RIT Mobile Parking App Design Doc

By: Nolan Wira and Kieran Sullivan

Overview of the Project

App Goals:

Provide users a way to assess and reserve parking spaces at RIT's various parking lots as well as helping them navigate to these lots.

Design Considerations:

The vision of the app is to display data such as lot occupancy, full and less crowded sections of lots, and buildings near each lot. The app also has a reservation functionality to it, so staff and students who use the parking lots can go ahead and reserve a spot in a lot of their choice.

Assumptions and Dependencies:

The app functions with the assumption that there is more RIT parking infrastructure on campus; infrastructure such as sensors monitoring traffic in and out of each lot as well as monitoring the occupancy of individual spaces. On top of this RIT parking enforcement would need to accept the responsibility of checking over these reserved spaces, ensuring that the reservations made on the app are backed with repercussions. Full integration with RIT Parking services would also allow the app to have more efficient reservation flow by being able to pull driver and car data from RIT's parking records.

User Personas

(Permission for use gained from ISTE260 Group 2)

Panera Unbun

Age: 20

Gender: F

From: Watertown, CT

Occupation: Student

Ethnicity: Italian

Context:

Panera is a upperclassman that lives off-campus. As a commuter, she wants the lots at RIT to have a better system.

Bio:

Panera is a 3rd year RIT student studying Computing and Information Technologies.In her spare time, she likes to go on nature walks with her dog off-campus. She also enjoys playing FPS games with her friends.

Goals:

Improve overall parking experience and reduce traffic congestion. Increase accessibility to alternative transportation for students.

Strengths:

- Technical Skills in IT
- Passion
- Communication and Collaborative

Weaknesses:

- Risk Aversion
- Time Management

Improvements:

- Risk Taking
- Change Work-Life Management Strategies

Motivation

Incentive

Fear

Power

Social

Preferred Parking Lots

S-lot

J-lot

F-lot

Source for Photo: https://unsplash.com/photos/a-woman-wearing-a-black-and-white-striped-sweater-hwHV6PpMlcw

Marco Del Carmen

Age: 48

Gender: Male

Occupation: Instructional Faculty, Computer Science Department

Ethnicity: Hispanic

Language: Spanish, English

Context:

Dedicated to student success and innovative approach to computer science education.

Bio:

Marco Del Carmen brings over two decades of experience to the Computer Science department. His passion for technology and education has contributed to numerous innovative programs and research projects, aiming to empower students with practical and theoretical knowledge in computing.

Goals:

To foster a dynamic learning environment that encourages critical thinking and problem-solving. To stay abreast of the latest developments in computer science and integrate them into the curriculum.

Strengths:

- Expert in algorithm design
- Proficient in multiple programming languages
- Experienced in curriculum development

Weaknesses:

Marco is continually seeking to improve his engagement with online teaching platforms to enhance remote learning experiences.

Improvements:

Current initiatives include developing interdisciplinary courses that blend computer science with other fields of study and incorporating more hands-on project work into the syllabus.

Motivation

Incentive

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Power

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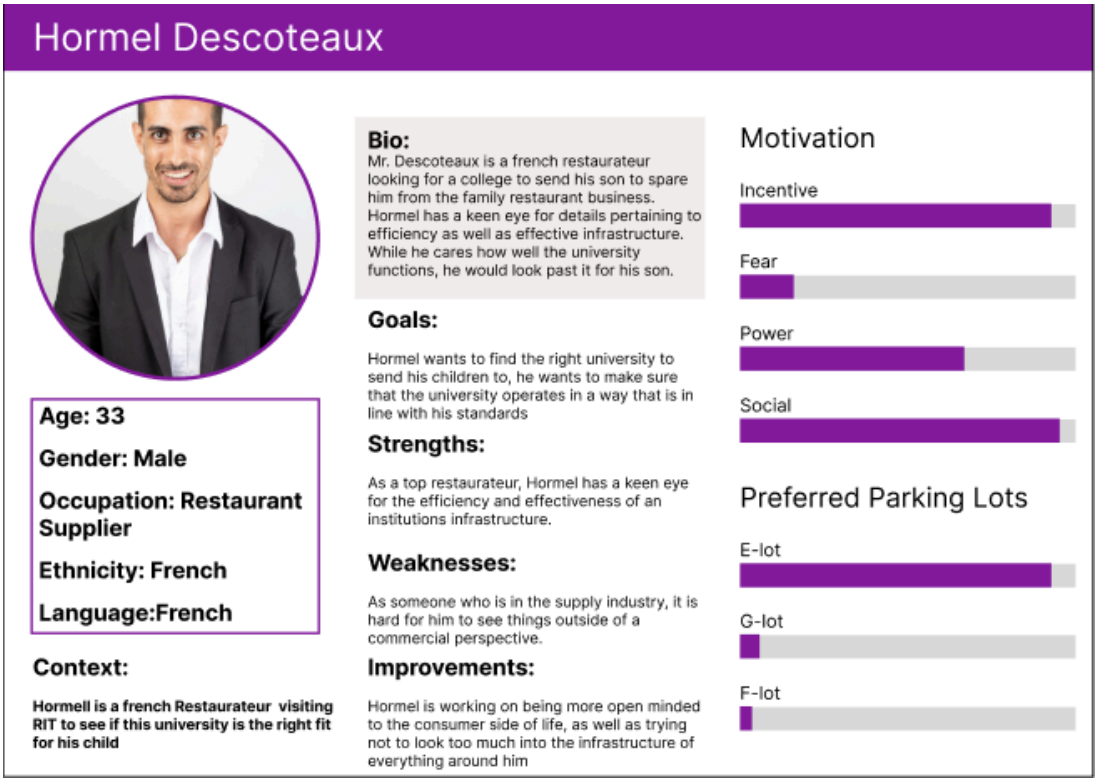
Preferred Parking Lots

F-lot

J-lot

H-lot

Source for Photo: https://www.shutterstock.com/es/image-photo/modern-office-portrait-stylish-hispanic-businessman-2101929370



Source for Photo: https://unsplash.com/photos/man-in-black-suit-jacket-YmQ8TrsieE4

Persona Scenario - Panera Unbun

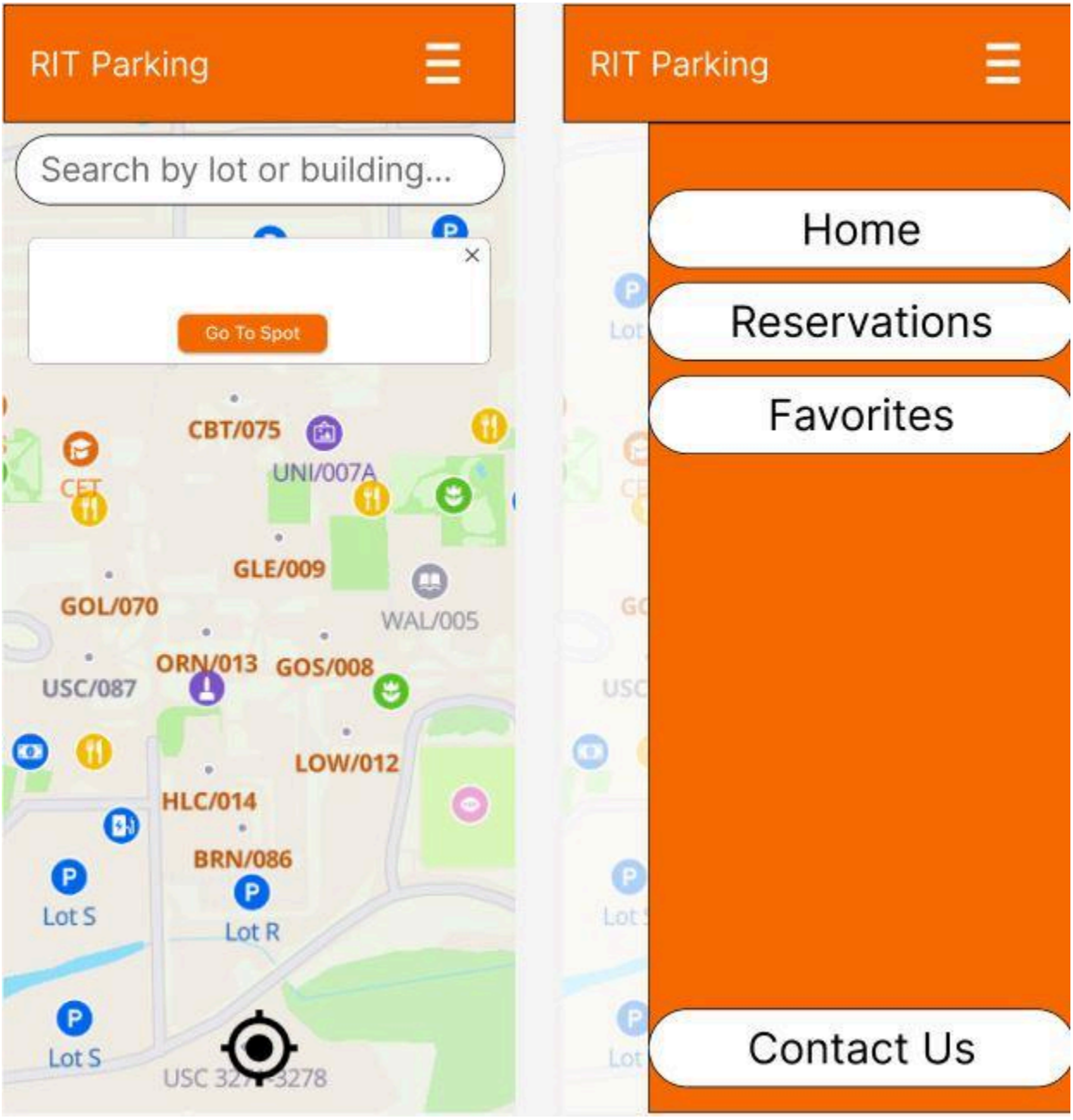
Panera Unbun is heading to her midday class at RIT, it is about 12:00 pm and she realizes that there's a good chance her normal parking lot, lot-S, is probably going to be either entirely full, or full to the point where it might be worth it to look into another parking lot. However, her second preference, lot-J, is on the other side of the campus, and she doesn't have enough time to check through both lots to find the best spot of the two lots. So, she uses the RIT mobile parking app to figure out the traffic and occupancy of the lots. When checking in to the app, she is met with a virtual map of RIT, with the lots filled in with either green, yellow, or red shadings to represent the occupancy of the lots. She has both lots saved as her primary lots, so she doesn't have to spend time looking through all of the arbitrarily named lots throughout RIT. Selecting either of the lots would take her to a details page, giving a rough, percentage-based estimate of how full the lot is, as well as a heat map of where the general parking distribution is throughout the lot. After figuring out that lot-S was not as full as she thought, Panera decides to drive there to park. Upon arrival, there's a small, directional-based scanner that tracks when a car enters or exits the parking lot. With this, Panera is able to find an available spot in her preferred lot and make it to her class on time.

Competitive Analysis

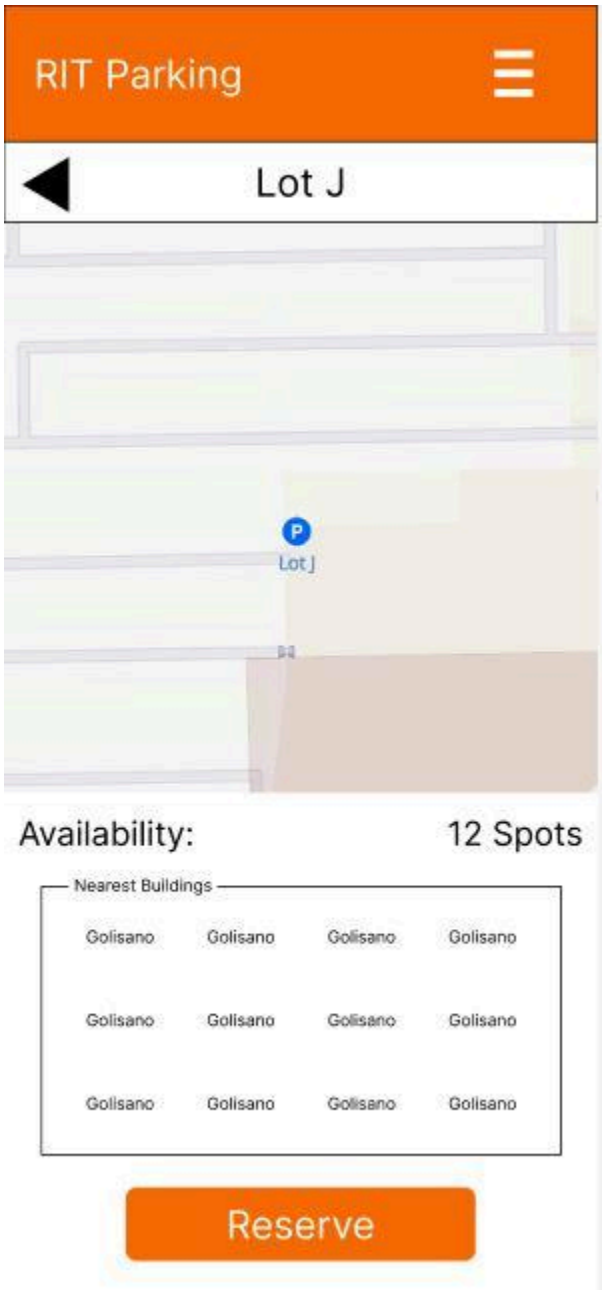
RIT does currently use Park Mobile for some on campus parking spots, but the functionality is more parking-meter based as opposed to the reservation system implemented in our app. Park mobile requires that you first find one of the select spots on campus registered in park mobile, then you pay to park there. Park mobile offers a map showing the locations of these spots in their app, but there’s nothing RIT specific to this app, giving us room to implement our Nearby-Buildings feature as well as occupancy and heat-map parking data.

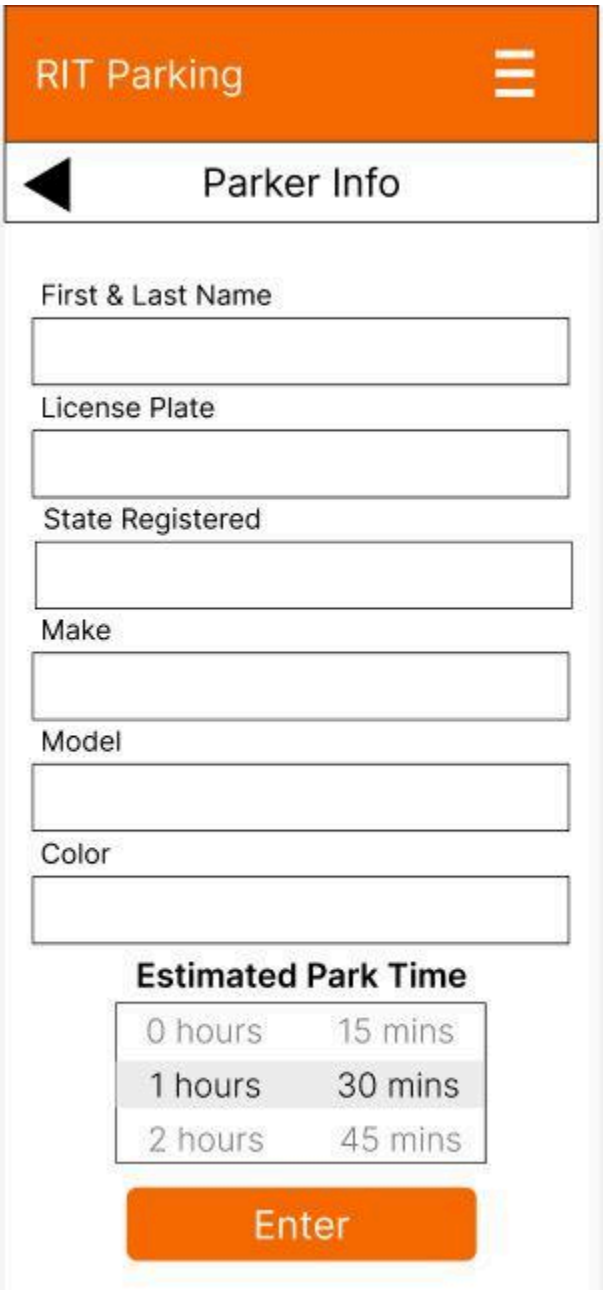
Wireframes

Homepage and Sidebar menu

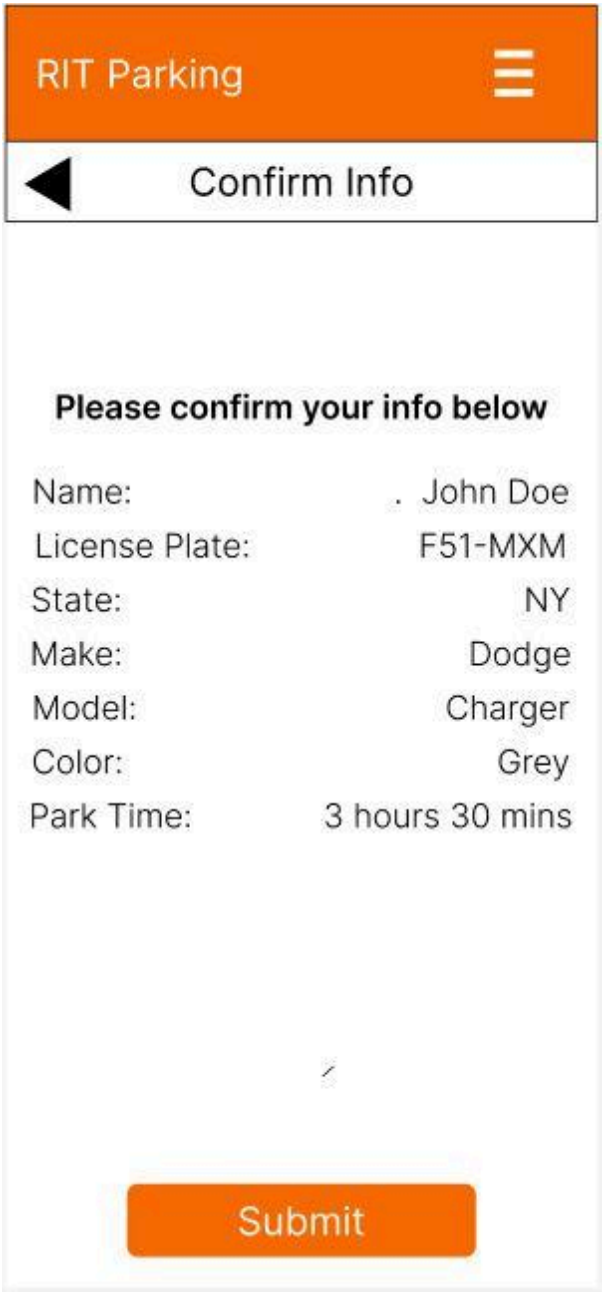


Lot page and Registration page

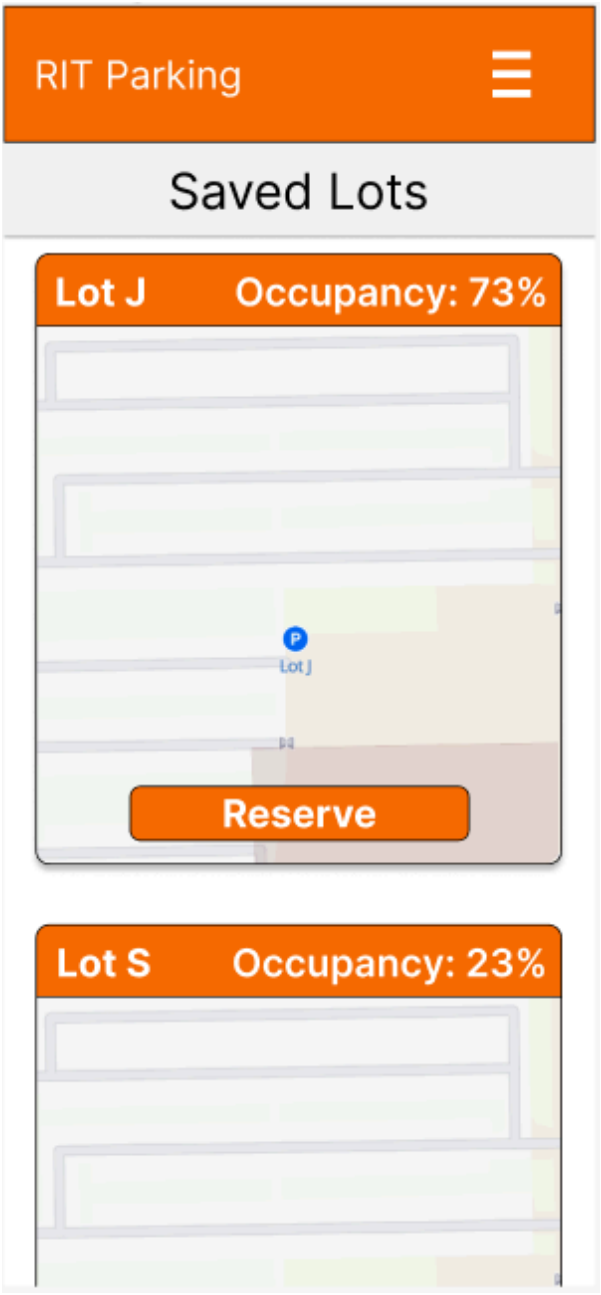




Confirmation and Success pages



Saved Lots page



Usability Tests

User 1: (Jill)

- For the Spot Info page, thought there was a lot of white space
    - could have an icon/image on that page to fill the space
- Icons are generally small and could be larger to help with interactivity
- Thought the design was somewhat bland but it is RIT-styled so it is what it is

User 2: (Will)

- Liked the flow of the app
- Liked that everything was RIT-branded
- Questions about how the infrastructure would be handled
- Talked about how figuring out what settings would be useful to have changed in the app

User 3: (Kyle)

- Good color branding with RIT
- Easy to get around, liked that you can favorite lots
- Had issues with clicking the menu tab
    - could be a technical issue (with prototype interaction in Figma)
- Used the Home navigation a lot
- Intuitive, exited the active reservations popup on the main page
- Could be helpful to include parking tickets as information to have
- Personally would not use it a lot, but could be helpful for other people
- Parking point perks for a guest
- Question on those who have longer commutes

User 4: (Brandon)

- More drawn to the search bar functionality rather than clicking a lot on the map
- Easy to use the navigation bar
- Question on getting occupancy of the parking lots
- Familiar design, similar to maps application (map, search bar, icons)
- Has the RIT white/orange branding but it is a little plain
- The sidebar menu is very easy to navigate
- If everything's working as intended, could be very useful; hear people complain about parking
- Would probably not use day-to-day, but could be useful for parts of campus that are unfamiliar
- All the buttons make sense, are pretty standard

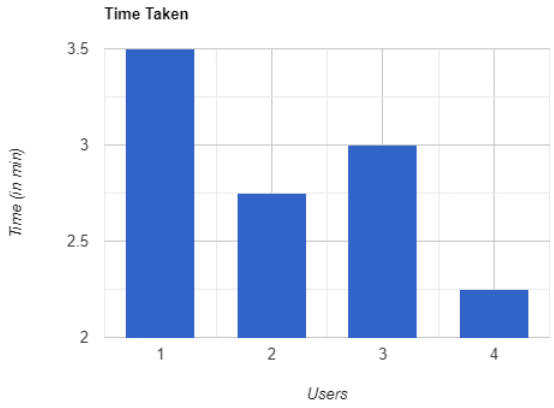
Data Summary

Number of people/groups tested: five users, tested independently, (not all included in previous section).

We were able to eliminate the functionality flaws that we had identified in our last round of testing. There was an overall consensus that the app was very 'RIT-branded.' The navigation system was easy to use and button interactions were standard.

There were some small points on the user interface aspect with sizing or filling up white space, along with other features we could implement in the future, like including parking tickets or having 'parking perk points.'

However, in general, for the concept and flash prototype, there was positive feedback. The entire flow of the application was easy to understand and efficient to use.



Final Conclusions

In conclusion, the Usability Tests were a great success for our team, we got a lot of useful feedback from the users despite some difficulties on the team side. The second day of testing went much smoother than the first thanks to the experience we got when running our first round of tests. With that, we were able to smoothly transition on the second day to a format that was much more friendly to the user and our team.

As for the application, there were still some small tweaks for UI design, and a lot of great points were brought up in further implementations we could have for the application in the future.

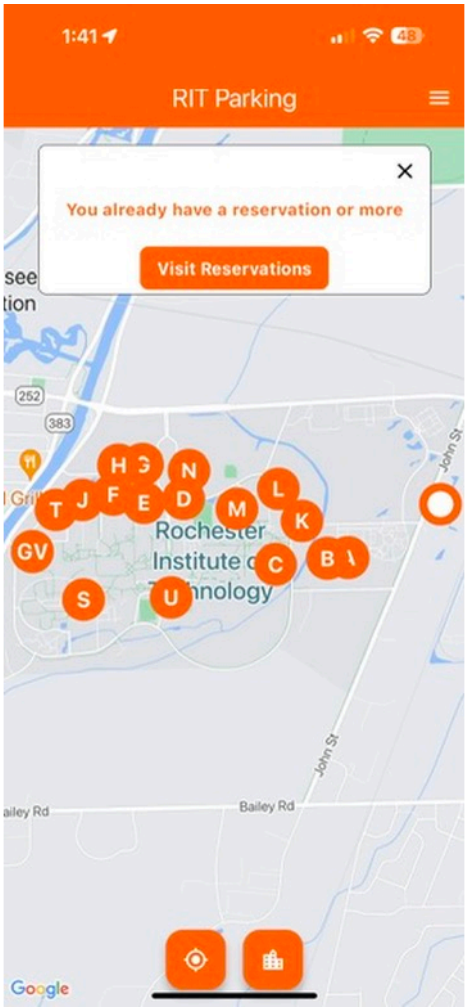
Final Modifications to the Prototype

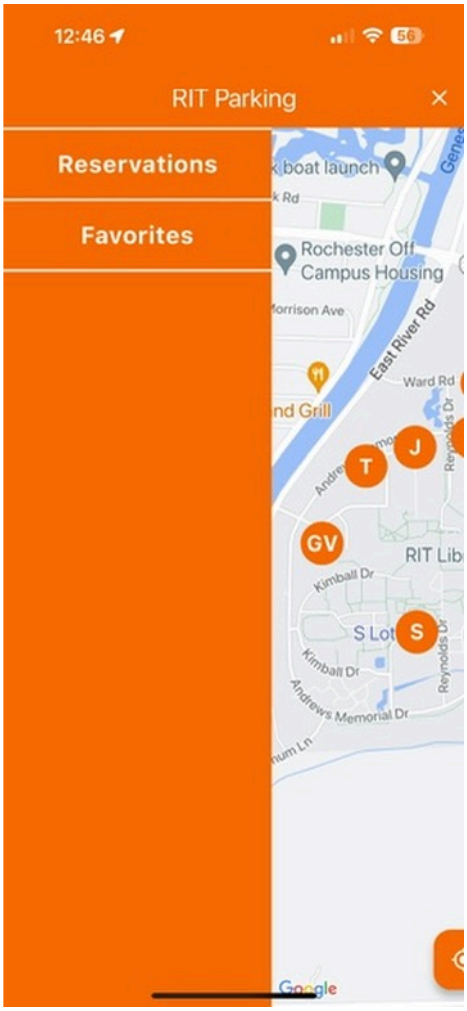
Based on the test results and data discussed, we identified the following final changes that needed to be made before releasing the Kickstarter. These changes included making the target areas for the interaction larger, as well as some of the physical aspects of the app to help with the impreciseness of mobile navigation. We also added some "Search Functionality" which was just

a little pop-down with one choosable option because we saw a lot of people going towards that area when first trying to navigate the app.

Final App Screenshots

Homepage & Sidebar menu





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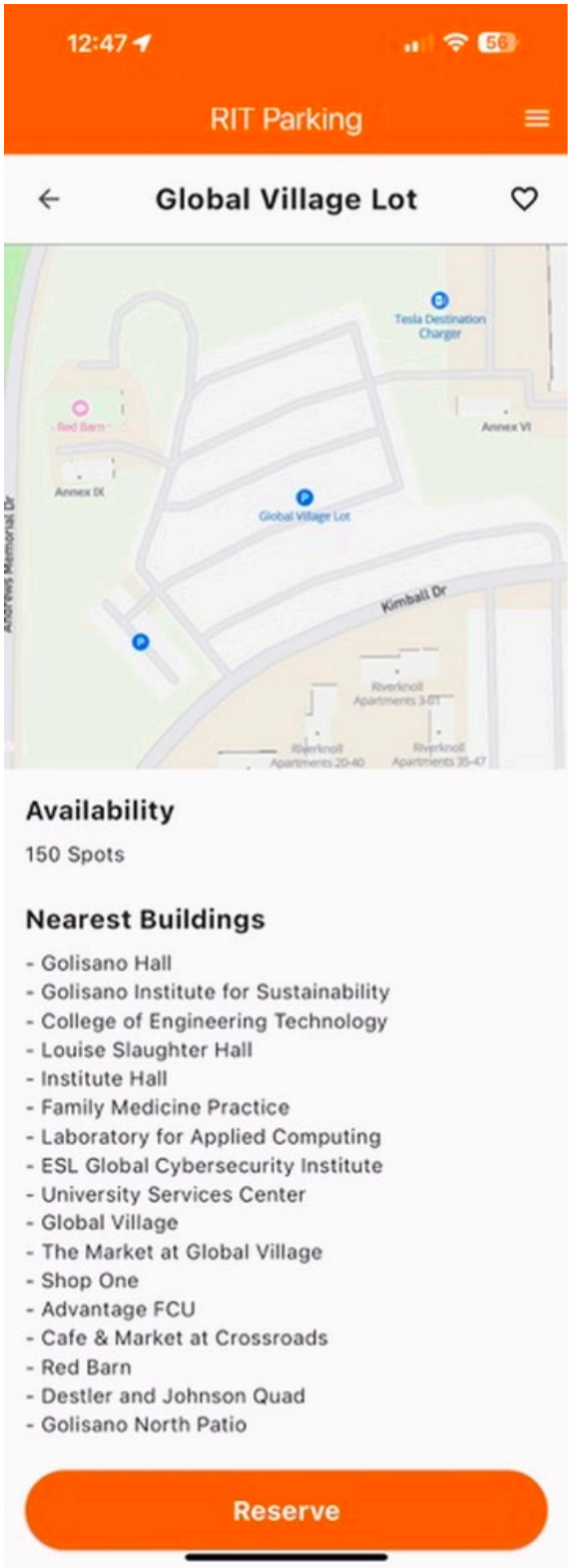
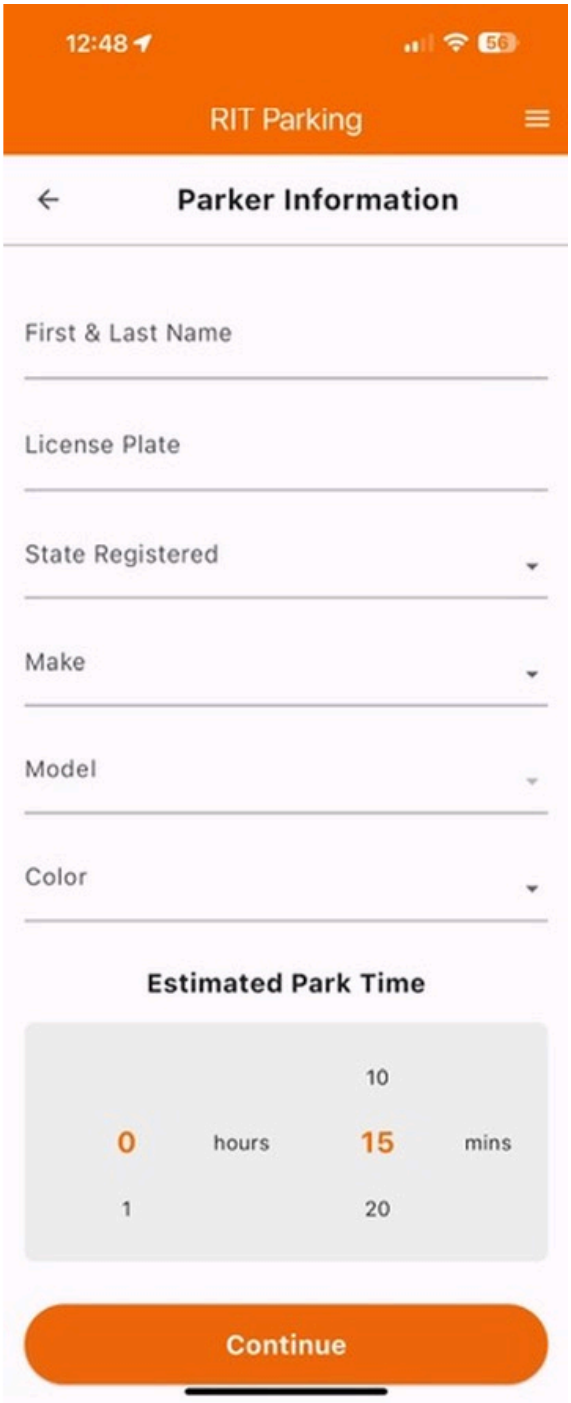
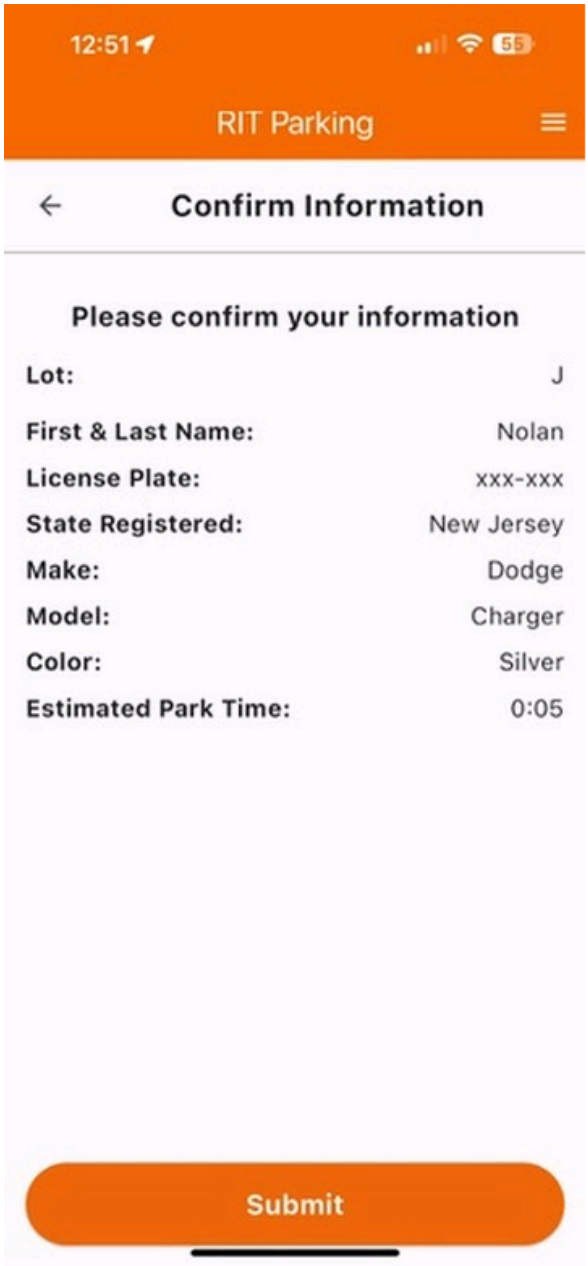
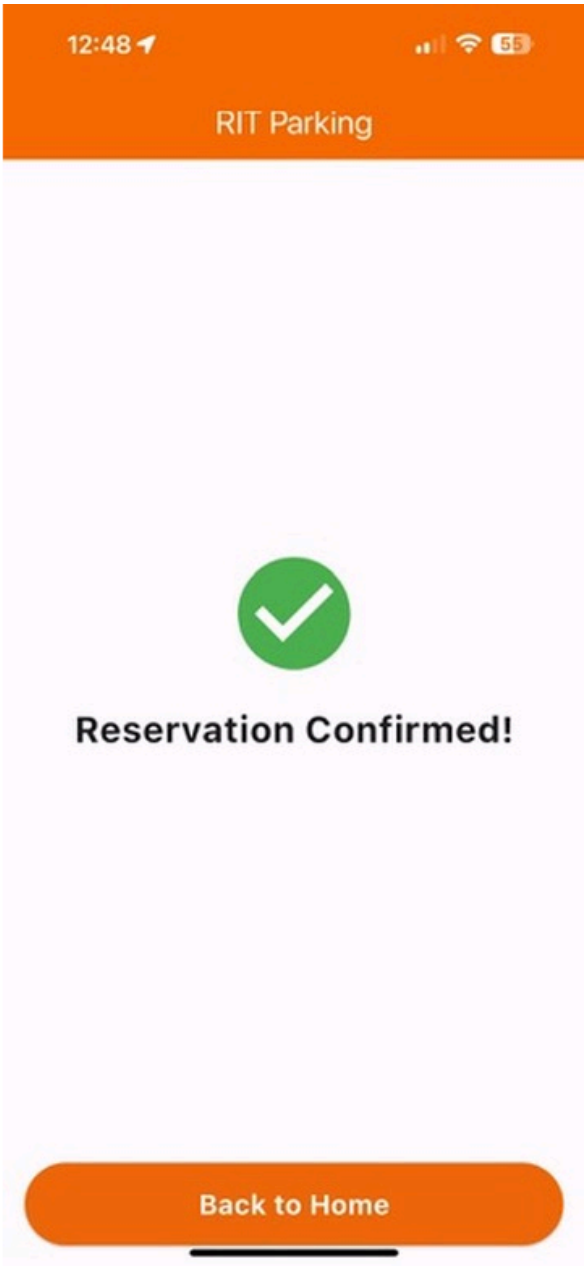


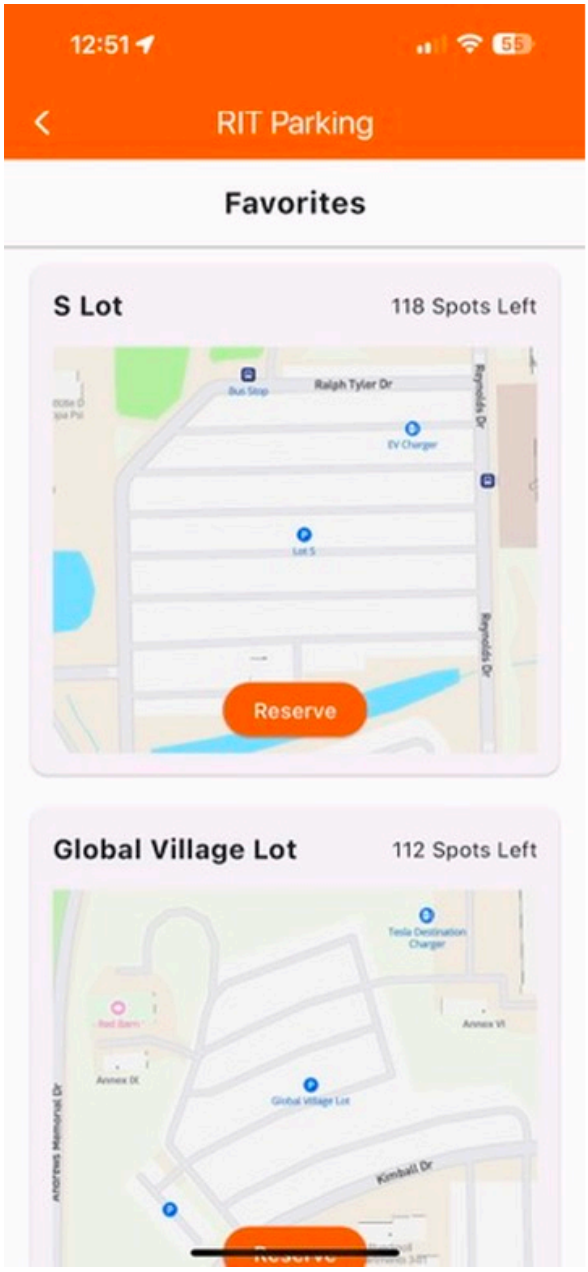


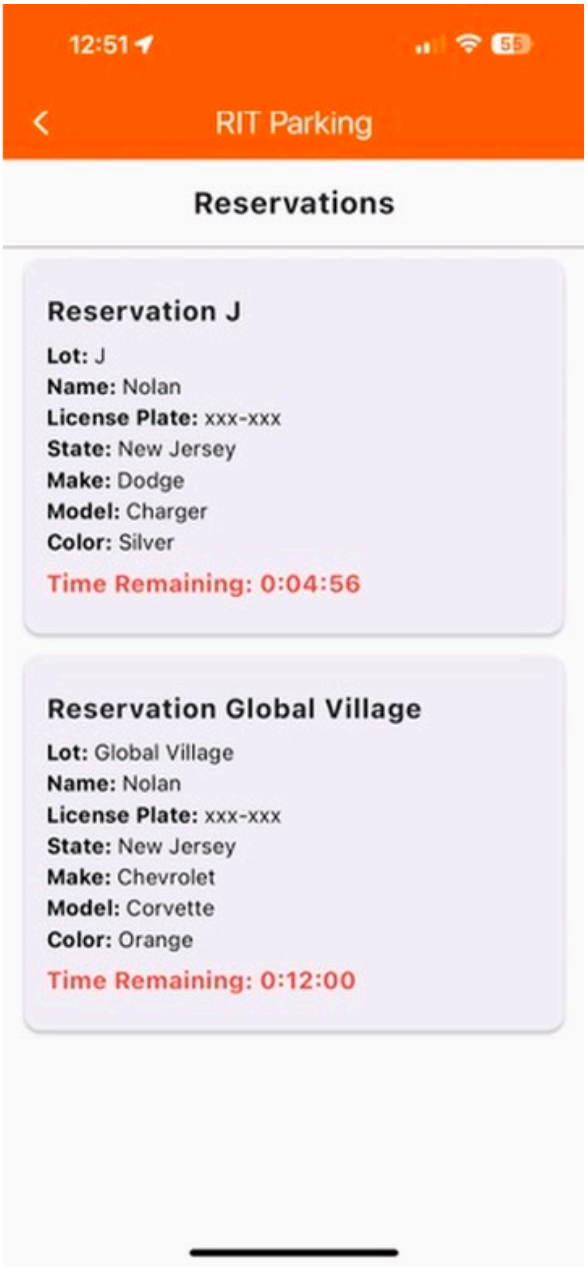
Confirmation & Success pages





Saved Lots & Reservations





Appendix:

Figma Staging file:
https://www.figma.com/file/eNOAy03PRhzmLDQgQOid4k/Hybrid-App-(Copy)?type=design&node-id=93-15&mode=design&t=vBWnqQXc2pQ0zPyV-0

RIT Parking Parking information page:
https://www.rit.edu/parking/