

Contribution Statement

Alva Wei: 25% Helped compile/write up report.

Blue Jo: 25% Helped compile/write up report.

Emily Nuri: 25% Helped compile/write up report.

Ian Hadden: 25% Helped compile/write up report.

POOL'R

Ian Hadden

Emily Nuri

Blue Jo

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Problem and Solution Overview

Some parents worry about the safety of their children when they are walking by themselves to school or other events. Single parent households and households in which both parents work are more common than they used to be, limiting the ability of the parents to alleviate this safety risk by driving their children. The aim of Pool'r is to step in and solve this issue. Pool'r is an app that assists with the creation and maintaining of organized carpools, focused on kids. Parents take turns driving based on their availability, ensuring that no child will have to walk in a potentially dangerous environment.

Initial Paper Prototype

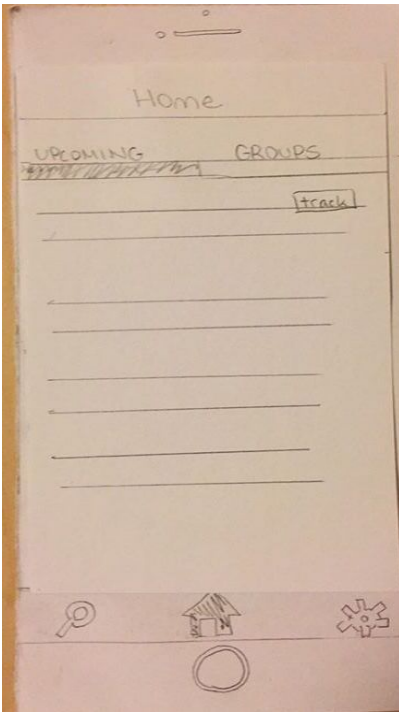
The two main tasks we identified for our app are Driving and Tracking.

Driving: When it is your turn to drive, the app lets you know and generates your pickup/dropoff route for you. As you drive it gives you directions, and prompts you to acknowledge when you've picked someone up or dropped them off.

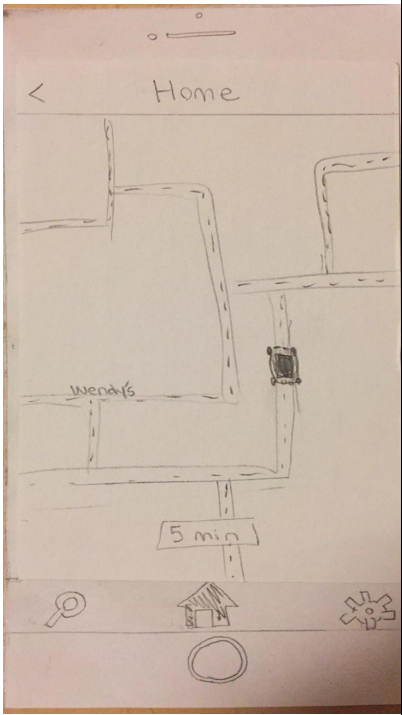
Tracking: Parents whose children are being driven can use the app to receive notifications when their child is picked up, dropped off, and can track the car their child is in while the drive is in progress.

In addition to Driving and Tracking, there is a good detail of setup that is necessary for our app to work. Carpool creation and querying for carpools are important prerequisites to our main tasks, so they were included in our initial paper prototype as well.

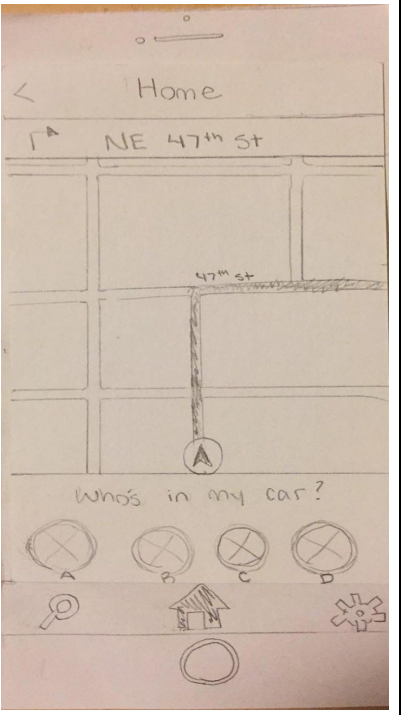
Home Screen



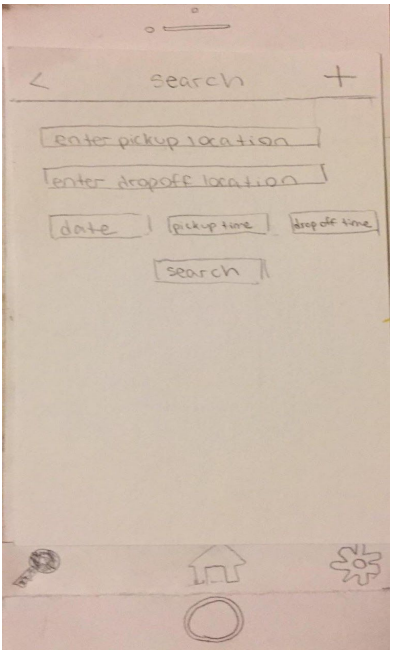
Tracking Screen



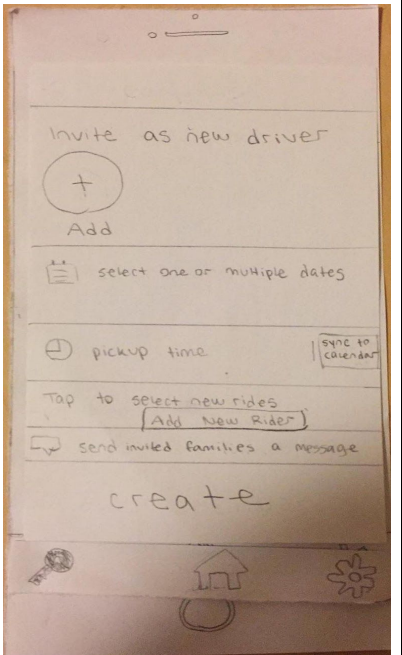
Driving Screen



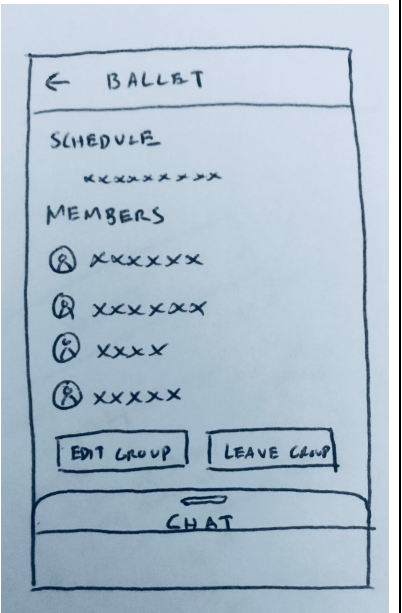
Search Screen



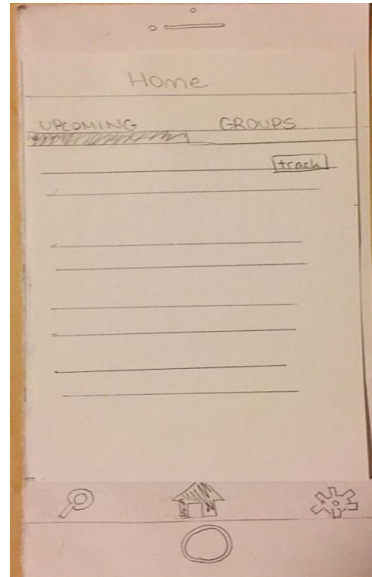
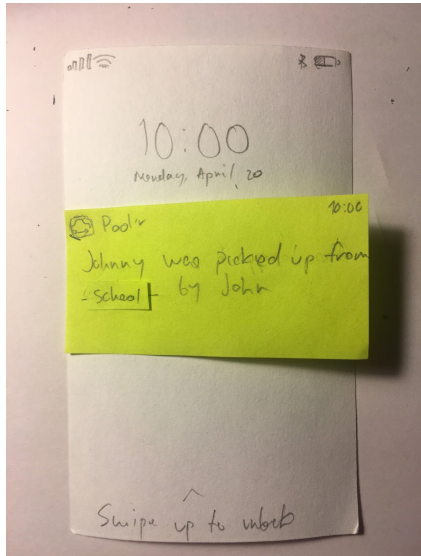
Carpool Creation Page



Group Detail Page

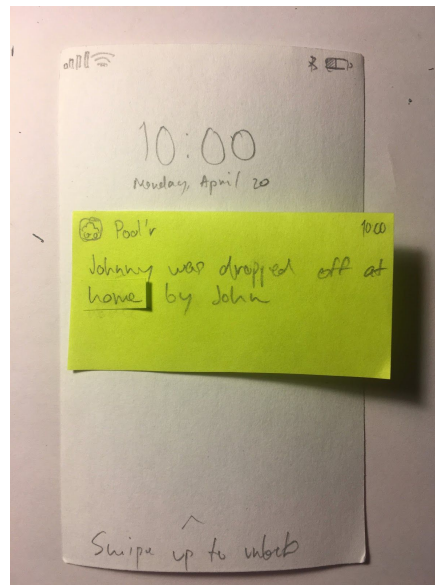
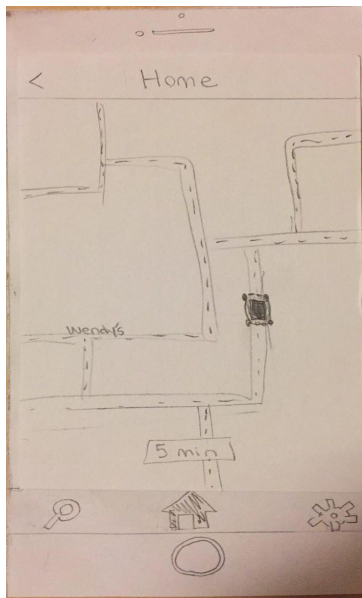


Task 1: Parents need to see when a child arrives and departs from a specific place set by parents such as school and home. Parents also want to see where the child is on their route



Step 1: kid is picked up, parent gets notification

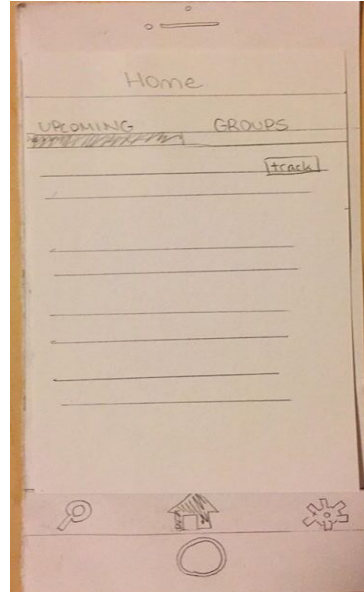
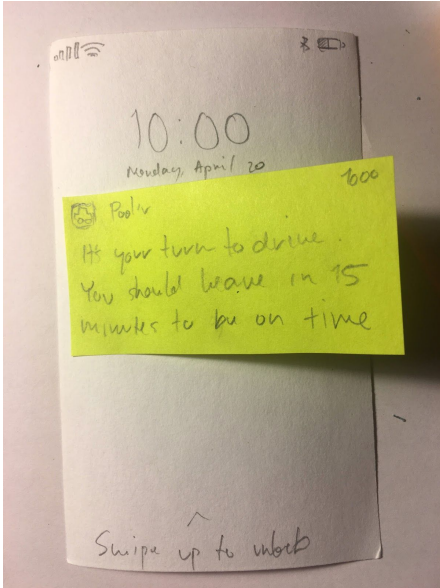
Step 2: parent can open app to get to home page



Step 3: parent can view child's location, who is driving, etc.

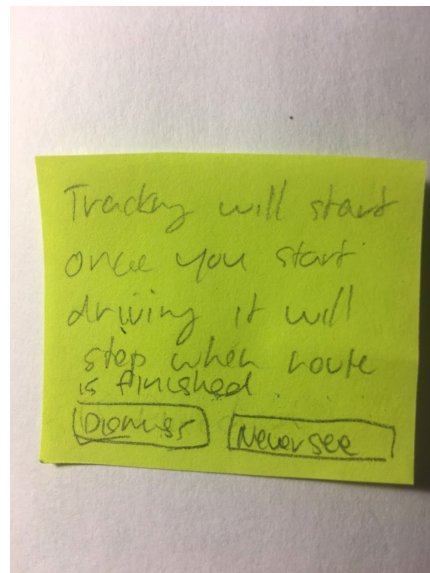
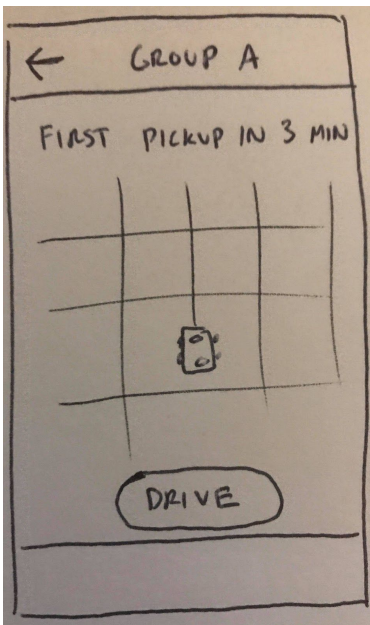
Step 4: kid is dropped off, parent gets a notification

Task 2: Parents need to know when they are the driver, the best route to take, and the kids to pick up



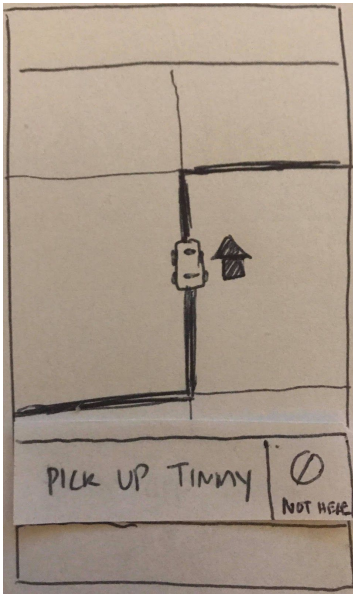
Step 1: parent gets a notification before they need to leave

Step 2: parent goes to home page

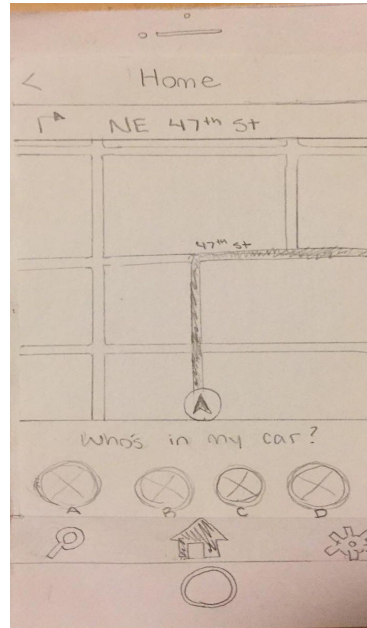


Step 3: parent goes to driving page

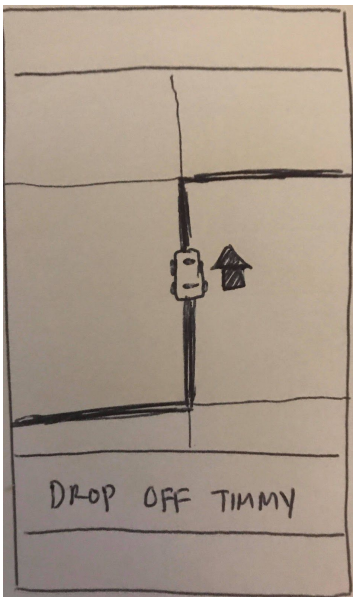
Step 4: Gets notification about tracking



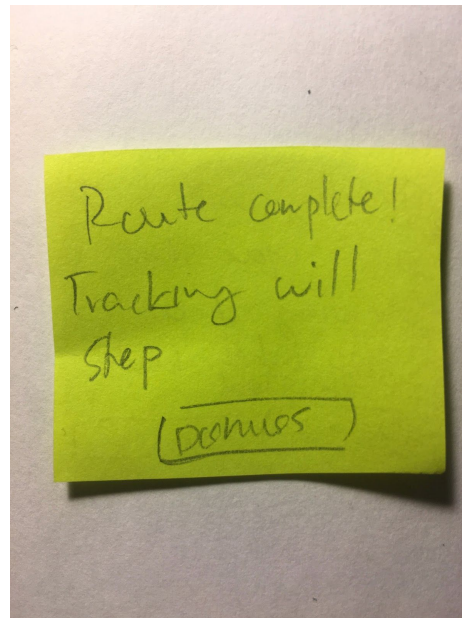
Step 5: parent checks children off as they get into car, should be able to mark not here



Step 6: parent gets directions for optimal route



Step 7: Parent marks child as dropped off when dropping off



Step 8: driver gets notification that route is over

Testing Process

Heuristic Evaluations:

We did the in-class heuristic evaluations with another team. The process started with our team giving their team the context of our app (i.e. the problem we were trying to solve and when it would be used). Then, one of their team members walked through the main tasks of our app, while making note of any heuristics they saw which were violated in our task flow. Another one of their team members recorded these observations, which were then given to us. During this process, one of our teammates acted as the “computer,” switching out screens as necessary.

Usability Tests:

Our first usability test was done with a 59 year old parent in Bellevue, Washington. We chose this participant because we thought that he would represent a less technologically-savvy parent, which would hopefully help us identify a lot of the issues that people less comfortable with technology might encounter. We explained a summary of the apps, then gave the participant his first task. After he completed the first task, we gave his second task. Blue both played the role of the computer and took notes of issues the participant encountered.

Our second usability test was done with a 22 year old collegiate frisbee player. We felt that despite not being in our target group, he may be able to find flaws in our design. Most 22 year olds are quite tech savvy, so an issue which he could identify would probably be an even larger issue for those less familiar with technology, like those in our target group. The test had the user go through the main two tasks that we've been focusing on: tracking your child as they are driven to school, and using the app as you drive children to school. The first task went smoothly. In the second we identified an issue, as described below. The only team member administering this test was Alva, since as noted the team was splintered this weekend.

Our third usability test was done with a 48 year old mother. This participant was chosen because as a mother of a younger child, she is well within our target group. The test went through our two major tasks, just as our previous two usability tests did. The test was administered by Emily. The first task went smoothly. During the second task, some issues were identified, as outlined below. She got confused about figuring out who was actually in her car, and about the notifications which came up on the screen during the driving process.

Over the process of administering the tests, we realized that explaining paper prototyping was somewhat difficult. This was something that we had not considered before, as we all knew what paper prototypes were. To address this, in our last test, we showed the

participant a short video of a paper prototype being used in order to demonstrate how she should interact with our prototype.

Testing Results

From our heuristic evaluations, we got some initial critique to improve our design before we did the actual usability test. From this critique, we discovered that our home page had a grayed out button placeholder that didn't do anything, which was confusing to the evaluators. We simply removed the button from the screen before our usability testing. Additionally, we learned that users wanted the ETA to appear on the driving directions screen. We added this to the screen before our usability tests.

An important modification we made based on our usability testing and critique is changing the "who is in my car?" feature to be more intuitive for users. The main problems we found were that users did not understand at what stage of the trip they were at when they saw this page. Where the kids already picked up? Are those the kids that still need to be picked up? How can the driver mark if a kid has been picked up? This is one of the essential features in our design that users will use every time they give rides, making it a priority to fix. Simultaneously, while commonly used, the flaw was difficult to detect because the task is performed while driving or in the car. Our solution to this issue was to better label who is in the car versus who still needs to be picked up in two different sections as shown above. This modification is a clear way to demonstrate to drivers the current status of their trip and allow them to feel more comfortable and responsible when driving.

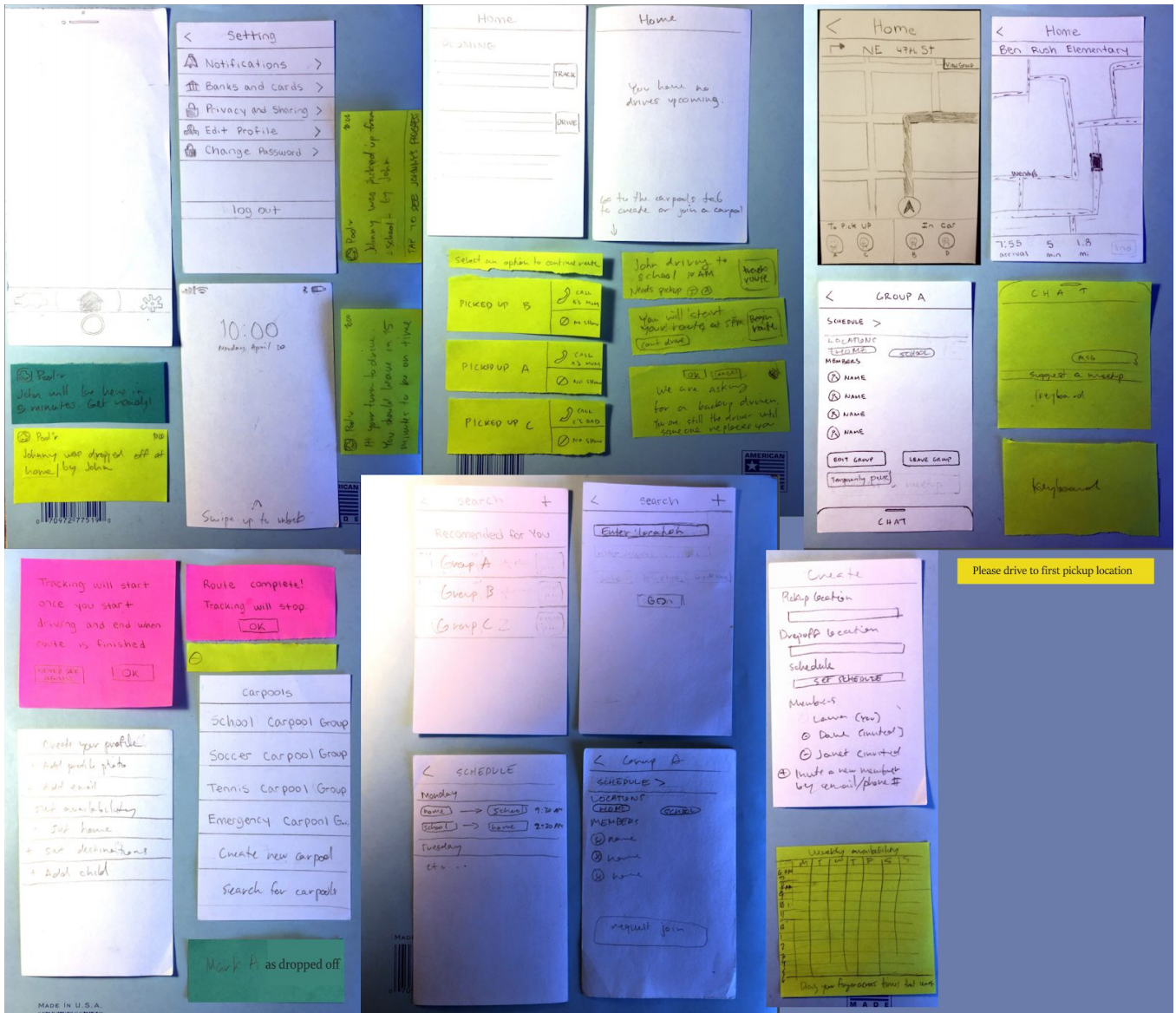
Another important modification we made following our usability testing was to change the button that said "Drive" to say "Start Route." While it was a trivial mistake to correct, it had a huge impact on the usability of the app. With the button that said, "Drive," parents who were driving did not know that they could use the app to plan their route, because driving was a separate action not done through the app. Because the functionality that the app gives to help plan and manage your route is a major feature of the app, we wanted people to take advantage of it. Changing it to "Start Route" conveyed what the app was doing more intuitively to the users, and people knew to press it when they started driving.

Another change we made based on our usability tests was adding the text, "Open the app to see the route progress" to the notification that a child was picked up. We found from our testing that after seeing the notification, users did not know that they could open the app to get the location of the car. We made this change to give visibility to this feature.

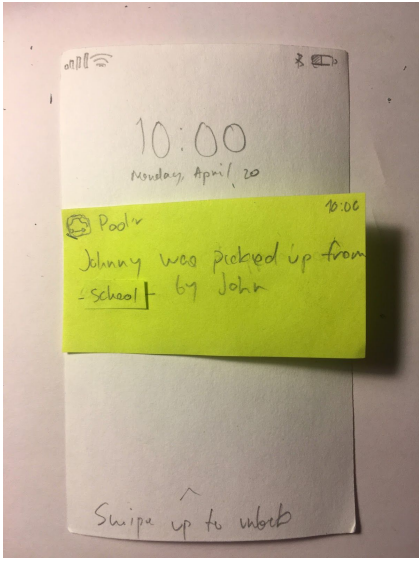
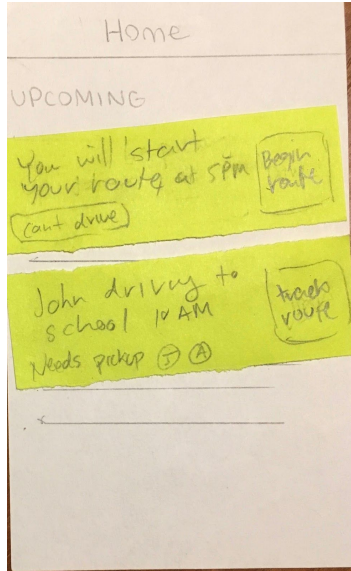
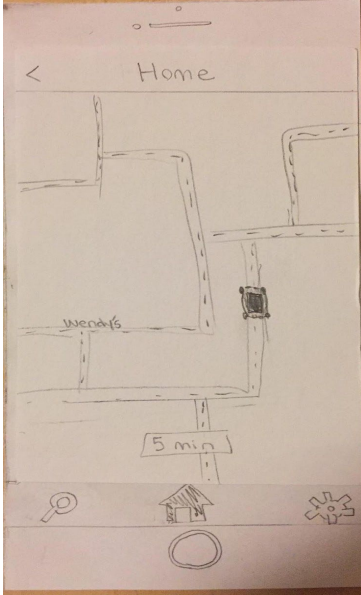
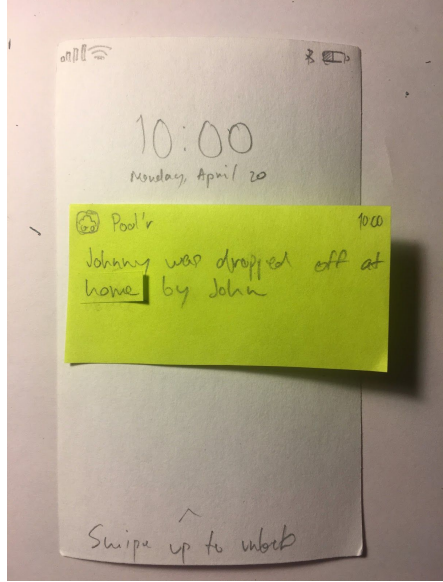
Finally, an important change that we made was adding access to the carpool group chat to the driving directions page - one of our participants noticed that they could not easily contact the other parents in the carpool if something went wrong. To address this, we added a pull up group chat to the bottom of the drive page. Additionally, because this pull

up chat was not consistent with ways to access the group chat in the other parts of the interface, we also changed all access to the group chat to be by pull up chats.

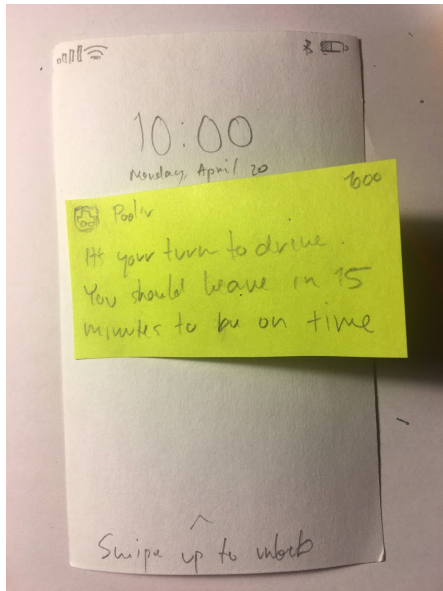
Final Paper Prototype



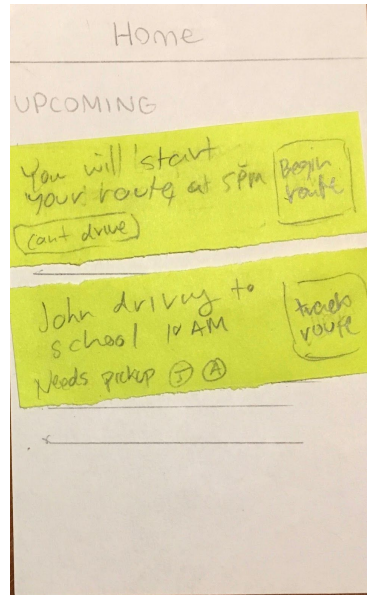
Task 1: Parents need to see when a child arrives and departs from a specific place set by parents such as school and home. Parents also want to see where the child is on their route

	
<p>Step 1: kid is picked up, parent gets notification</p>	<p>Step 2: parent can open app to get to home page</p>
	
<p>Step 3: parent can view child's location, who is driving, etc.</p>	<p>Step 4: kid is dropped off, parent gets a notification</p>

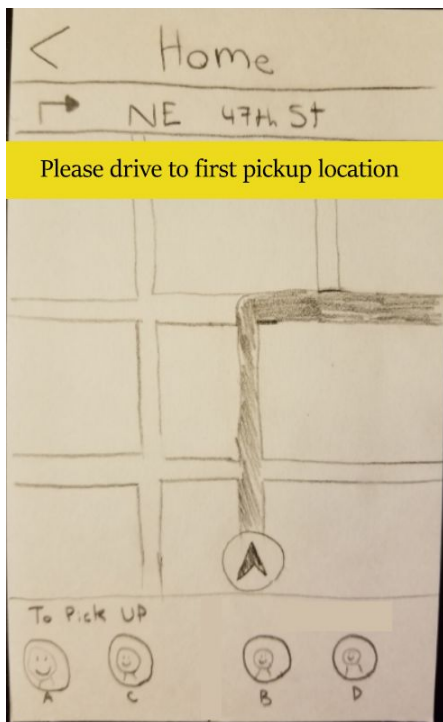
Task 2: Parents need to know when they are the driver, the best route to take, and the kids to pick up



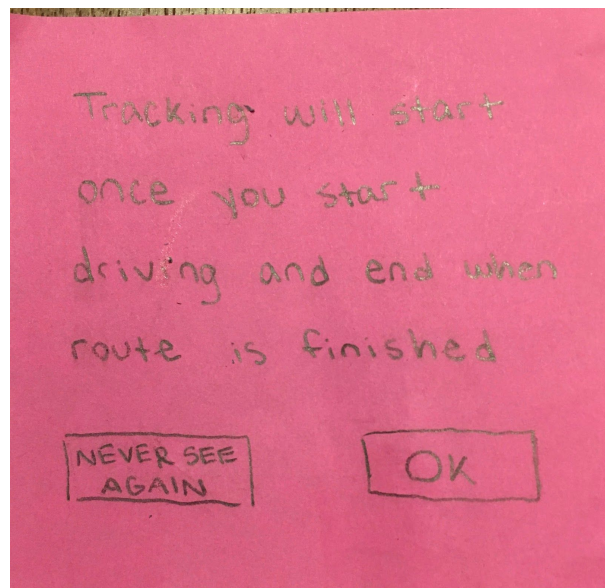
Step 1: parent gets a notification before they need to leave



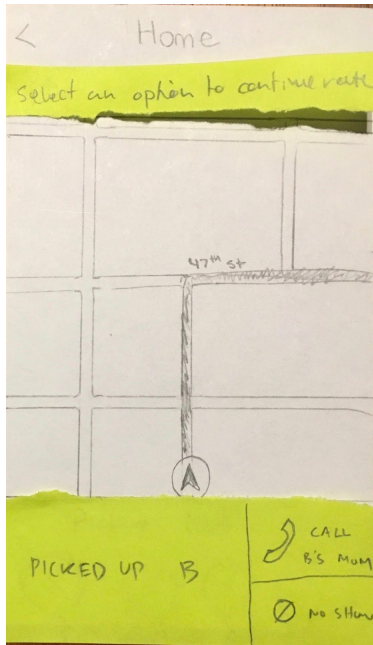
Step 2: parent goes to home page, clicks "begin route"



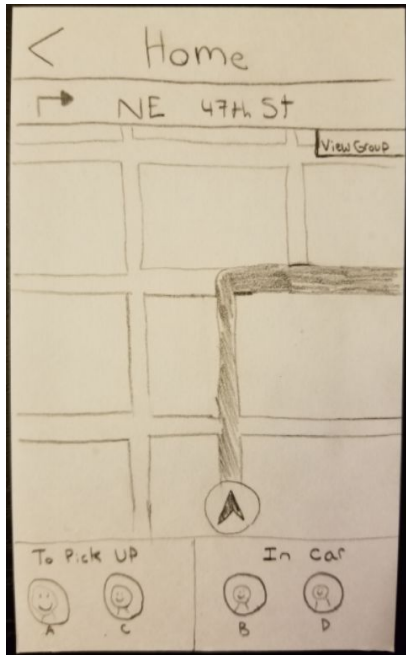
Step 3: parent goes to driving page



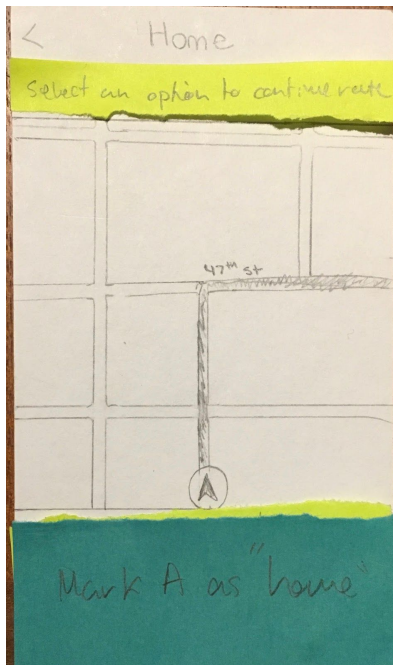
Step 4: Gets notification about tracking



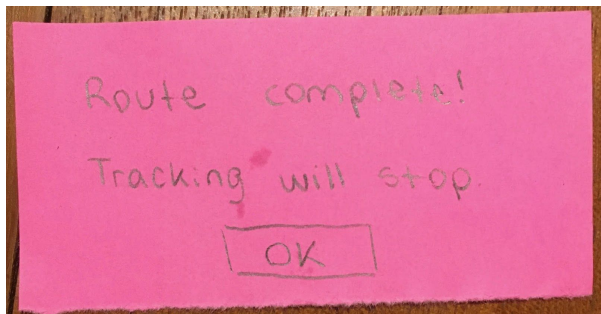
Step 5: parent checks children off as they get into car, or marks "no show" if not there.



Step 6: parent gets directions for optimal route



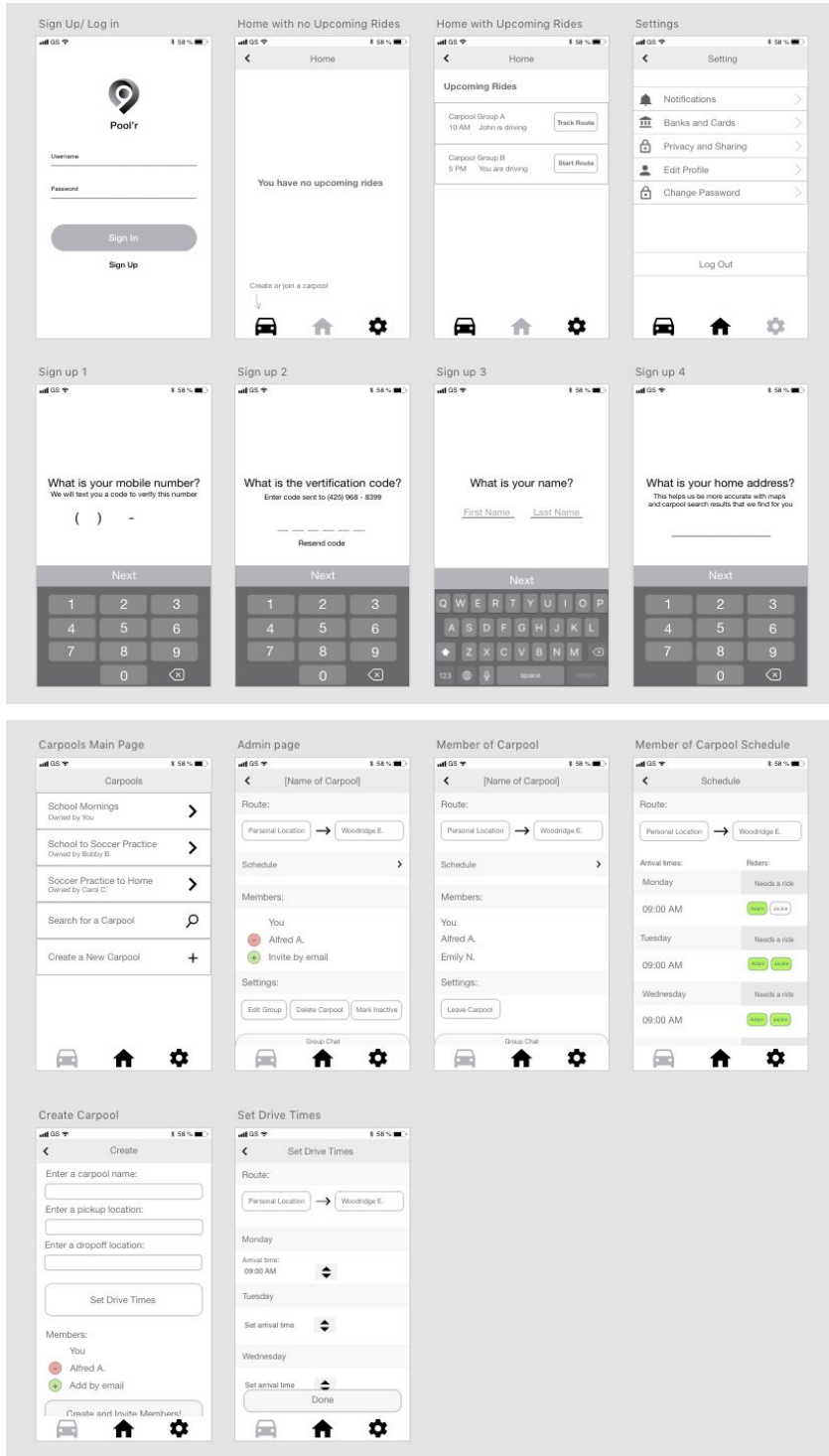
Step 7: Parent marks child as dropped off when dropping off

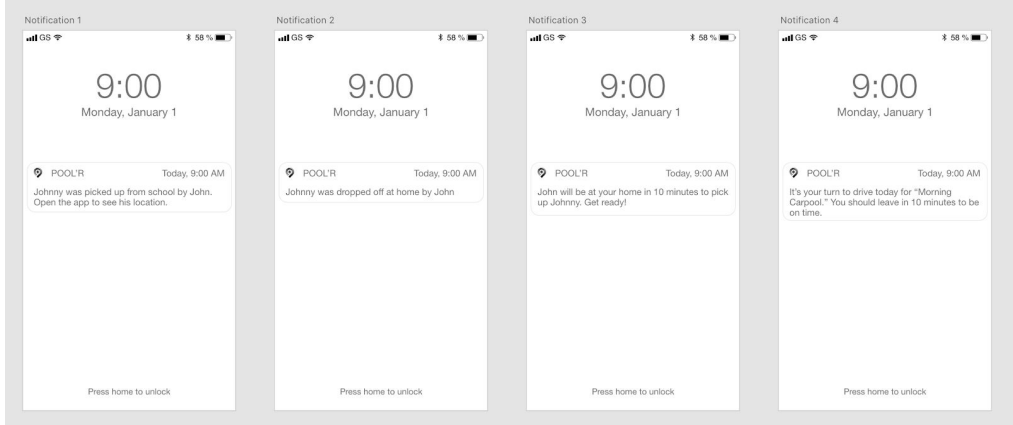
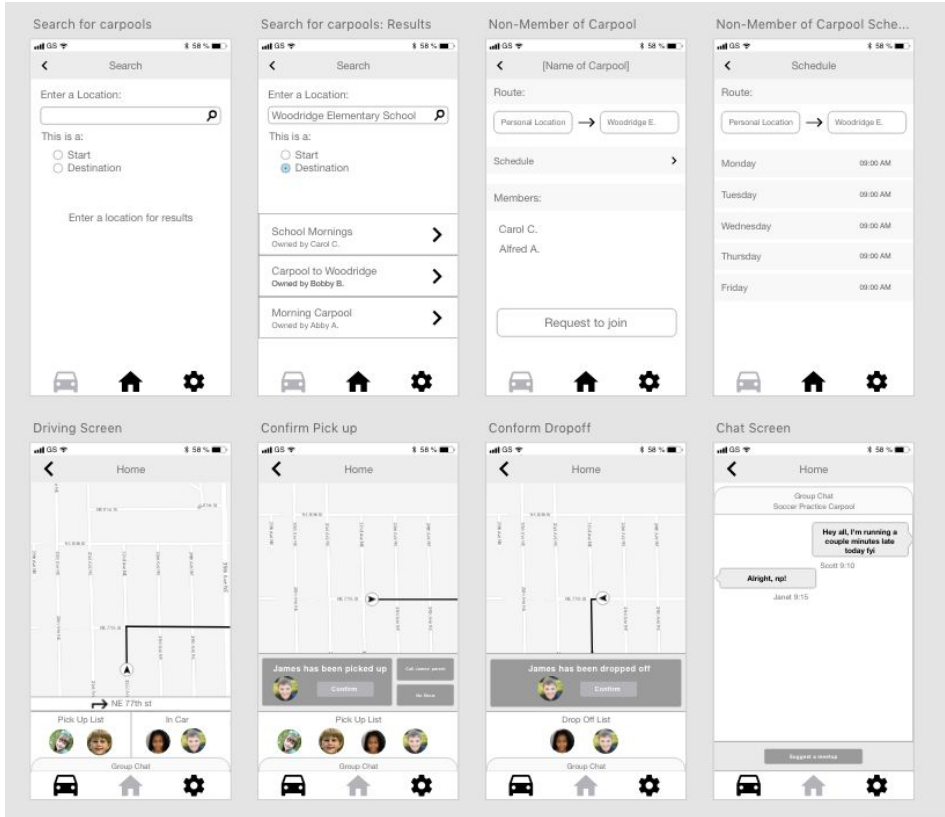


Step 8: driver gets notification that route is over

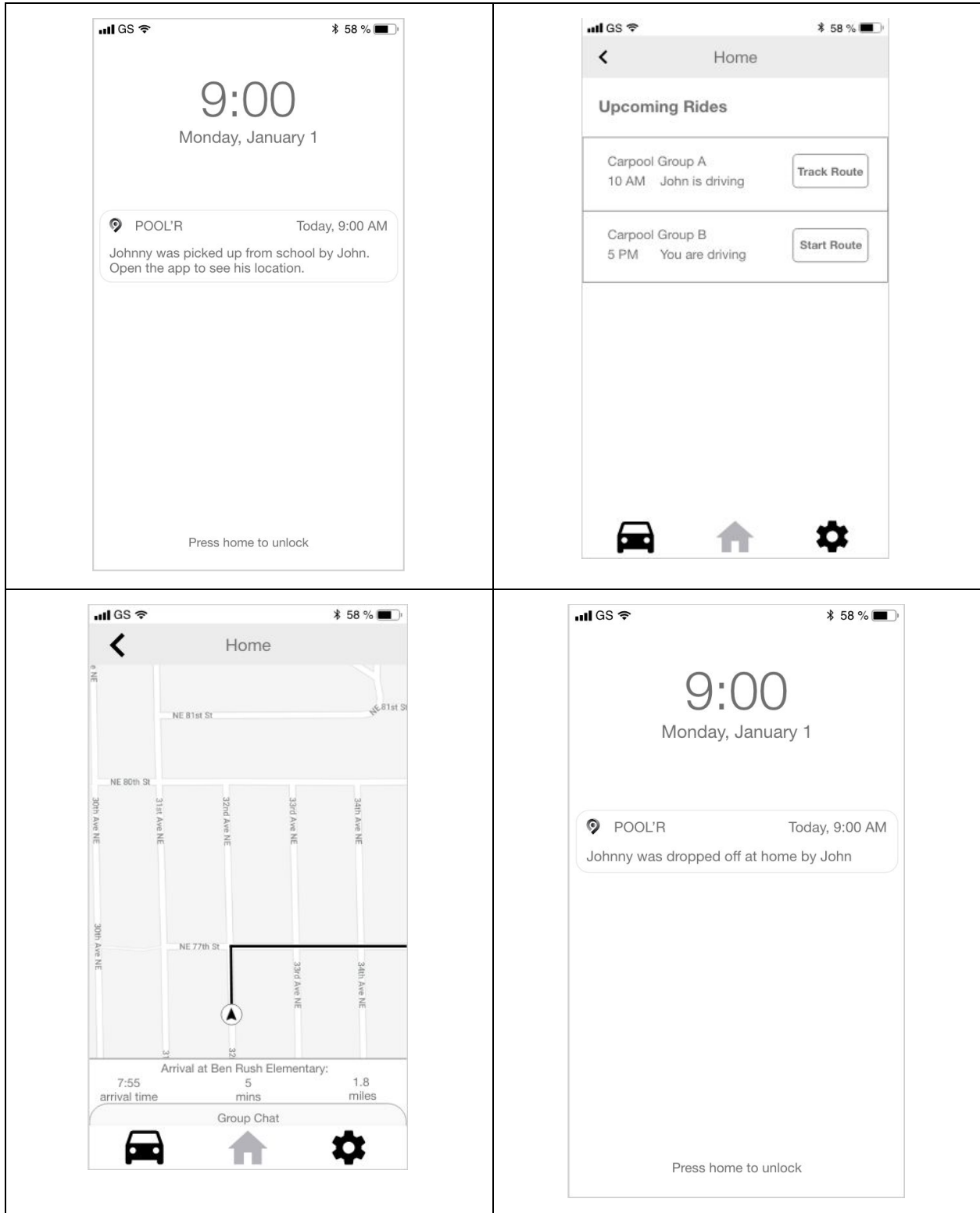
Digital Mockup

Design Overview

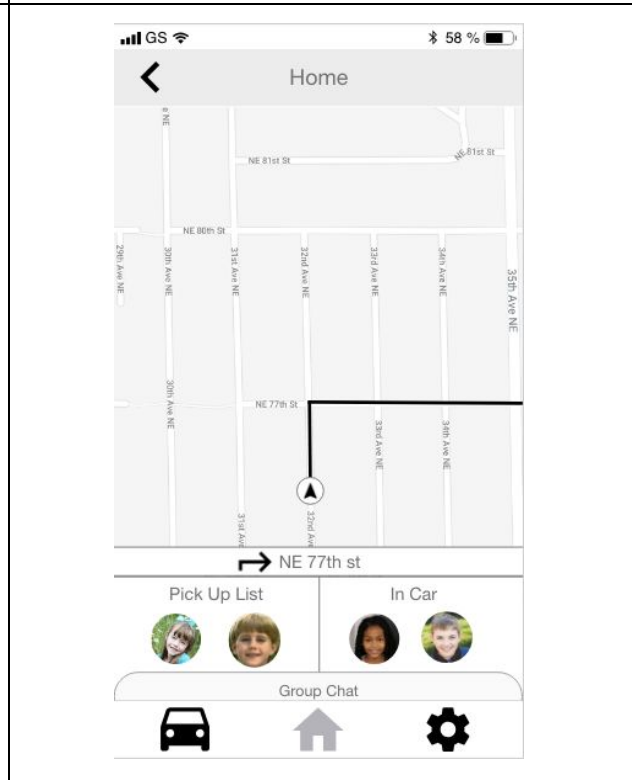
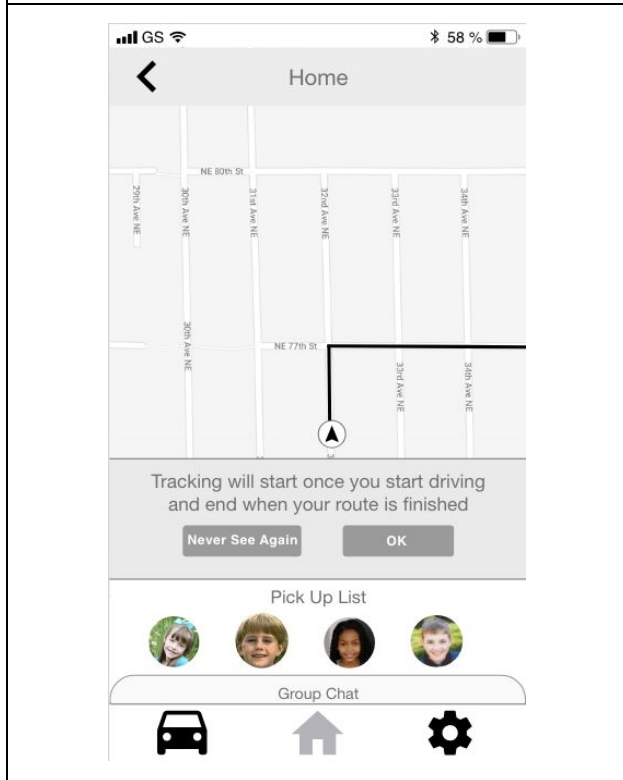
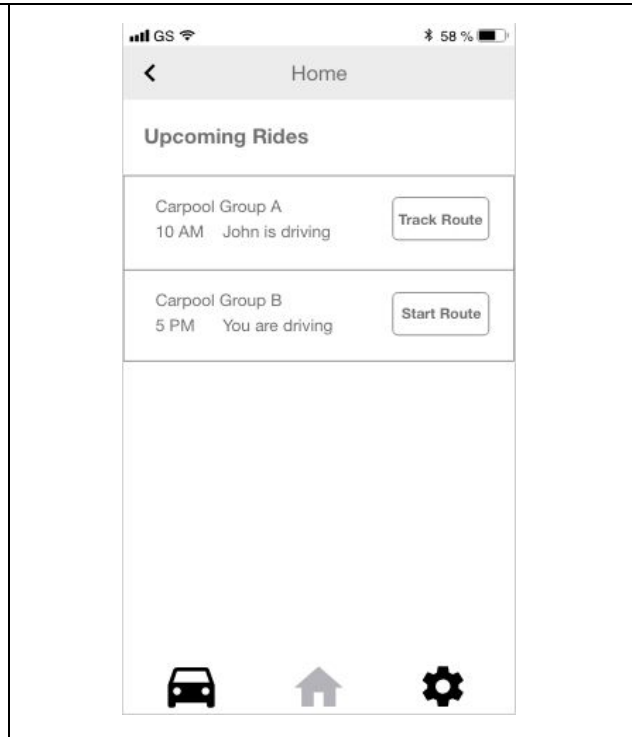
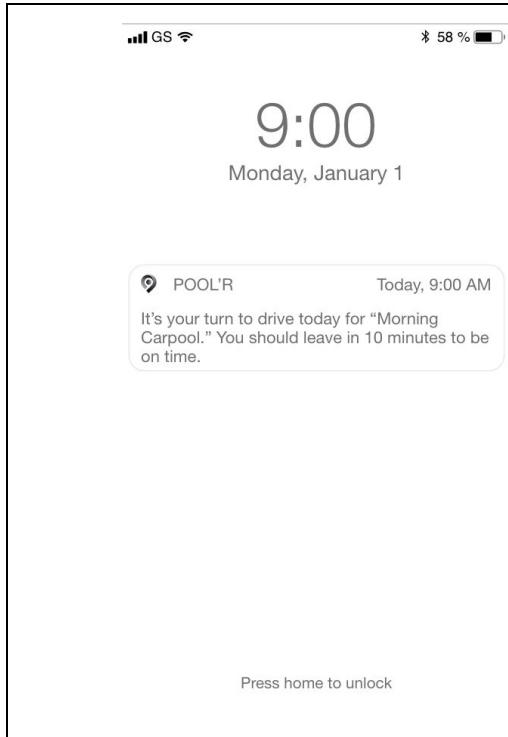


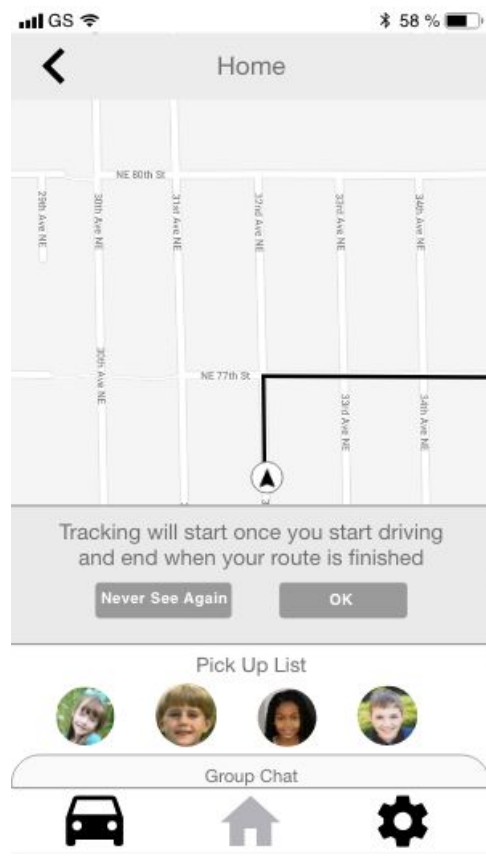
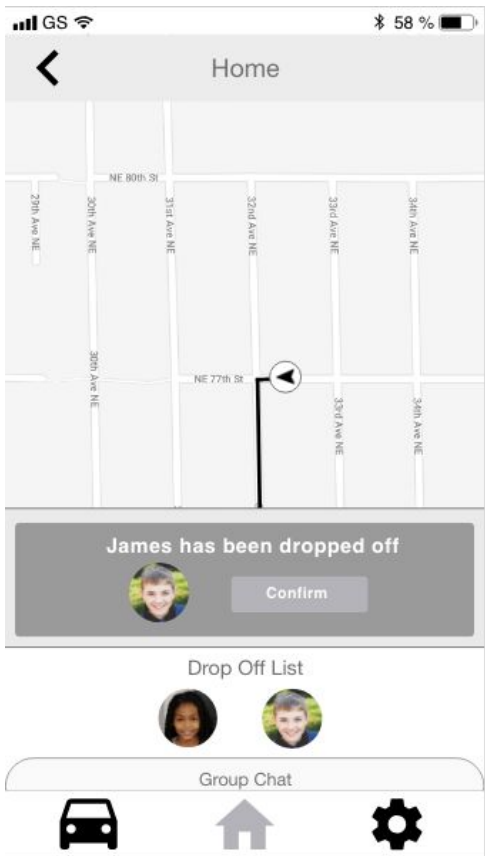
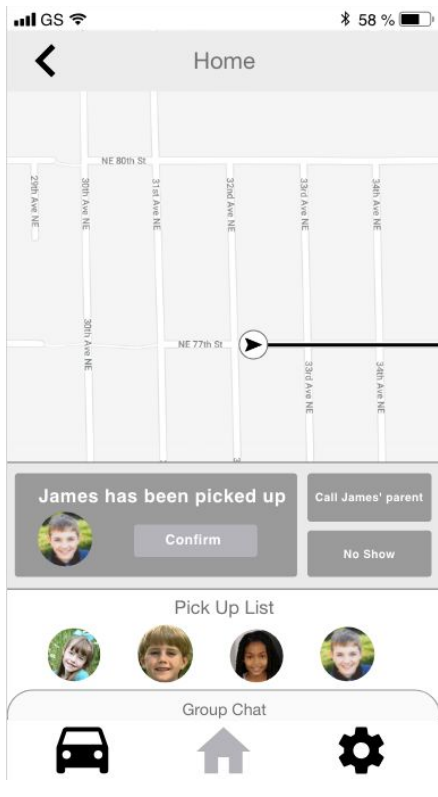


Task 1: Parents need to see when a child arrives and departs from a specific place set by parents such as school and home. Parents also want to see where the child is on their route.



Task 2: Parents need to know when they are the driver, the best route to take, and the kids to pick up.





After we implemented the digital mockup and were able to see the whole application design more clearly, one of the largest problems that we noticed was how complex some of the screens were. To remedy this, we removed some functionality in order to simplify the app for users, with the goal of reducing the visual and feature clutter in our screens. For example, we removed the ability for non-admin users to change the carpool drive times, and removed the ability to create non-repeating one-time rides. We also implemented the initial sign up process for new users, asking them for a phone number, verification code, and their home address. This helps us confirm new accounts as real people and also simplifies the carpool creation group (since most rides will be to or from someone's house).

In addition, we added the names of carpool groups to the upcoming rides feed on the home page. Previously the rides were displayed only as the name of the person driving, and we thought users would want to see more details about each upcoming ride. We also added the group chat tab to the driving screen. The group chat used to only be accessible from a group's detail page, but feedback from our usability studies showed that users would like to be able to message their carpool group while a drive is in progress. Finally, we changed the pick up and drop off actions from buttons that say "picked up" and "dropped off" to buttons that say "confirm", with text saying exactly what action is being confirmed. Some of our users were unaware that the old buttons were actually buttons and thought they were just status notifications, so we changed the wording and appearance to make it clear that the driver has to press a button to confirm whether a child has been picked up or dropped off.

Discussion

One skill we learned through the iterative design process was to not get too attached to any specific component of our design. Research and tests would often inform us that various parts of our design needed tweaking or reworking. Being able to accept this feedback and make those changes was an important part of getting Pool'r to the place it is now. The largest change that was made was the switch from our initial concept of a child tracking device to a carpool app. Committing to this change took much effort on the part of our team, but the evidence from our user research showed that this was the best decision, and we believe it was a fruitful one.

After the user research, our fairly broad idea of having a carpool app was molded and chiselled into the final product we have now. There were two large ways in which the app changed through the process. Firstly, the terminology and layout of the app were simplified a lot. Much of the feedback we received through testing was about the app being confusing. After hearing this, work was done to ensure that the text of messages and buttons was written as clearly as possible and that each feature was placed where it logically would make sense to find within the app. Some smaller features were also removed to make for a better core app experience. Secondly, the driving portion of the app

was changed to be as serial as possible. Users had trouble knowing when to actually be driving vs when to be interacting with the app. After some reworking, the app is now very clear about what the next action is, leading to a more streamlined experience and fewer confused drivers.

We kept the same two tasks all the way through the design process, although in hindsight we possibly could have handled our tasks better. When we first started designing, we got a little distracted by the scale of our project and didn't focus on nailing down how our primary tasks were going to work. Instead, we spent a lot of time designing other aspects of the solution that are not as crucial as our primary tasks. Also, because our solution is so broad, there are some other tasks that we possibly should have considered as primary tasks. For example, the task of setting up a user account and creating a carpool is going to be all of our users' first interaction with the product, so that could have been one of our primary tasks.

It would have been useful to have another iteration of usability tests after our final paper prototypes were created. While we did catch a few small problems and fix them as we moved from our final paper prototype to the digital mockup, it's possible that there could still be a few small issues that weren't caught by our team or by the testing process. Additionally, if we had more time, it would be helpful to perform usability tests with our digital mockups so we can get some feedback on the implementation and modifications we made as a result of the usability testing as well as the user interface design of the application.