

CrackerJacks

A solution to dining
at live events

SMAD 307 Final Project

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1. Executive Summary

This project designed a Skip-the-Line app to solve long wait times at live events using an iterative design process. User research, interviews, and testing were conducted to build low and high fidelity prototypes. The app's design can still be improved by working on location settings, check out methods, and typography. Challenges were faced with design consistency and team workload. Future work includes improving location information, making the app more intuitive and user-friendly, and incorporating search bars into the design. Continued testing and feedback will lead to a better user experience.

2. Problem Statement

We as a group decided to create an app that would allow users to get food seamlessly at live events. The idea came from us all having a hate for long lines and a love for sports games. We decided to create CrackerJacks as a design solution to this issue. No one wants to spend their limited time at a live event just waiting in line and missing out on the action.

3. Related Work

During our research of related works, we discovered valuable information that will aid in solving our design problem of providing quick food service to live event attendees who cannot afford to wait and miss the event. Our primary competitor is FastFood, while DoorDash, Uber Eats, GrubHub, and Chick-fil-A mobile app serve as secondary resources of information. Our competitors have yet to solve certain issues that could be advantageous to our app's development. For instance, FastFood only has a mobile app, and there is no webpage option to order food, thereby excluding potential users who cannot download the app. By incorporating a webpage feature in our design, we can expand the user pool to include both app and web users. Another problem we discovered during our analysis of competitors is the absence of precise time estimates on food preparation. Solving this problem would make our app superior to competitors. Furthermore, we observed that none of our competitors have a directions feature to get the food. By incorporating this feature in our app, we can offer consumers a novel way to interact with our app and provide more information about their food.

Design Process

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4. Design Process

The design process for the “Skip the Line” app followed a user-centered approach with several stages and iterations. It began with defining the design problem and conducting a competitive analysis to identify existing solutions and gaps in the market.

Next, user research was conducted using various techniques such as interviews, contextual inquiry, journey maps, personas, and storyboards to gain a deeper understanding of the target audience, their needs, pain points, and behaviors related to waiting in lines at live events. The findings from the research were used to inform the design requirements and help shape the app’s features, functions, and interface.

The next stage involved creating a task flow diagram to map out the user’s journey and envision the app’s flow and functionality. A low-fidelity prototype was developed and tested to gather feedback and identify areas for improvement. Based on the feedback, a high-fidelity prototype was created, incorporating the changes suggested by the testing.

Finally, the high-fidelity prototype was tested again to evaluate the app’s overall user experience and identify any remaining issues or areas for improvement. The iterative design process allowed the designers to refine and improve the app’s features, interface, and functionality based on user feedback and testing results. This approach ensured that the app was user-friendly, effective, and met the needs of its target audience.

4.1. User Research

We conducted interviews, and contextual inquiry. For the interviews, we prepared questions, targeted the different types of users that would use our product, and asked the user. The eight individuals selected for the interview were selected by knowledge on what events they attend. We selected a range of people who don't normally attend events to those who go to as many events as possible, with a variety of different events.

We also made sure our responders had experience with mobile ordering, but also made sure that we had at least one individual who didn't get an alternate perspective. We couldn't get in contact with anyone who works live events, however will continue to look for individuals to give us the insight for these users.

Interview Questions:

- How often do you go to live events?
- Why would you order food at a live event?
- If you get food, how much time do you spend in line at a live event?
- How do you plan your dining experiences around your live events?
- Why is it important for you to be at a live event?
- How would you describe the value and quality of food at live events?
- Would having a mobile ordering option be useful for you?
- What have your experiences been while ordering food through an app?
- Can you tell me about your experiences at the last live event you have attended? What went right? What went wrong?
- Why would waiting in line be a good or bad experience?
- How do you decide what to eat at a live event?
- Do you experience problems while trying to order food?
- Can you tell me a story about when you went to a live event?
- How do you feel when you miss out?
- What did you eat at the last live event you attended? Why did you eat it?
- How often do you use your phone at live events?

Interview Procedure:

The interviews would take place at the individual's house or a neutral location. All individuals consented to participating in the interview and to any recordings that were necessary. One individual was the subject of a contextual inquiry, where we joined them at a James Madison University Men's Basketball game to understand their experience inline and using the online ordering system they provide

Our major findings:

Everyone who we interview attends at least one live event annually, showing general interest in live events. We found that everyone has their own individual plans when it comes to eating at games. Some avoid concessions due to long waits, while others use halftime to go get food. When getting food, everyone describes the wait as long. Some said that they had their experience impacted, whether it's returning to the band or feels upset missing out.

All but one of the individuals we interviewed have used a mobile ordering app for food outside of a live event. The most common ones were meal delivery apps such as Doordash, but individual restaurant apps were also cited as frequently used. They described their experiences with the app as "convenient," "safe" and "fast compared to waiting in line," but also "expensive" and "not accurate with the timing." Only one individual had used a similar app to the product we are designing. Half of the group cited wait time as a factor in deciding food, and the majority included price as a factor. The majority do not plan on eating at live events unless necessary or just for light snacks, but not a full meal.

4.2. User Journey Map



Ronny:

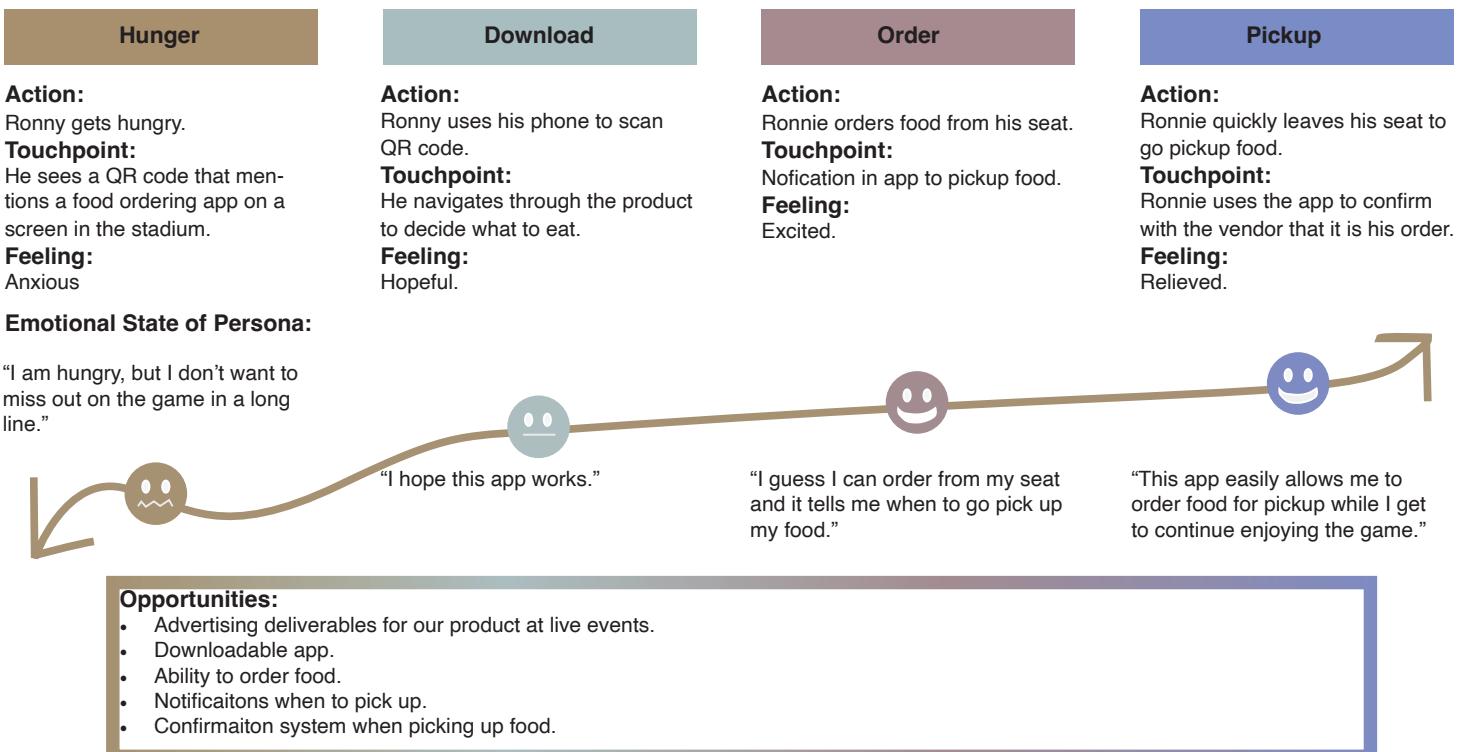
Scenario:

Ronny is a frequent attendee of basketball games at JMU but often finds himself missing out on the pivotal moments of the game due to long waiting times in line for food. He is uncertain about how to expedite the process and wonders if there is a solution to his problem.

Goals and Expectations:

- To save time while getting food at basketball games.
- Ability to order food without leaving his seat.
- Ability to see what he can order.
- Ability to not miss out on the game.

Stages:





Haylee:

Stages:

Download

Action:

Haylee checks the venues website to see the food options.

Touchpoint:

She sees that the concert is partnered with this app called "CrackerJacks".

Feeling:

Unsure

Emotional State of Persona:

"I wonder If I can afford to eat at the concert this weekend?"

Browsing

Action:

Haylee sees the vendors of the app.

Touchpoint:

She is able to sort them based on price.

Feeling:

Hopeful.

Order Ahead

Action:

Haylee creates an order ahead of time for what she would like to get.

Touchpoint:

The app has a plan ahead feature for future orders.

Feeling:

Assured

Use

Action:

Haylee attends the concert.

Touchpoint:

She uses the app to seamlessly order food.

Feeling:

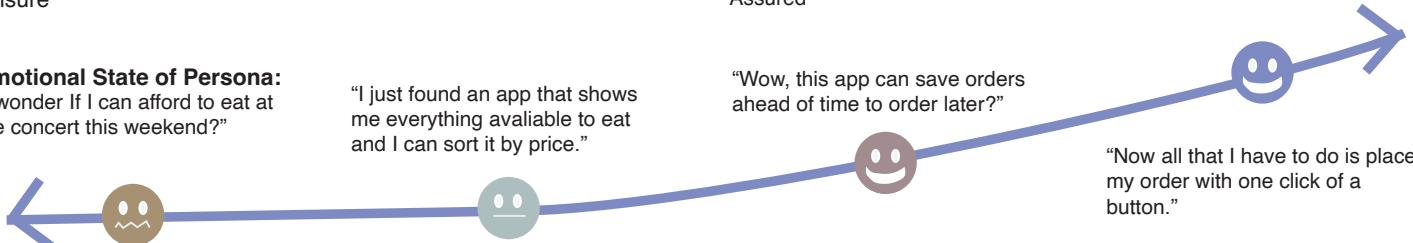
Confident.

"Wow, this app can save orders ahead of time to order later?"

"Now all that I have to do is place my order with one click of a button."

Opportunities:

- Browsing capability with filters for user to decide what to get.
- Ability to see menu.
- Ability to save an order ahead of time for planning.
- Payment method.



4.3. Personas

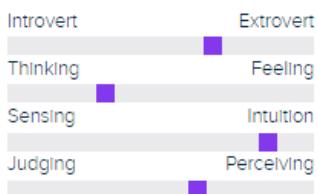
Ronny Leno



"Who doesn't love rooting for your schools' team"

Age: **21**
School: **JMU**
Status: **In Relationship**
Location: **Harrisonburg, VA**
Character: **Primary**

Personality



Goals

- Completing his bachelor in Finance
- Getting his dream job after college
- Help his family financially

Frustrations

- Lines are too long when getting food at sports events
- Hates missing out on an experience
- Food is not good at stadiums and venues

Bio

Ronny is a junior at James Madison University studying finance. He was born in Florida but lived mostly in NoVa for the majority of his life. One of his favorite things to do before attending JMU was to go to sports events with his dad on the weekends. He soon goes into baseball in high school because of that and still plays on an intermural team in college. He also works hard and is one of the top students in his grade.

Last 5 Live Events

Live Stand Up Show

Baltimore Orioles Game

Lil Baby Concert

JMU Football Game

JMU Basketball Game

Needs

- Easy and Fast way to order food without leaving his seat
- Able to see every option the venue has for food
- To not miss any moment he went and paid for

Mobile Ordering Experience

- Doordash
- Uber Eats
- Grubhub
- Chick-Fil-A App

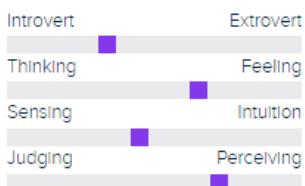
Haylee Christine



"Live in the moment is my number one rule in life"

Age: **22**
School: **JMU**
Status: **Single**
Location: **Harrisonburg, VA**
Character: **Secondary**

Personality



Goals

- Graduate with a 4.0 in Biology
- Become her sororities president
- Fine her soulmate

Frustrations

- Gets hungry at events but doesn't order because of poor quality food
- Food can be expensive
- Scared to miss a big moment

Bio

Haylee is a sophomore at James Madison University looking to pursue her degree in Biology. She lived in Richmond Virginia before attending JMU. She also joined Tri-Alpha her freshman year and loves every moment of it. Saving money is her biggest concern and tries to pay attention to what she buys. She is also quite introverted but can be extroverted when needed to be, she doesn't really go out but if her sorority sisters want to see an event, she follows to connect with them better.

Last 5 Live Events

JMU Football Game

JMU Football Game

Taylor Swift Concert

SZA Concert

VT Basketball Game

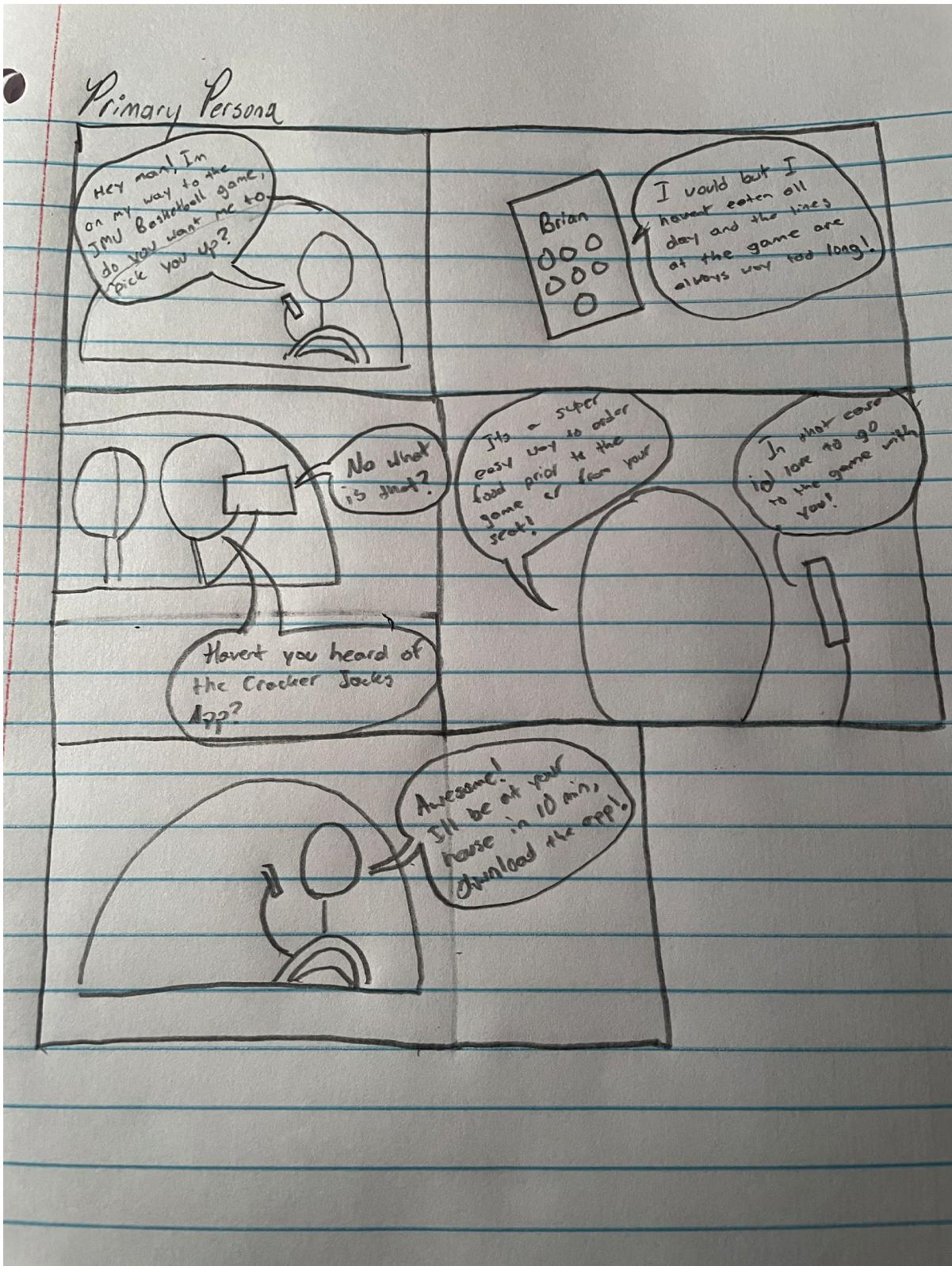
Needs

- Better food ordering
- Better alternatives than waiting in line
- See what food is available at the event

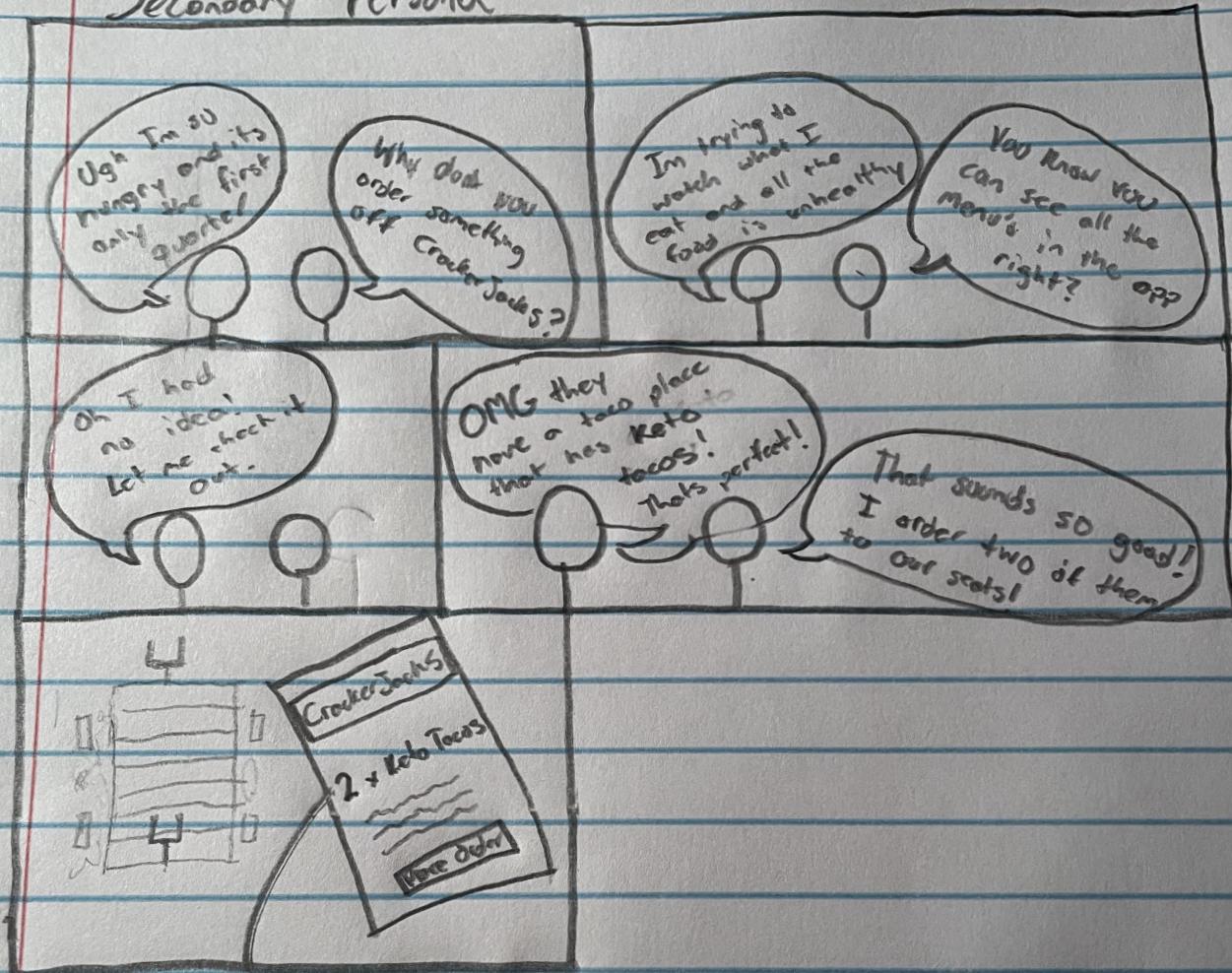
Mobile Ordering Experience

- Doordash
- Postmates
- Starbucks App

4.4. Storyboards



Secondary Persona



4.5. Design Requirements

The requirements for this app include:

- Easy to navigate app and order food.
- Have reasonable pricing for customers.
- Menus with pictures and nutrition information.
- The ability to choose different concession locations depending on user input.
- Provide a reliable and accurate time to when the food will be available for pickup, as well as a notification when it is.
- Have a built in payment system, including campus dining plans.
- Provide the user with an easy-to-understand guide on how to pick up food.

Design Solutions

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5.1. Idea Generation

To make goals for the app, we started with creating several ideas to solve the solution of dining at live events. Some of these ideas were more intuitive than others, but we wanted to get as many different perspectives on the problem.

MORGAN, KEVIN, NATE, AND BRADY				
10 ideas from designs that already exist in the world, whether available as products, described as in research papers, or elsewhere.				
LUNCHBOX	EATING BEFORE LIVE EVENT. Source: RAVEDOCTOR	GET FOOD AT LIVE EVENT AND WAIT IN LINE. Source: THE CONCESSION STAND	SHARE FOOD DURING LIVE EVENT. Source: FRIEND	EAT AT HOME AFTER LIVE EVENT. Source: HOME
NOT GET FOOD Source: NONE	GET FOOD FROM WALKING VENDOR. Source: HUMAN INTERACTION	LEAVE LIVE EVENT TO GET FOOD. Source: ACROSS STREET	BRING SNACKS Source: GRANOLA BAR	PAY SOMEONE TO GET YOU FOOD. Source: FRIEND
10 ideas you think does not yet exist in the world; these should be ideas you thought of yourself				
MOBILE ORDER AT LIVE EVENT. Source: GOURMET	PEOPLE DELIVER FOOD TO YOU IN STANDS. Source: DELIVERY PERSON	DRONE DELIVERY. Source: DRONE	PACK A KITCHEN. Source: BACKPACK	3D PRINT FOOD Source: 3D PRINTER
DINE IN SERVICE INSTEAD OF IN PERSON. Source: GOURMET	TELEPORT FOOD TO PEOPLE	TELEPORT PEOPLE TO FOOD	REWIND THE LIVE EVENT → IN PERSON	PAUSE LIVE EVENT IN PERSON.

We then took all of the ideas and rated them in how new, useful and feasible the ideas are on a scale of 1 to 10. This is how they ranked:

Idea	New	Useful	Feasible	Total
-Pack a meal before event	3	7	4	14
-Eat Before Event	1	5	9	15
-Get food in line at event	2	7	7	16
-Share food	3	5	8	16
-Eat at home after event	1	4	10	15
-Don't get food	1	1	5	7
-Order from walking vendor	3	8	6	17
-Leave event to get food	3	1	2	6
-Bring snacks	2	7	6	15
-Pay someone to get you food	3	10	7	20
-Mobile order pickup	9	10	8	27
-People deliver food	7	7	7	21
-Drone deliver food	10	8	2	20
-Pack a kitchen	10	5	1	16
-3D print food	10	5	1	16
-Dine in service from seat	8	7	3	18
-Teleport food	10	10	1	21
-Teleport people to get food	10	8	1	19
-Rewind live event	10	5	1	16
-Pause live event	10	6	1	17

Highest scores: Mobile Order (27), People Deliver Food (21)
Teleport Food (21)

5.2. Low-Fidelity Prototype

The low-fidelity prototype received valuable feedback, both from Professor Guo and the participants during usability testing. While some feedback was expected, there were also unexpected insights that revealed the need to redesign certain aspects of the app. The main design flaws identified through the feedback were related to navigation and layout issues on some screens. Based on this feedback, the team now knows what needs to be fixed and improved for the high-fidelity prototype.

The feedback list includes suggestions for improvements in various areas of the app, such as creating an account, selecting a location and venue, ordering food, and viewing and getting food. The feedback suggests improvements such as adding a back button, displaying the name and password on the same page, adding a confirmation page after creating an account, keeping the search bar at the top of the page, adding a list of venues to select from, adding more information on venue pages, adding icons for each food category, highlighting the current tab, displaying the location consistently, redesigning the toppings menu, changing the wording/options of adding to the cart, moving the back button to a different location, and providing a better seat choosing feature.

The feedback also highlights the need to simplify the task flow, redesign the navigation options when reviewing and picking up orders, and make the app more user-friendly and accessible. Overall, the feedback provided valuable insights that will help improve the app's design and usability for the high-fidelity prototype.

5.3. High-Fidelity Prototype

We received valuable feedback on our low-fidelity prototype and made several changes to the high-fidelity version. The high-fidelity prototype supports key tasks such as creating an account, selecting location, browsing food options, customizing orders, choosing payment and pickup methods. To optimize the user experience, we made various changes, including improving the layout, reducing the number of buttons, and adding a backwards button. We also added a confirmation page and provided more information on venue selection.

Regarding browsing food options, we added icons to each category, highlighted the current tab, and simplified the navigation layout. We also simplified the names of buttons for primary task flows. Customizing orders also received a redesign, with the addition of components to help users select their desired specifications.
picked up.

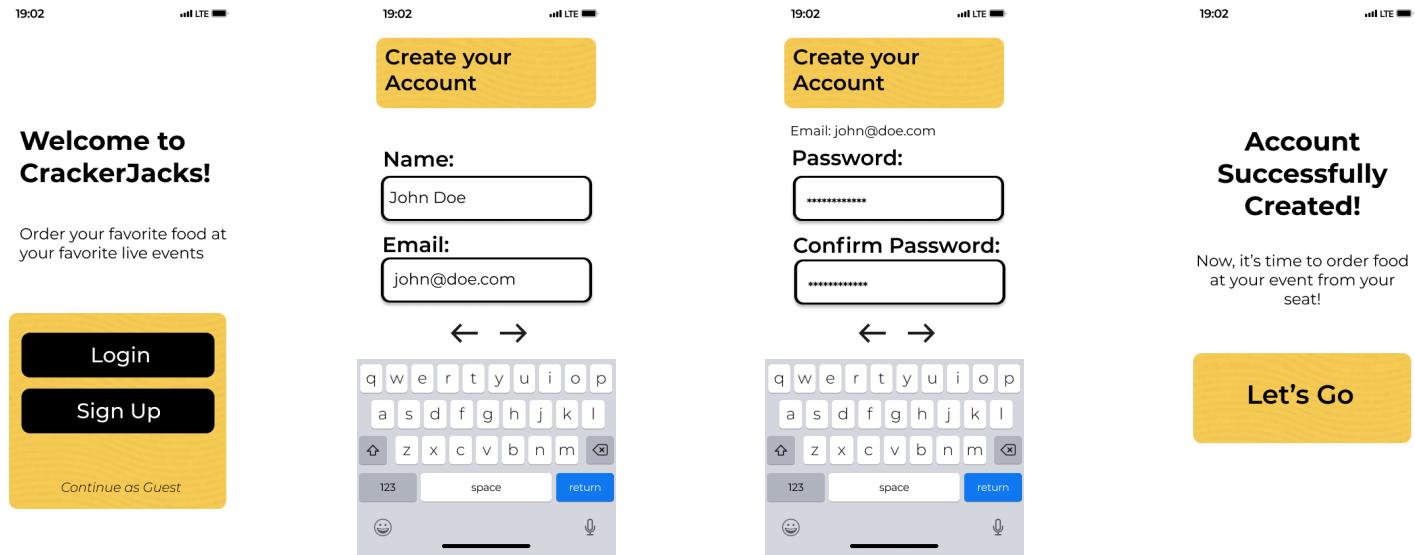
For payment methods, we added scroll wheels and divided the process into three sections: confirming the order, selecting a seat, and entering payment information. We also added an “after delay” effect to show the user what the transitions would look like when their food is ready to be picked up.

Throughout the project, Morgan focused on prototyping interactions and ensuring a good task flow experience. Kevin worked on design consistency, scroll bars, and information consistency. Nate focused on fixing the navigation bar, app formatting, and prototyping interactions. We collaborated to make significant improvements to the interface, resulting in a smooth and user-friendly experience for our users.

Task 1: Create an Account

Dylan is at a venue and is starting to get hungry. He wasn't to get something to eat without much trouble.

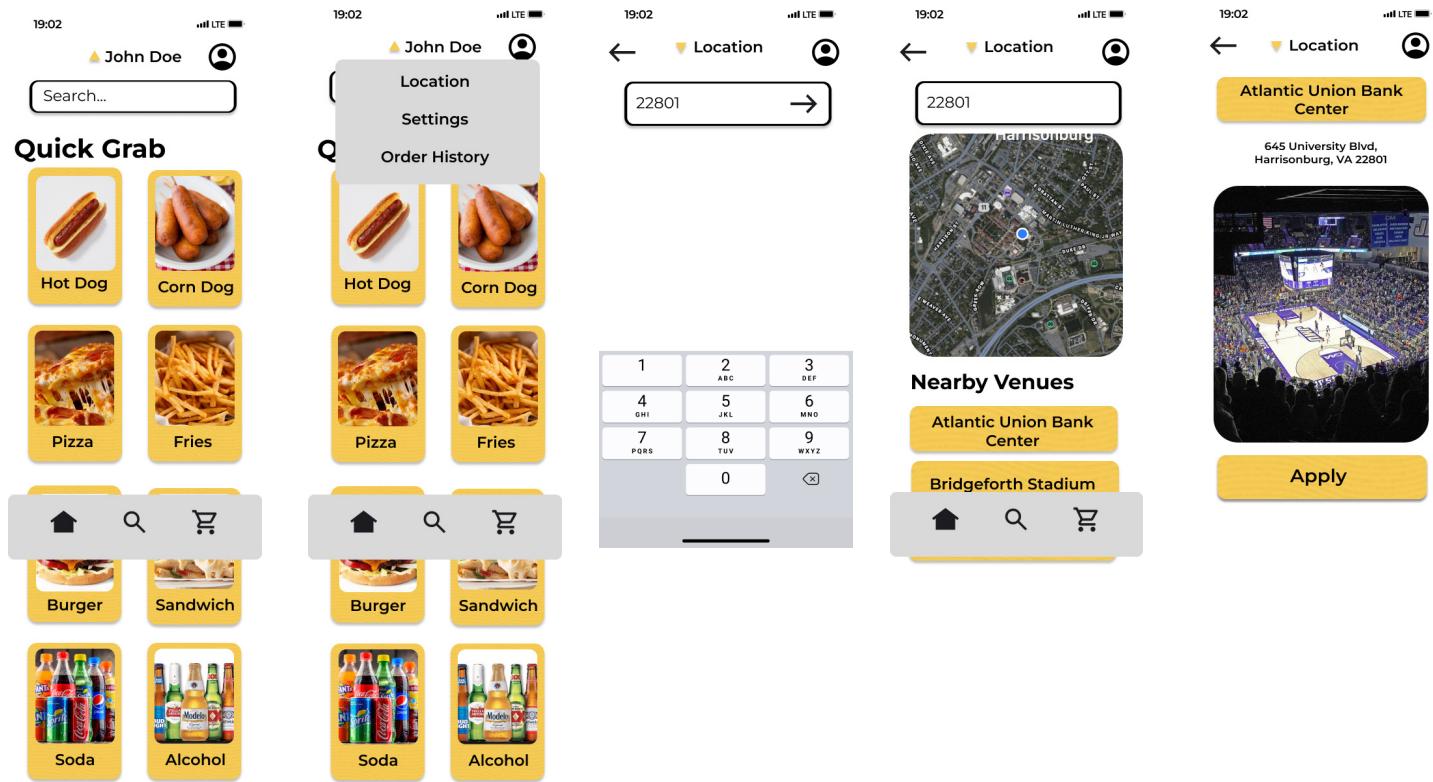
Dylan downloads the Cracker Jacks app to meet his needs and opens the app for the first time.



Task 2: Set Location

Dylan is traveling to a venue that is not in his home state and wants to see what options are there to eat.

Dylan used the Cracker Jacks app and wants to change his location and find his venue.



Task 3: Order Pepperoni Pizza for Delivery

Dylan is at a venue for an event he is very excited about. He does not want to wait in line at concessions but wants to eat.

Dylan opens the Cracker Jacks app and finds available in-seat delivery options at the venue. He decides to order food and stay to watch the event instead of waiting at concessions.

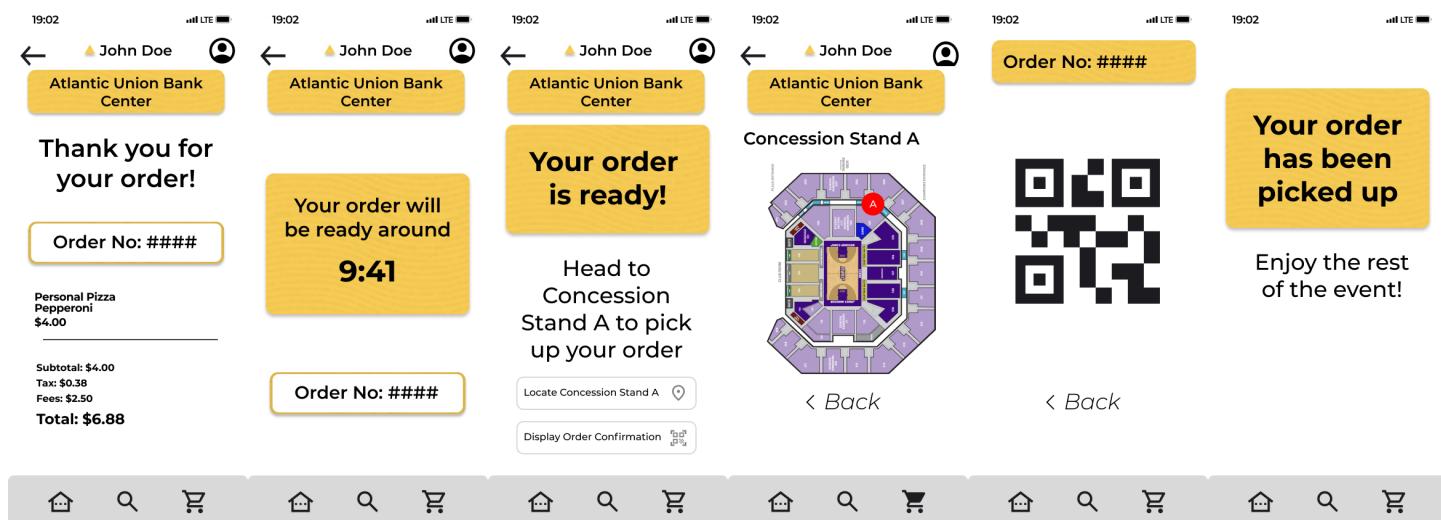
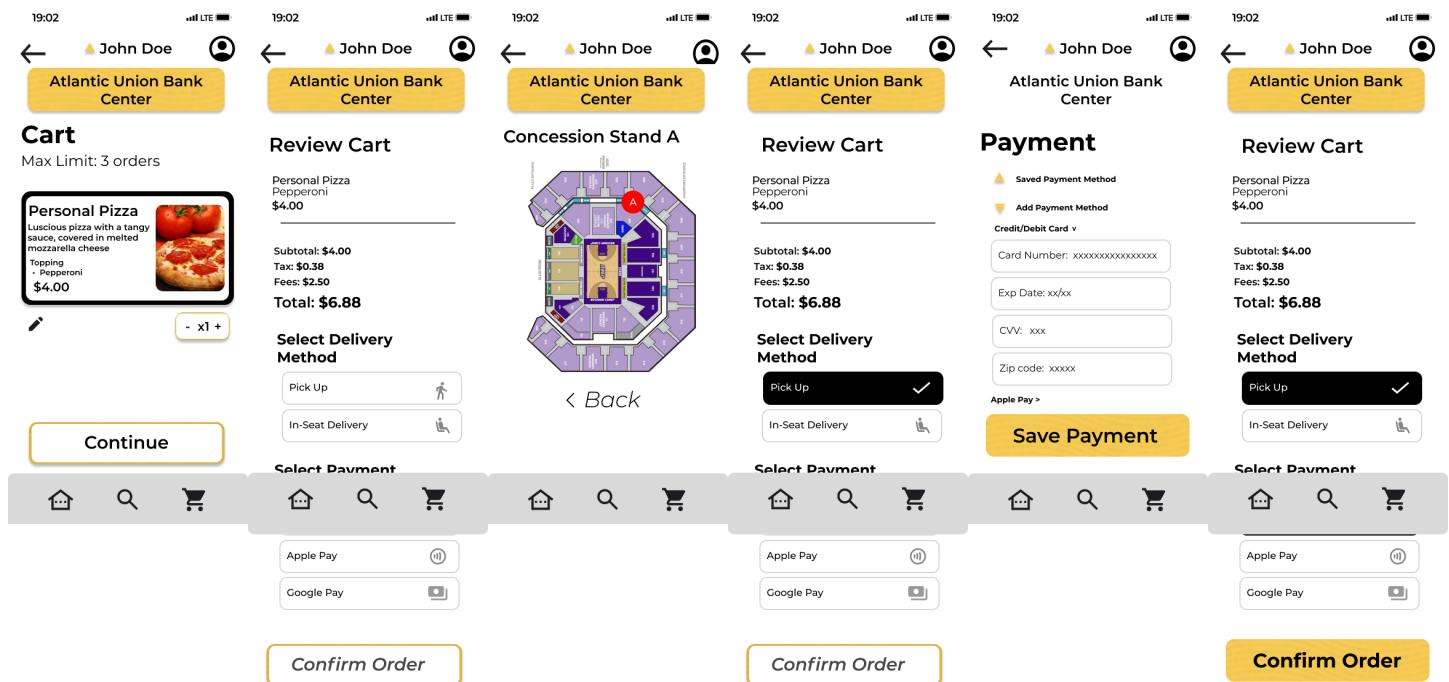
The screenshots illustrate the process of ordering a pepperoni pizza for delivery through the Cracker Jacks app:

- Initial Screen:** Dylan is at the Atlantic Union Bank Center. The app shows a "Quick Grab" section with items like Hot Dog, Corn Dog, Pizza, and Fries. A "Search..." bar is available.
- Food Selection:** Dylan selects the "Personal Pizza" option. The screen shows a description: "Luscious pizza with a tangy sauce, covered in melted mozzarella cheese" and a price of \$4.00. An image of the pizza is shown.
- Toppings Selection:** Dylan adds pepperoni as a topping. The toppings menu includes Cheese, Pepperoni, Sausage, Olives, and Mushrooms. The total price is now \$4.00.
- Cart View:** Dylan views the cart, which contains one Personal Pizza with Pepperoni. The subtotal is \$4.00, tax is \$0.38, fees are \$2.50, and the total is \$6.88.
- Delivery Method:** Dylan chooses "In-Seat Delivery".
- Payment Selection:** Dylan selects "Apple Pay" as the payment method.
- Review Cart:** Dylan reviews the cart again, confirming the order details.
- Confirmation:** Dylan confirms the order, and a message says "Thank you for your order!"
- Order Summary:** Dylan sees the order number (####) and the breakdown: Personal Pizza Pepperoni \$4.00, Subtotal: \$4.00, Tax: \$0.38, Fees: \$2.50, Total: \$6.88.

Task 4: Checkout and Pick Up Food

Dylan wants to use the Cracker Jacks app to order food and doesn't want to miss the event while waiting at confessions.

Dylan places his order though the Cracker Jacks app and is proceeding to get his food.



5.3.1. Participants

The CrackerJacks project involved a group of five participants who are all college students, ranging in age from 19 to 22 years old. Of the five participants, three are male and two are female. All participants are considered to be big tech users, with a frequent use of their phones for social media while attending live events. Additionally, some participants use food ordering apps such as Grubhub, Doordash, and Uber Eats.

During the usability testing phase, it was found that the method used to set the app's location was placed confusingly. Participants looked to the search bar instead of the dropdown menu to set their location, where the pathway was located. Additionally, there was no clear indication that users should enter their zip code when prompted to set their location. Furthermore, it was observed that some participants did not notice the settings for seat location and payment method, suggesting that adjustments to the visibility of these settings in the app design might be needed.

In conclusion, the CrackerJacks project involved a group of five college students, all of whom are big tech users and regularly attend live events. Usability testing highlighted issues with the location-setting method, as well as potential visibility issues with certain app settings.

5.3.2. Testing Methods

To begin the testing process, we would first provide the tester with a brief overview of what the testing would entail. Initially, we would ask the tester a few questions to gain a better understanding of their user profile. After gathering this information, we would then proceed to walk the tester through our app design, asking them to complete some tasks and providing follow-up questions along the way.

During the usability testing, we employed a task flow approach. We instructed the user to complete specific tasks while observing their progress and taking note of any issues or areas for improvement. Before each task, we asked the user to think out loud to gain insight into their thoughts and reactions to our prototype.

The tasks that we had the users run through included creating an account, setting the venue location to Atlantic Union Bank Center, ordering a pizza and placing it in the cart to check out, and finalizing the checkout and payment process.

To capture the testing process, we utilized a laptop and video recording software, such as Zoom. We conducted some of these tests in a quiet setting, either in our classroom or another distraction-free location.

After each testing session, we asked the user questions related to our observations and to determine any issues or concerns with the app design. Our focus was on identifying any problems with the interface and user experience.

To measure the success of our testing, we employed both quantitative and qualitative measures. For example, we found that the success rate of users selecting the location from the dropdown menu on their first try was 0%. Additionally, during the second task, users seemed confused about what to do. Despite these issues, users were generally confident when completing the other tasks.

Finally, to evaluate the usability of our app design, we utilized the System Usability Scale (SUS). We asked users to rate our app design based on 10 different criteria. On average, our app design received a score in the range of 75-85 points, which equates to a B grade. While we did some good things, there are still areas for improvement.

5.3.3. Findings and Recommendations

Our findings highlighted the importance of thoughtful button labeling and proper placement of information in the app's navigation. In particular, we noted that users consistently struggled with setting their location on our app. They would initially look at the search bar instead of the drop-down menu where we placed it.

Another key finding was that users' success rate in checking out was lower due to issues with setting their seat location and payment method. Many users would select the checkout button immediately, without entering the necessary information.

One issue we identified was the lack of a prompt for users to enter their zip code to set their location in the app. Adding a "Zip Code" text prompt could help to mitigate this problem.

6. Conclusion and Future Works

Acknowledgements

Moving forward, it is important for us to reconsider the design of location information. Specifically, we should concentrate on typography to enhance the visibility of certain details on the checkout screen, particularly when selecting payment methods and seat locations.

We must prioritize making the settings and layout more intuitive and user friendly. Additionally, we should thoughtfully incorporate search bars into the design and create additional frames to enhance their usefulness.

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