User Guide

Project Deliverable K

GNG1103[A03]
Team A10
December 3rd, 2020

Abstract

The goal is to design a food delivery application that uses autonomous drones to deliver food reliably to the customer. The application must be easy to use and accessible to rural, suburban areas.

This report will provide readers the instructions on how all the subsystems were created and how they function. The design team also included numerous images to capture the application and thoroughly explained each subsystem. This document also represents the observations and documentations collected while the final product was being made. It includes the design concepts that the team came up with, along with the comprehensive blueprint for how the application works. Additionally, it offers insights to any possible future developers that might want to replicate or improve the current prototype.

Lastly, this document elaborates on the contents of the project deliverables. The aforementioned deliverables contain the design team's progress per week, and they are governed by the engineering design process.

Unfortunately, the design team was unable to create the prototype that they visualized due to time constraints, this deliverable will also highlight why this happened and what their ideal application will look like.

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1. Introduction

This document explains the design and the functionality of the JAMZ Food Delivery Application.

It has been divided into several parts to make the manual more easily accessible to important information about the final prototype. This section will briefly outline the process that the team followed to generate a finished product. The application will be broken up into its subsections and each subsection will be thoroughly explained through visual aids.

Covid-19 has introduced a unique problem in our society that requires more daily activities to be contactless, since now that is a fatal risk. The clients for this project are JAMZ. They are a group of students who are revolutionizing the food delivery industry by introducing autonomous drones as an alternative delivery method. To allow the customer to interact with the company, a project requiring a food delivery application was assigned to the design team.

The application had to include a customer feedback system as well as an attractive interface for the project. For the customer feedback, the clients requested a 5-star rating system, customer support, and a help page to aid in navigating the application. In terms of the interface, they requested a very simple design that was created to maximise the user

experience and make it as simple as possible. The interface must also include efficient notifications about the location of the drone as well as the expected delivery time and location. In addition to that, there needs to be a method that can verify that the drone has the correct customer's order.

The team went through the steps of the engineering design process and eventually began creating the prototypes. After listening to the client's interpreted needs, the team prioritized each need in order of importance.
The interpreted needs were prioritized in order of importance and the team came up with conceptual designs to brainstorm what the application would look like and how it would function.

After a design theme was settled on, the prototyping began. After three iterations of prototyping, the finished product included:

- An interactive map for the customer to track the drone
- A method for the drone's arrival confirmation
- A method for the customer to contact JAMZ support or the restaurant
- A customer feedback page with 5 star reviews and a write-in section
- A very simple interface with easy accessibility in mind
- A shopping cart for the customer's products
- A 'create account' and 'log in' feature
- Menu item selection
- Delivery tracking

2. How it was made

The team began with stage one of the engineering design process. Titled “empathize”, the first stage is solely about understanding the client's needs. The clients met with the design team to explain what features they wanted their application and how they wanted it to function. The client requests were converted into interpreted needs and those needs were prioritized in order of importance to the client. The following table contains the numerical ranking of each group with 1 being the most critical and 5 being desirable but unnecessary. It was elaborated on Deliverable B.

Need	Group	Interpreted need	Priority
1	Tracking + arrival confirmation	Application must have a tracking feature and must confirm delivery for the user and the restaurant	2
2	Customer Service	Customer service numbers and reviewing options must be displayed during the duration of the delivery process	3
3	Rural areas	Application must be accessible to suburban areas and cater to local businesses	4
4	Translate languages	Application should be able to operate in multiple languages	5
5	Simple functionality	Application should be extremely practical and easy to use	2
6	Shopping Cart	Must contain 'shopping cart'	1

		to which food from restaurants its added/removed	
7	Member login	Must be able to make an 'account' which includes accessibility and allergy information	3

Table 2.1

In addition to the interpreted needs being prioritized, the group also used other pre-existing food delivery applications to 'benchmark' (i.e., compare their most desirable features by assigning a numerical value to each feature and calculating who has the best features). The team did this briefly in Deliverable B.

The team proceeded to come up with requirements for the application. These included functional requirements like arrival confirmation and customer verification and also non-functional requirements like aesthetics and restaurant categorization. Any possible constraints were determined and highlighted and then converted to design criteria. The following table is displayed in Deliverable C.

#	Need	Design Criteria	Priority
1	Application has a tracking feature and must confirm delivery for the user and the restaurant	● Google maps should be embedded into UI, to be displayed after order is confirmed	2
2	Customer service numbers and reviewing options is displayed	● After ordering, a review option will pop up under or above the tracking	3

	during the duration of the delivery process	map. ● Before ordering, restaurant reviews will be visible along with customer service numbers	
3	Application is accessible to suburban areas and cater to local businesses	● Notify client of drones available radius of travel	4
4	Application can operate in multiple languages	● Possibly embed google translate into the UI (not ideal)	5
5	Application is extremely practical and easy to use	● Friendly and easily navigated UI with tabs for: explore/search, recommended, cart, and account	2
6	Application contains 'shopping cart' to which food from restaurants is added/removed	● Can only shop from 1 restaurant at a time (flat delivery rate fee) ● Calculate cost as items are added/removed	1
7	Application is able to make an 'account' which includes accessibility and allergy information	● Allow customization of profile, including allergies, preferences, card information, etc.	3

Table 2.2

After coming up with design criteria, the team benchmarked further and in more detail and found that SkipTheDishes was the closest application to what the client wanted their application to resemble. Then, design specifications were determined and finalised according to the predetermined requirements and constraints. Following that, each member of the design team came up with possible conceptual designs. These designs were

compared and voted on to decide what the final application would look like. Two sets of designs are as follows:

Figure 2.3

Figure 2.4

Figure 2.5

Ultimately, the team decided to derive design concepts from both of the aforementioned design sets and come up with an entirely new design and go in a different aesthetic direction. The new design concept had a purple and black theme. It is modern, sleek, easy to follow and not too complicated to look at.

In order to verify that the application is up to the client's standards in terms of user accessibility and efficiency, feedback from potential users for our delivery application was taken. By receiving different opinions on different features, the team was able to establish what features they need to modify, improve on, or keep as they are. A group of potential users were surveyed for this application. Unfortunately, all of them belong to the same demographic- university students. The feedback that was taken was split up into different categories and it gave the team a rough outline of any possible problems potential users might face while using the application.

In terms of functionality, nearly all of the feedback was positive, the interface is simple to understand and user friendly enough. Most of the suggestions given to the team revolved around the aesthetics of the application and were not implemented since the design team gave them the lowest priority and unfortunately did not have the time to implement them.

Since the team chose to program the entire application using React Native and implementation through Google Maps API (free), there was no cost involved over the duration of the project.

3. How to use the prototype

Figure 3.1

The application opens with the Jamz logo with a purple theme. Once a customer has successfully loaded this screen, they can choose to either put in login information, proceed as a guest, or sign up. If the customer were to not have an account, they would click on “Sign up” where they will be redirected to an account creation page. They will then have to input an email and password to successfully create an account, at which point they will be directed once again to the login page where they can now input their correct data. If a customer did not want to create an account they would be able to click proceed as a guest where they would proceed to the explore page. Finally, if a customer already has made an account they can simply enter their information so they can access the explore page to start browsing for food.

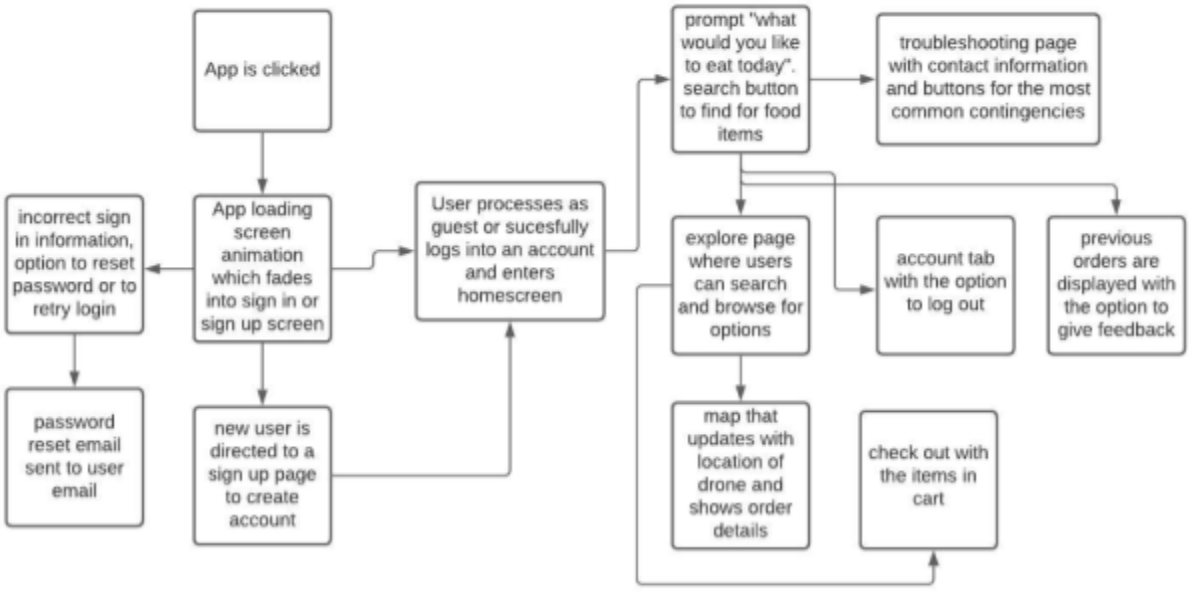

Figure 3.2

Figure 3.3

The explore page contains a search bar where customers can look up a specific name of a restaurant if they are already certain of what they are looking for. Although, if they are not confident in what they would like to order they can press the explore button where they will be presented with a page containing all of the restaurants that are currently available through Jamz delivery system. The explore page also contains a help button underneath the explore button to gain feedback from customers and to provide them with an easily accessible way to contact Jamz if there ever were to be an error in their delivery.

Once the customer has clicked on what restaurant they would like to eat from they can browse through the menu to select what specific items they would like to order. The customer can then proceed to add the item to their shopping cart, at this point they can either continue browsing and adding items to their shopping cart, or they can checkout. Once the customer chooses to checkout they will be presented with their breakdown of costs including the price of the food, service charges and taxes. The customer will then be able to submit their order.

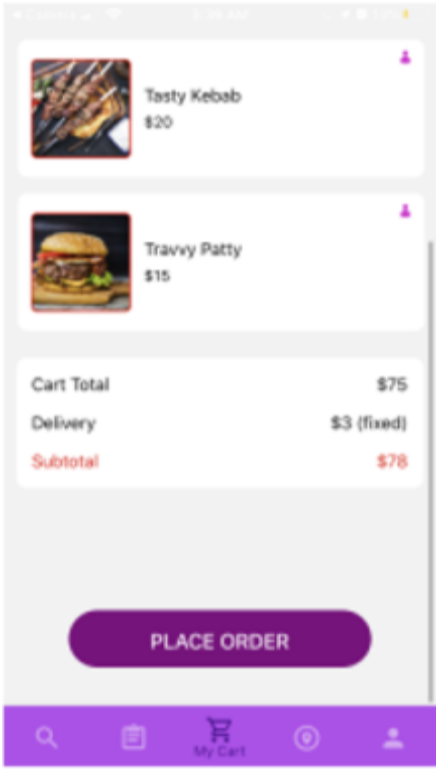

Figure 3.4

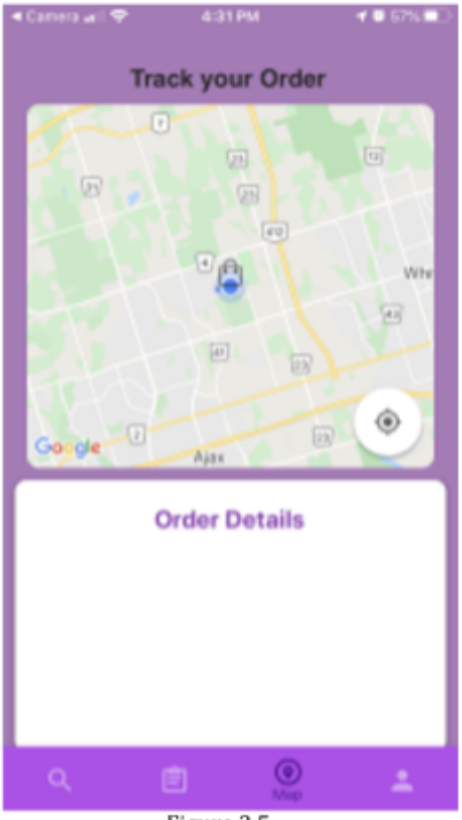

Figure 3.5

As the order has been submitted, the restaurant will then get notification of what items the customer ordered and commence preparing the order. While the restaurant is preparing the items the customer will be redirected to the order tracking page. This page contains a map on the top half of the page to see where the drone is as well as a section for order details. Contained in the order details will be a QR code that the customer will present the drone with to verify that the order is delivered to the correct location as well as the correct person.

The customer will be able to continue checking the tracking page for updates on where their food is as well as receiving notifications as the order approaches their destination. Once the drone arrives, the customer will scroll to the order details on the tracking page where they will find the aforementioned QR code. They will simply have to hold their phone with the QR code on it in front of the camera on the drone that will scan it. The order will then be released and the drone will return back to Jamz.

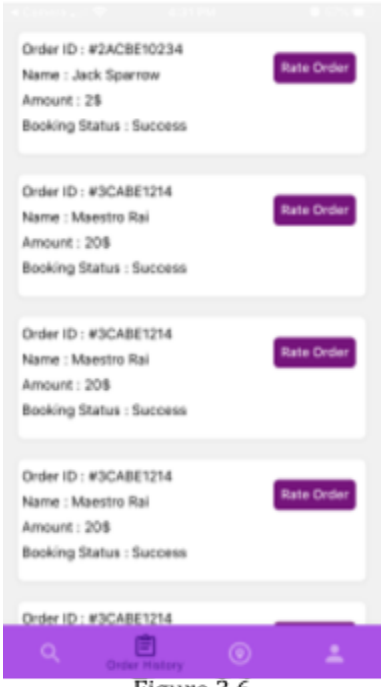

Figure 3.6

Finally, after customers have received their orders, they will be able to go into a past orders tab where they can provide Jamz with feedback on the drone as well as the food itself.

4. How to maintain the prototype

The Jamz delivery prototype will not need excessive maintenance as the application is already completely coded. Although, the application will need to be updated with new restaurants and features to make the application have a superior customer experience. As the Jamz company grows and evolves they will surely have more restaurants willing to work with them, once this occurs the application will need to be updated so it can offer customers with an extended range of options to order.

Figure 4.1

While the company evolves, it is also important to update the feedback system as the customer base will have grown as well. The feedback page should become more evolved as more customers are using the app to provide sufficient feedback to continuously improve the app. Using that strategy, the company will continue to be provided with successes and errors present in the application therefore providing a constant stream of ways the Jamz prototype can be regularly improved on.

5. Possible Recommendations

As the application evolves there will be a need for updated features and a continuously improving customer experience. A dark mode is imperative for an improved customer experience as our design is very bright and vibrant, if a customer were to use it in a dark room it may be too bright for them to comfortably use. The dark mode will make the layout a darker more muted colour to ensure that the application does not negatively affect the customers vision.

Another improvement for the application is improved language options. It is imperative for the success of an application for it to be easily accessible in other languages as english is not the most widely spoken language. This will include all text such as the food items as well as the text in the application itself.

The application is also in need of an integrated form of payment. The final prototype does not include a method of paying for the food which is needed for successful and easy use. Options such as having Apple Pay or PayPal integrated into the checkout are also excellent improvements for the application as it not only adds more methods of payment but it also improves the customer experience as it has the potential to make payment an easier process.

Finally, the prototype does not display all the possible notifications about the drone and what it is doing. As the application is updated the drone should give the customer a warning when it is planning for take-off so the user is not surprised and can prepare accordingly.

6. Conclusions

This manual details step-by-step how each subsystem in the application works and how they were created. Each component came with its hardships and the design team learned a tremendous amount of information while creating it. Along the way, the team did face many difficulties which led to them reorganizing the project schedule and changing the estimated timeline for each task. Due to this, unfortunately, the progress made is not ideal.

Over the past few months, the team learned how to go through the design process to get effective results. In addition to this, they took on a project in a programming language that no one in the group was previously familiar with. Overall, although the final prototype is not exactly what we expected, they were able to create an application that functions and serves its purpose in an entirely new programming language, which is impressive regardless of what the final goal was. Ideally, the possible recommendations would have been implemented by the team themselves but unfortunately, they were unable to meet their own goals due to the time constraint so the suggestions are open to anyone who chooses to further update and modify the project.

7. Appendices

7.1 Appendix I: Code

All of the code can be found at the following link:

https://github.com/murdau/Jamz-App

7.2 Appendix II: Design Files

All design files and deliverables can be found at the following link:

https://makerepo.com/Murda/the-jamz-fam-drone-delivery-team-a10