a list view.

Button	**Function**
Hamburger Icon	Opens the side bar that contains personal account information and preferences

Amenity Icon	Opens the amenity select view that displays all of the amenity information
Direction Icon	Gets directions to the amenity for the driver
Favorite Icon	Saves amenity to a driver's favorited amenity
Filter Toggle Icon	Toggles the filter of the map

PROTOTYPE

We designed our screens to fit into a laser cut acrylic iPhone 8 Plus that allowed our users to feel like they were actually holding a phone when interacting with our prototype. The prototype mimics a mobile based interaction that focus on a map view showing the location of amenities and containing other functionality relating to the three tasks we defined.

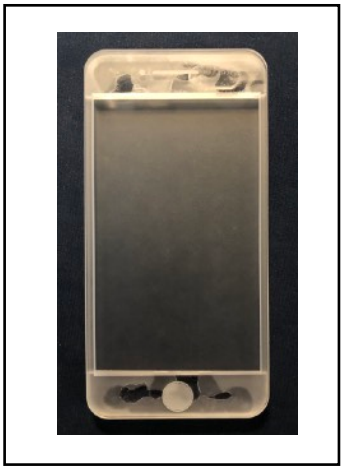

Figure 9: Lasercut iPhone

Figure 10: Loading Screen

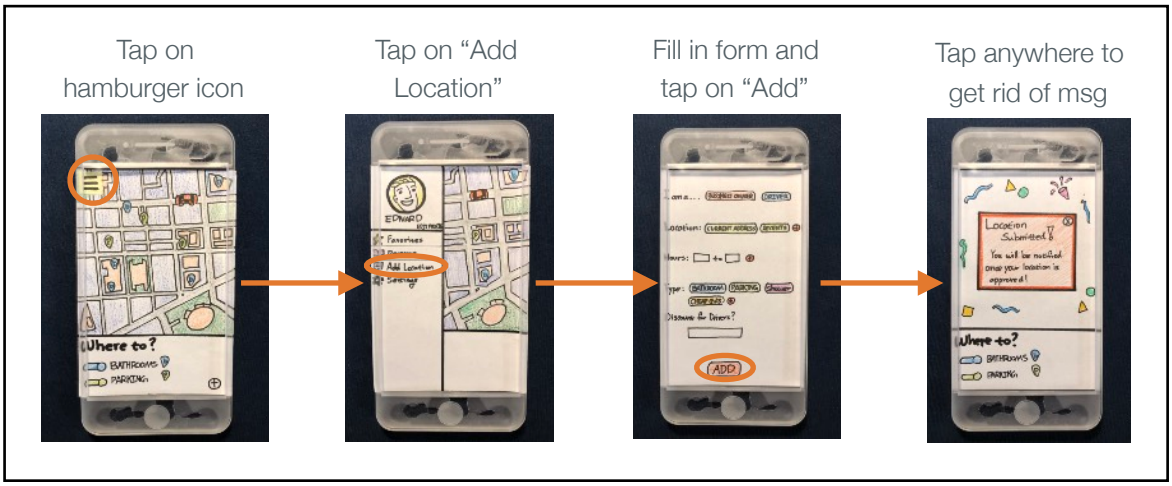

Figure 11: Simple Task - Uploading a location

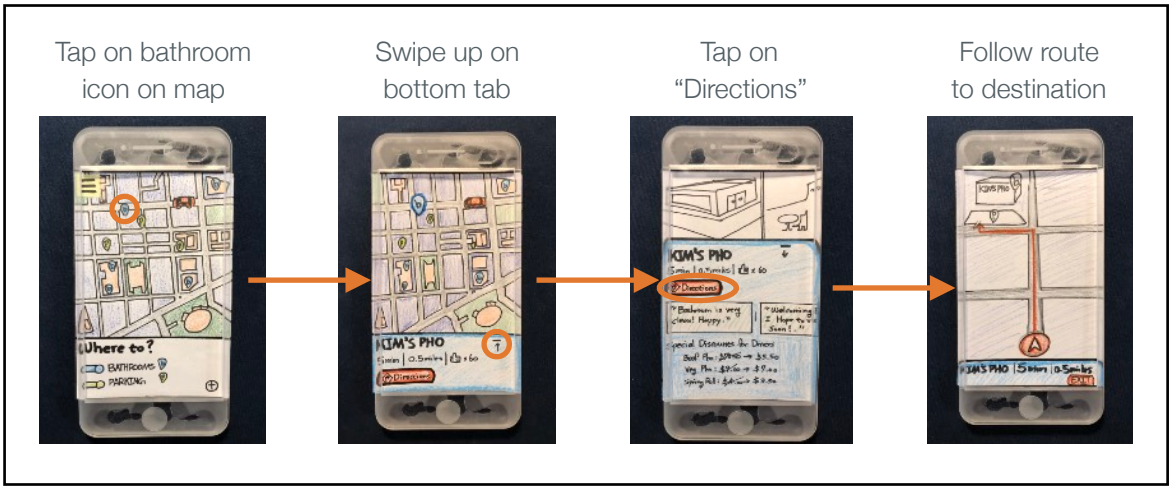

Figure 12: Medium Task - Finding/Routing to a location

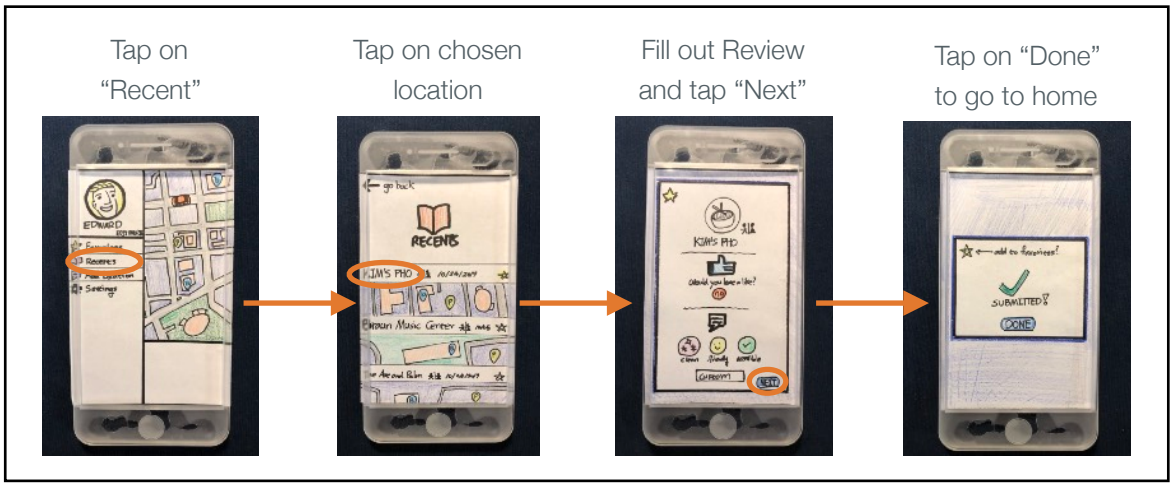

Figure 13: Complex Task - Submitting a Review

Figure 14: All Screens

METHOD

Participants + Environment

To ethically source our participants we conducted these interviews during interactions with both on-shift gig-economy drivers, and the business employees.

To most accurately simulate a real world scenario, testing was done in the natural environment that the workers would find themselves.

- A young employee who had been working at CoHo for two years
- A male Lyft driver who had been working for 12 years
- A Spanish speaking female Uber driver

Tasks

1. Upload the location of an amenity
2. Find and route to an amenity (parking for the prototype)
3. Submit a review of an amenity/facility
4. Add an amenity to the “favorites” list

Procedure

1. Preface the research with an explanation of the class and a brief overview of the idea.
2. Receive consent.
3. Place the prototype in front of the user with the loading screen and ask them to perform each task sequentially
4. If a task is pursued incorrectly or in an unexpected manner, ask for an explanation and then prompt the expected course of action
5. When complete, debrief with the participants on general feedback

Measures

Success:

- Ease in performing a specified task
- Expectations matching functionality

Error:

- Points where user wanted to interact with the wrong feature of the screen
- Points where user wasn't sure what was being displayed

Roles

Tyler: Facilitator

Edward: Computer/Observer

John: Computer

Alec: Note Taker

RESULTS

Testing the lo-fi prototype yielded invaluable feedback that will be instrumental in reshaping our medium-fi version. After walking through the lo-fi prototype with the user they provided us with both feedback on the user workflow and general recommendations about what would be helpful to include in our design:

User Interface Workflow Feedback

- Because the user interface is similar to Google Maps and Uber/Lyft, the user immediately thought the workflow were the same
- There was confusion with all three users as to how to leave a review
- One of the users had a difficult time with favoriting an amenity
- General confusion about the location of the back button and the distinction between different amenities on the map
- One of the users felt that it was confusing that there was a distinction between a business owner and a driver

Feature Recommendations

- A user recommended that we provide an option for drivers to contribute photos of the amenity
- A user pointed out that this application is specifically useful in the San Francisco area
- A user recommended we add operating hours and some type of description of the amenity

In addition to this, we were able to solicit more stories of these drivers struggling to find restrooms-- in fact, one individual shared with us a story of peeing in a water bottle.

DISCUSSION

Walking through the application, we were able to learn about issues with our current user interface and validate many of the assumptions we made.

One of the major difficulties that we have is providing an intuitive and quick experience for the drivers. Our goal of providing a familiar interface to that of Google Maps/Uber ended up backfiring as two of the three drivers attempted to interact with our application in the same manner. As a result, some of our unique features were confused the features of Google Maps/Uber.. Going forward, we have to be extremely attentive in making our interface familiar while also making clear to our users that our application is distinctively different.

Another insight that we found is that it was overall very difficult to leave a review on an amenity, a major struggle highlighted in all three interviews. As a result, we are determined in making sure that the process to leave a review is friction-free and much more intuitive.

In addition, we realized we can tweak the interface to be slightly more simple and natural for the user. As an example, we could highlight some of the major buttons (such as the “Directions” button), deemphasize peripheral amenities when an amenity is already selected, and consistently display a back button.

We also learned about some additional features that we can add that would be helpful for a driver. Specifically, adding a voice command feature, the amenity operating hours and amenity description, and a photo upload section would be very helpful for our users

(1496 words)

BLANK CONSENT FORM

Consent Form

Coral's prototype is being produced as part of the coursework for Computer Science course CS 147 at Stanford University. Participants in experimental evaluation of the prototype provide data that is used to evaluate and modify the interface of Coral. 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 (Edward M., Tyler V., John H., Alec D.) 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 Coral's experiment. I also give permission for images/audio records/video of me using the prototype to be used in presentations or publications as long as I am not personally identifiable in the images/audio records/video. I understand I may withdraw my permission at any time.

Name _____

Participant Number _____

Date _____

Signature_____

Witness name _____

Witness signature_____