**Deliverable D- Conceptual Design**

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October 15th, 2020

**Abstract**

*Create subsystems, goals and requirements that are necessary for the UI, then create concepts: ideas and plans to achieve each subsystem listed. Multiple concepts were created for each subsystem, then secondary or refined concepts were made with the conjoined ideas put together. The idea was illustrated in Adobe XD.*

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## 1.0 Introduction

In this report, three global conceptual designs are created to show what the android UI might encompass. It is important that this UI contains functions that are required by JAMZ are properly integrated into the UI. To find solutions to JAMZ's needs, comparative tables were created which included subsystems and concept ideas to put these ideas "into reality". This finalized concept is created using Adobe XD, allowing JAMZ to visualize our ideas.

This document defines what systems and subsystems are, and applies them to the conceptual designs. Each subsystem is associated with interpreted needs and each member offers concepts for the subsystems. The concepts are then combined, modified and redefined to make an improved concept.

## 2.0 System and Subsystems

The system, the Android UI, has many features; the group divided the task of creating the UI into multiple and easier-to-manage subsystems. The subsystems include Google Maps tracking,

cart, login page, restaurant page, etc. The group also produced some conceptual designs for some of the subsystems in Adobe XD and by hand; see Appendices 6.0.

## 2.1 Concept ideas and subsystems

| | | Jacob | Nathan | Jack | Enoch | Ally |
|---|---|---|---|---|---|---|
| **Subsystem** | **Interpreted Need** | **Concept Ideas** | | | | |
| Location shared, google maps tracking, API | Embed Google Maps into the UI | N/A | N/A | Maps will display the location of the restaurants in relation to your house | Put Google Maps, showing the restaurant and home locations | User enters address. Add a dotted line of drone routes from users address to restaurant. Update drone location. And add estimated arrival time |
| Cart | Location to store shopping choices and check out(cart) | A little side window where you add your choices, slos it will allow you to see what you currently have in your basket | N/A | N/A | N/A | Create object for each food item; be able to add objects into cart (a new object); sum up total price of all food items |
| Login Page / Sign Up page for new clients (can use facebook login extension) | User login | | If user email/ password is stored in database then home page will run | N/A | Collect user login credentials; compare credentials with database; grant access if matched | Bring different types of clients to different pages. Ex customer vs Employees |
| Have a menu from multiple restaurants using the product available | List food items and display restaurants by distance; "The app must be able to sort restaurants based on “category” | Also show the on the embedded maps the location of the restaurants and the option to click on a popup that shows food items; Offer different menu styles: food style (indian, chinese etc.) or time of the day | Define radius from GPS location of home; list all restaurants within radius by straight-line distance; list all food items within selected restaurant; Categorize restaurant objects by | Have a search bar that can list food by ethnic culture, price, and distance | N/A | N/A |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | (breakfast or lunch or dinner) | cuisine; display all restaurants within the list | | | |
| Restaurant page | Give a list of available restaurants | N/A | N/A | List all restaurants within a given radius as well as their listed hours of operation | List all restaurants within defined radius | add enticing photos of restaurant specials or deals of the day |
| Interac | Be able to pay online when ordering | N/A | N/A | Have the drone contain a scanning feature to support the wallet app | Create button to "pay" (which is in itself a backend function) | N/A |
| Alert of drone nearby customer | Method of confirmation ( notification) | N/A | Within a few minutes of the drones arrival the customer will be alerted | Once the drone is within a certain distance on the map a notification will pop up on the users phone alerting distance and time until delivery, integrate a stopwatch | N/A | Add mobile notification alert systems on the users phone |
| Estimated time of arrival | Delivery time | N/A | The google maps route chosen by the drone will be displayed to the user with an ETA | | Shows time remaining according to drone location and speed | Using, interactive maps and client address we can give a estimated arrival time |
| Updates on drones position | Live location of drone | N/A | N/A | Using google maps the drone will send its position back to the | Shows GPS location of drone | N/A |

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| | | | | customers phone at their request | | |
| Creative UI design | Make UI look futuristic and modern | Minimalist look, everything is organized, try to have a matching color scheme | Menu given organized into sub categories | N/A | N/A | N/A |
| Make the app only work in good conditions | Services only offered during ideal weather conditions | N/A | N/A | Using data from "the weather network" it will assess the weather and enable or disable the application from working based on the drones limitation | N/A | Simple to use for all users, main homepage will have a start order now button for easy understanding |
| Problem alert | Notify customer if a problem occurs | N/A | N/A | N/A | Push notifications to phone UI | Add mobile option to receive notifications |
| Delivery Verification | Ensure food is picked up by the right person | Make a confirmation on the app (similar to an authenticator), once they receive the order they sign on their app confirmation of receival | N/A | Make user check off a box on the app once they pick up the order | N/A | N/A |
| option to talk with restaurant owners | Customer service | Show the contact information of the restaurant the client is ordering from | N/A | N/A | Create a contact form for each restaurant | N/A |
| option to leave feedback after an order | Feedback survey | N/A | Customer satisfaction survey after order | Options for giving a "star system review" (ie 1-5 stars) | N/A | Have a customer page where there can be feedback and ratings can be inputed |

| | | | | | | |
|---|---|---|---|---|---|---|
| language selection | English and french versions | N/A | N/A | Once entering the app before the login page is displayed it makes you choose your desired language | English and French | N/A |
| answers to questions often asked | Frequently asked questions section | Create a section on the UI that that offers answers to what can be often asked, sample questions can be offered at every step (ex: when paying, show FAQ regarding payment) | N/A | N/A | Have an FAQ page; allow users to post questions | N/A |
| First time login experience | Registration Survey | When creating an account for JAMZ (in the UI), include a questionnaire for help issues | N/A | N/A | N/A | Have a sign up button beside the user login button. Users enter if they are a customer or an employee. Users have the option to sign in with google. |
| Accessibility | Be able to accommodate people needs | When creating an account for JAMZ (in the UI), include a questionnaire for dietary restrictions | Upon ordering an accessibility option pops up | N/A | N/A | N/A |

*Table 1.0: Concept ideas based on subsystems and interpreted needs*

Table 1*: Concept ideas based on subsystems and interpreted needs*, is how the ideas were categorized. Subsystems were created based on the interpreted needs. From this, every member of the team brainstormed concepts to fulfill the subsystems. Then, as a team, the different concepts were evaluated, and a new concept idea was created by combining the best parts of the previous concepts.

## 3.0 Refined conceptual idea

| | | Concept Ideas | | | Refined idea |
|---|---|---|---|---|---|
| **Subsystem** | **Interpreted Need** | 1 | 2 | 3 | |
| Location shared, google maps tracking, API | Embed Google Maps into the UI | Maps will display the location of the restaurants in relation to your house | Put Google Maps, showing the restaurant and home locations | User enters address. Add a dotted line of drone routes from users address to restaurant. Update drone location. And add estimated arrival time | User inputs the delivery address, and the most ideal google maps route will be shown from the chosen restaurant. The user will be able to track the drone at all times and an ETA will be displayed through the interface. |
| Cart | Location to store shopping choices and check out(cart) | A little side window where you add your choices, slos it will allow you to see what you currently have in your basket | Create object for each food item; be able to add objects into cart (a new object); sum up total price of all food items | N/A | Create cart; create food items; show items and total price of cart |
| Login Page / Sign Up page for new clients (can use facebook login extension) | User login | If user email/ password is stored in database then home page will run | Collect user login credentials; compare credentials with database; grant access if matched | Bring different types of clients to different pages. Ex customer vs Employees | Differentiate between different types of clients, e.g. customers and employees; collect user login credentials; compare credentials with database; grant access if matched |
| Have a menu from multiple restaurants using the product available | List food items and display restaurants by distance; "The app must be able to sort restaurants based on “category” | Also show the on the embedded maps the location of the restaurants and the option to click on a popup that shows food items; Offer different menu styles: food style (indian, chinese etc.) or time of the day (breakfast or lunch or dinner) | Define radius from GPS location of home; list all restaurants within radius by straight-line distance; list all food items within selected restaurant; Categorize restaurant objects by cuisine; display all restaurants within the list | Have a search bar that can list food by ethnic culture, price, and distance | List all restaurants within radius by straight-line distance; list all food items within selected restaurant; Categorize restaurant dishes by cuisine, price, and distance; display all restaurants within the list. |

| | | | | | |
|---|---|---|---|---|---|
| Restaurant page | Give a list of available restaurants | List all restaurants within a given radius as well as their listed hours of operation | List all restaurants within defined radius | add photos of food for restaurant specials or deals of the day | List all restaurants inside of the drones delivery radius including images of restaurant specials or daily items |
| Interac | Be able to pay online when ordering | Have the drone contain a scanning feature to support the wallet app | Create button to "pay" (which is in itself a backend function) | N/A | Backened pay capabilities meaning a pay button on the UI along with a potential drone payment scanning feature |
| Alert of drone nearby customer | Method of confirmation (notification) | Within a few minutes of the drones arrival the customer will be alerted | Once the drone is within a certain distance on the map a notification will pop up on the users phone alerting distance and time until delivery, integrate a stopwatch | Add mobile notification alert systems on the users phone | Once the drone is within a certain distance on the map a notification will pop up on the users phone alerting them that the drone is within a close proximity (within 5 mins of arrival). It will also prompt the user to go outside and await their delivery. |
| Estimated time of arrival | Delivery time | The google maps route chosen by the drone will be displayed to the user with an ETA | Shows time remaining according to drone location and speed | Using, interactive maps and client address we can give a estimated arrival time | Using data from the clients address along utilising google maps with the drones live speed and location to give its ETA |
| Updates on drones position | Live location of drone | Using google maps the drone will send its position back to the customers phone at their request | Shows GPS location of drone | N/A | Using a GPS location using google maps the drone will send its position back to the customers phone at their request |
| Creative UI design | Make UI look futuristic and modern | Minimalist look, everything is organized, try to have a matching color scheme | Menu given organized into sub categories | N/A | Universal colour scheme throughout the application that looks futuristic. All the menus are organized into simple sub categories. |
| Make the app only work in good conditions | Services only offered during ideal weather conditions | Using data from "the weather network" it will assess the weather and enable or disable the application from working based on the drones limitation | Simple to use for all users, main homepage will have a start order now button for easy understanding | N/A | Assess weather based on The Weather Channel and enable/disable ordering feature; create simple-to-use UI; create homepage with a direct order button |

| | | | | | |
|---|---|---|---|---|---|
| Problem alert | Notify customer if a problem occurs | Push notifications to phone UI | Add mobile option to receive notifications | N/A | Use a push notification to give the option to a receive notification. |
| Delivery Verification | Ensure food is picked up by the right person | Make a confirmation on the app (similar to an authenticator), once they receive the order they sign on their app confirmation of receival | Make user check off a box on the app once they pick up the order | N/A | Make a confirmation on the app (similar to an authenticator), once they receive the order they sign on their app confirmation of receival |
| option to talk with restaurant owners | Customer service | Show the contact information of the restaurant the client is ordering from | Create a contact form for each restaurant | N/A | Show the contact information of the restaurant the client is ordering from |
| option to leave feedback after an order | Feedback survey | Customer satisfaction survey after order | Options for giving a "star system review" (ie 1-5 stars) | Have a customer page where there can be feedback and ratings can be inputed | Customer satisfaction survey after order (1-5 stars) |
| language selection | English and french versions | Once entering the app before the login page is displayed it makes you choose your desired language | English and French | N/A | Once entering the app before the login page is displayed it makes you choose your desired language of English or French |
| answers to questions often asked | Frequently asked questions section | Create a section on the UI that offers answers to what is often asked, sample questions can be offered at every step (ex: when paying, show FAQ regarding payment) | Have an FAQ page; allow users to post questions | N/A | Create a section on the UI that offers answers to what is often asked, sample questions can be offered at every step (ex: when paying, show FAQ regarding payment) |
| First time login experience | Registration Survey | When creating an account for JAMZ (in the UI), include a questionnaire for health issues | Have a sign up button beside the User login button. Users enter if they are a customer or an employee. Users have the option to sign in with google. | N/A | Have multiple signup buttons, (login w/facebook or google etc.) and when creating an account, create a user profile with dietary restrictions etc. |

| | | | | | |
|---|---|---|---|---|---|
| Accessibility | Be able to accommodate people needs | When creating an account for JAMZ (in the UI), include a questionnaire for dietary restrictions | Upon ordering an accessibility option pops up | N/A | When creating an account for JAMZ (in the UI), include a questionnaire for dietary restrictions, additional options are available when ordering (handicap etc.) |

*Table 2.0 Refined ideas based on the concept ideas*

The individual concepts for each subsystem in *Table 1.0* were discussed as a team, in order to create refined ideas for each subsystem. From these subsystems, three global concepts (fully functional solutions) were developed. The first global concept is more technical, focusing on logging into the system, the usage of the cart and restaurants. The second global concept puts more emphasis on restaurant pages and food items, as well as delivery and mapping. The third global concept was chosen as our final concept. It was chosen for further development as it meets all the major requirements JAMZ is seeking, including: user accounts, restaurants, carts, mapping, the locations of the drone, restaurants and destinations. See section 6.0 Appendices for details of the three global concepts.

### 4.0 Comparison matrix for choosing final chosen concept

To choose our final design many components were evaluated. For instance, the number of options available for each concept as well as how important they were to the overall UI experience were evaluated.

| Feature and Specs | Importance (/4) | Concept A (/3) | Concept B (/3) | Concept C (/3) |
|---|---|---|---|---|
| Login, signup | 4 | 3 | 1 | 3 |
| Cart | 4 | 1 | 2 | 3 |
| Restaurant | 3 | 1 | 3 | 3 |
| Food items | 4 | 1 | 3 | 3 |
| Language | 1 | 1 | 1 | 3 |
| Location | 3 | 1 | 2 | 2 |
| Delivery status | 2 | 1 | 2 | 3 |
| Mapping, route, ETA | 3 | 1 | 2 | 3 |
| Payment | 1 | 0 | 0 | 3 |
| **Total** | | ~~32~~ | ~~50~~ | **72** |

Concept 1: Functions: Login; signup; login and signup; cart; restaurants

The first option was great regarding the utility of the UI, an account could be created with multiple options, but the restaurant portion was lacking, only the bare minimum was there.

Concept 2: Functions: Food items (price, description, dietary restrictions); cart (quantity +/-, add to cart); maps

The second option extensively shows stuff for the restaurants and food description. While it offered a great experience and options regarding food, it lacked other important aspects, notably a user login, tracking saving choices etc.

Concept 3: Functions: Login; signup; service unavailability; language; location; restaurant; menu; food item details; restaurant contact info and distance; map showing route and ETA; payment page; delivery status; restaurant feedback and rating

The third option is the most comprehensive UI. It contains options from both of above (i.e a very detailed UI, many food choices and good widgets).

## 5.0 Conclusion

In this deliverable the best of each subsystems was given three conceptual ideas. From here the ideas were narrowed down into one synthesized conceptual idea. These conceptual ideas or refined ideas essentially lay out a skeleton for how the UI should perform and what tasks it should be able to complete. For some of these ideas the rough sketches were used to determine what each of these subsystems could look like. This was used by creating rough ideas on Adobe XD. This makes for a rough prototype of what the UI may look like. (See section 6.0 Appendices)

# 6.0 Appendices

## 6.1 Concept 1

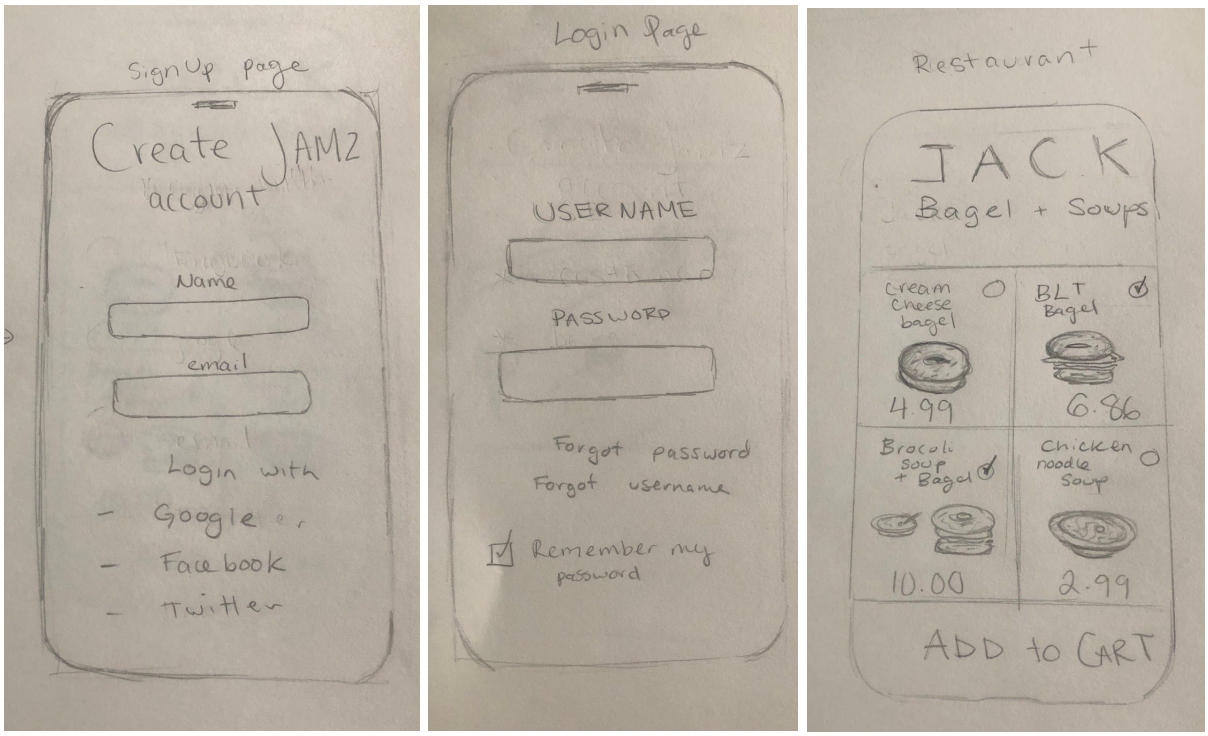


Figure 1: Sign-up page (left), Login Page (middle), home page (right)

## 6.2 Concept 2

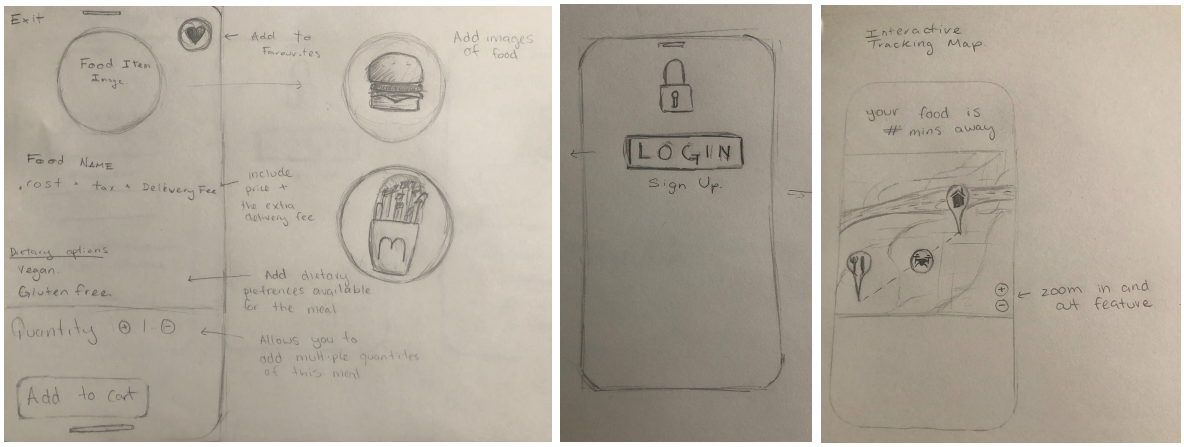


Figure 2: restaurant and food item (left), login page (middle), map(right)

### 6.3 Concept 3 - Created with Adobe XD (Final chosen idea)

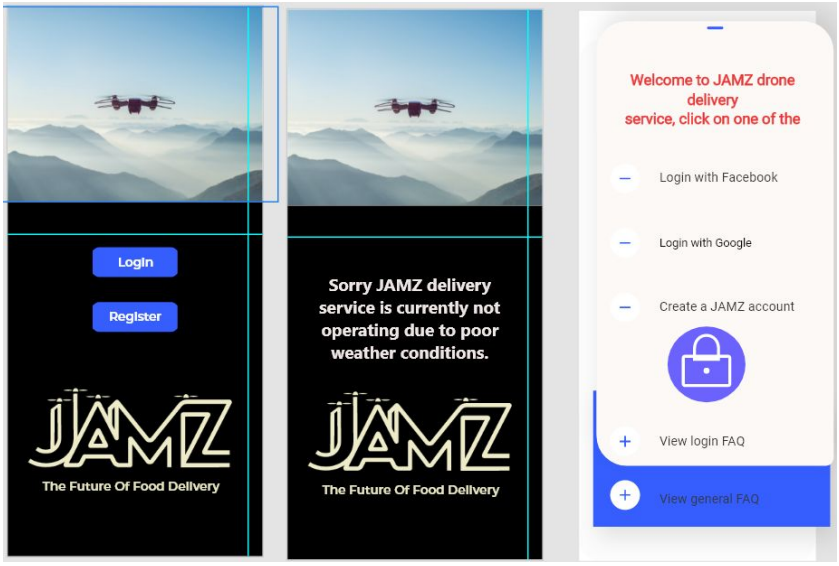


Figure 3: Initial JAMZ page (Left), UI if weather is too bad for delivery (middle), Registration page (right)

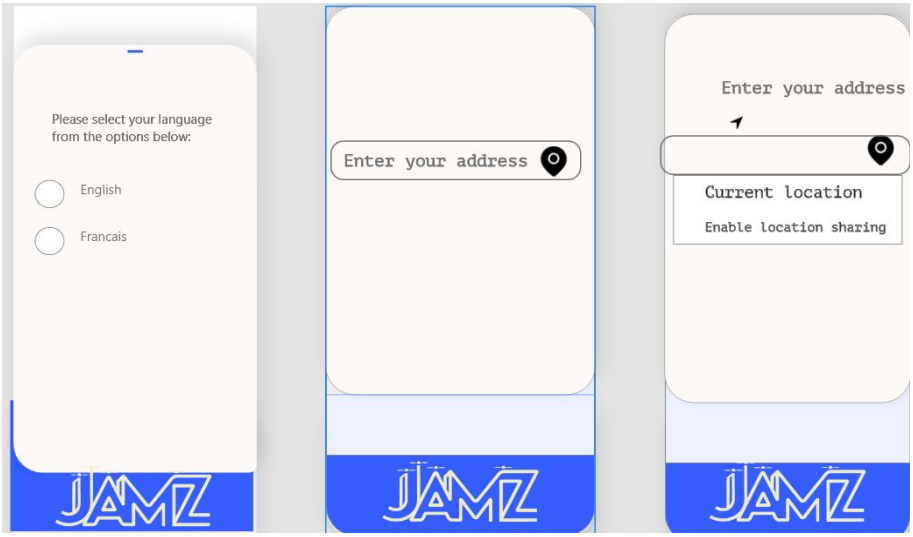


Figure 4: Language preferences (left), Choose your address (middle), Different address pop-ups (right)

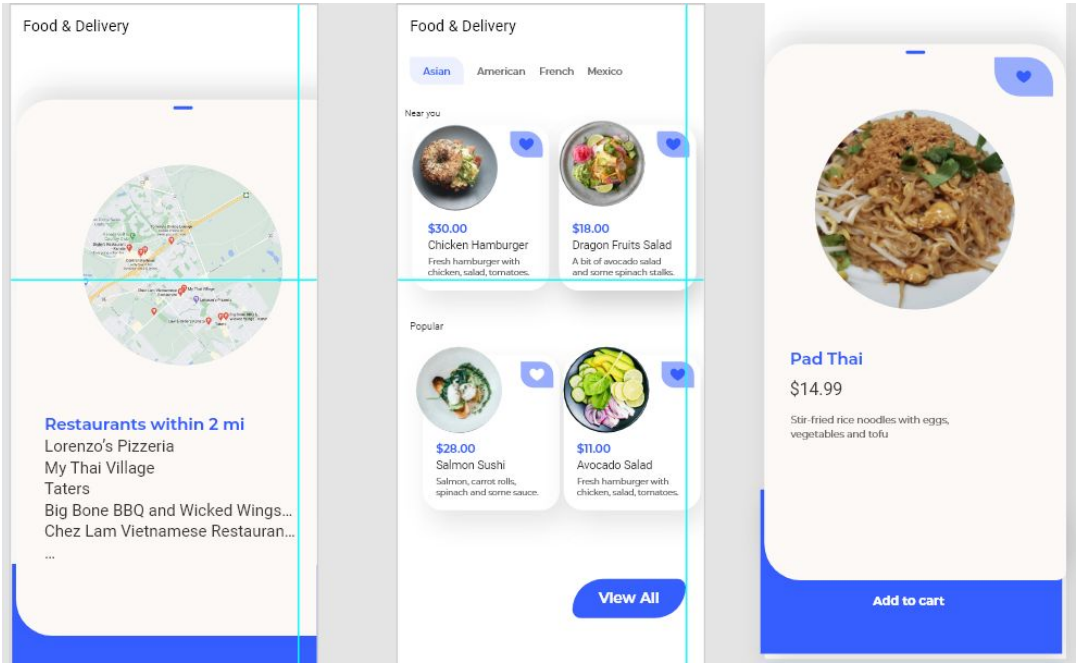


Figure 5: Map tracking (left), Menu choices (middle), Food description and price (right)

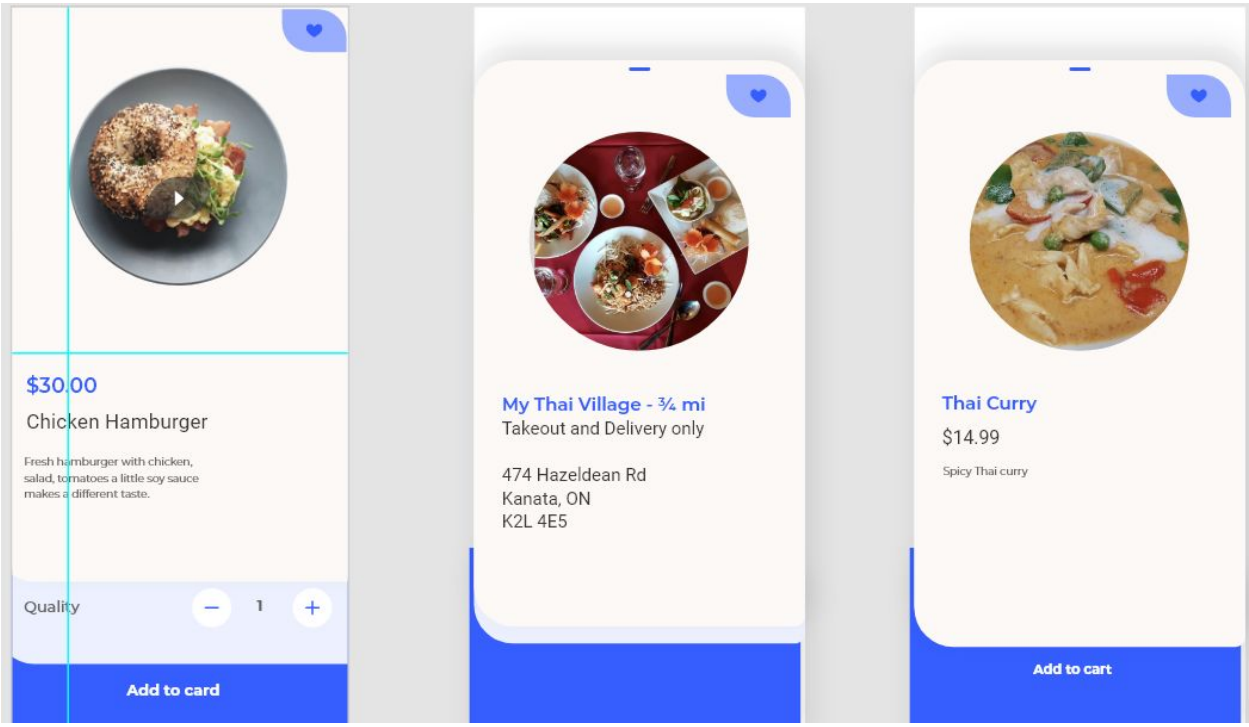


Figure 6: Food description and prices (left, right, middle)

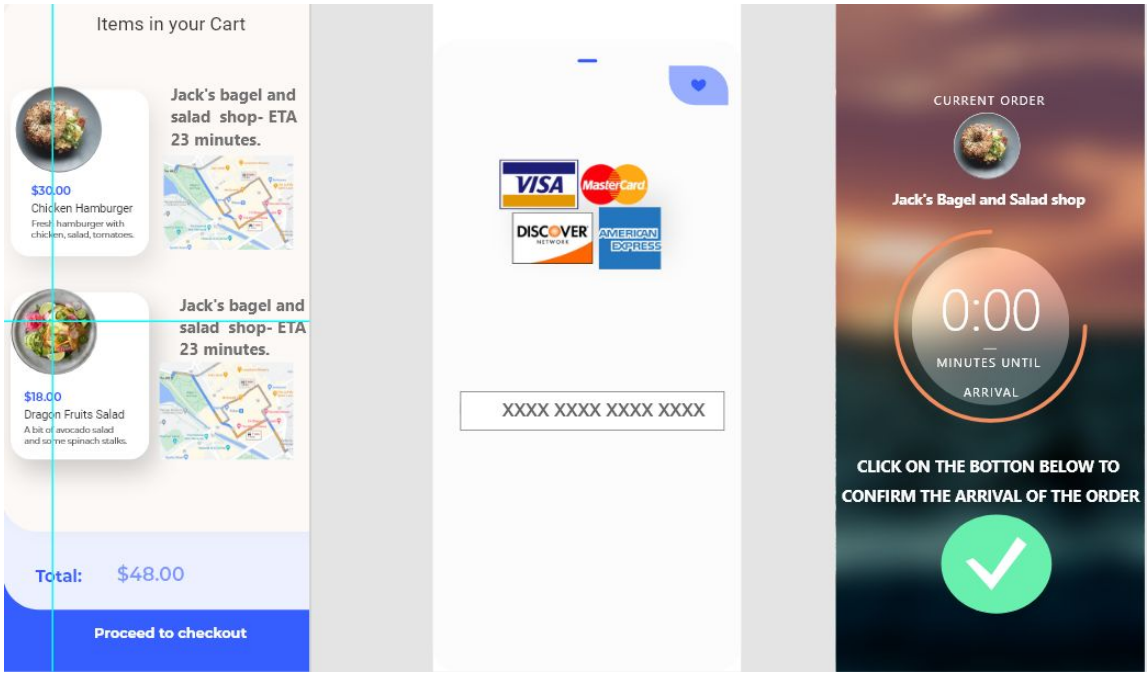


Figure 7: Google tracking (left), Payment methods (middle), Confirmation of drone arrival (right)

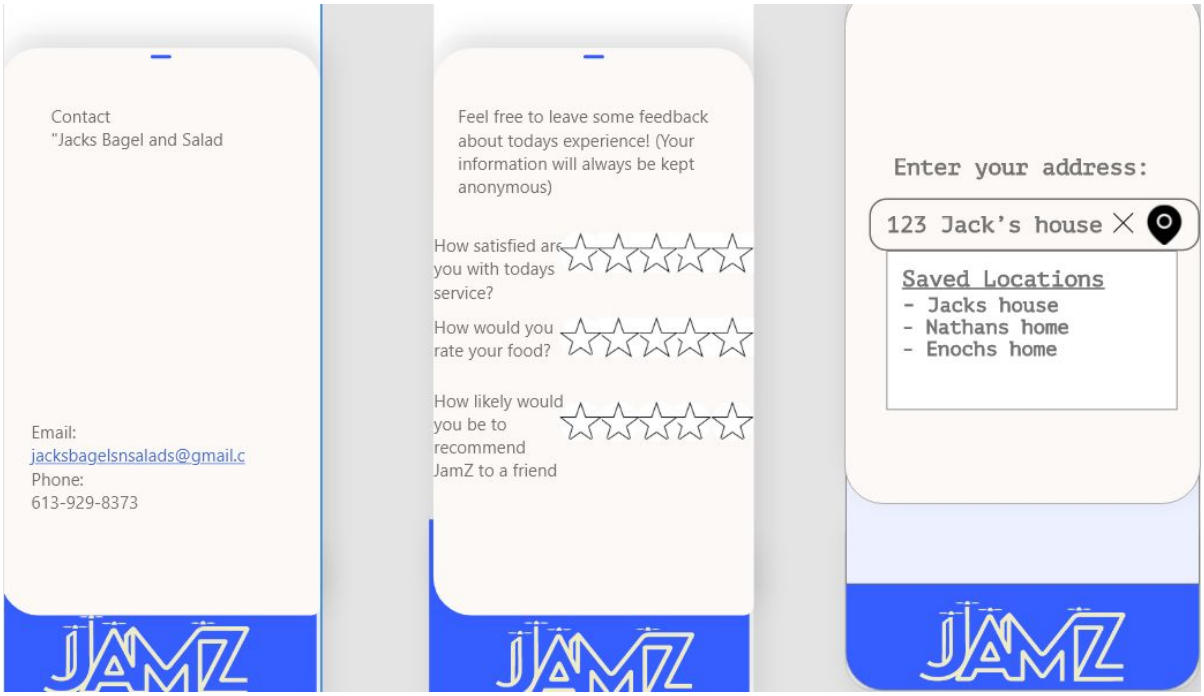


Figure 8: Contact with restaurant owner (left), Review to friends (middle), Saved locations (right)