Project Deliverable D: **Conceptual Design**
GNG 1103 – Engineering Design

Group A13:

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Abstract

The goal of this project is to design a user interface that is user friendly and simplistic. This user interface will be used to place orders for a drone delivery service that can deliver food to rural areas that are not easily accessible or out of range by vehicle. This interface will be in the format of an App and will be able to track a delivery's progress over time, via a bird's eye-view map. It will also be able to give an approximate arrival time, as well as a delivery confirmation notice.

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Introduction

The issues we face in the world today have separated and limited our contact with one another vastly. The ability to socialize, work, and even learn have had to adapt to this new challenge in ways we would never have thought. The way of life we once knew has changed in order to limit person to person contact. This begs the question; how do we still interact while being socially distanced? Many of the necessities that existed before now must be changed in order to still function, and this is where drone delivery fits in. For many parts of the world, basic needs such as food and water are not just a trip to the supermarket away, instead, physical delivery is required. With the JamZ app, our plan is to create a user interface that is friendly and simplistic for all users. This app will allow users to place an order from a restaurant of their choosing, and have it delivered right to their home. The user will be able to track they're order with a real-time map that is located within the app. Along with this, a confirmation code will be sent to the user, which upon delivery of the order, will be scanned by the drone, notifying the restaurant of a successful delivery. What sets our app apart from others is the simplistic design and accessibility. All one needs to have in order to place an order is their name, age, and address. We want to be able to provide efficient service to all, no matter the level of knowledge one has surrounding technology. We want to make sure the user has a safe, reliable, and easy method of access to important resources such as food and drink.

Main Body

A) Benchmarking

Uber Eats: Uber's Elevate cloud systems will track and guide the drone,and will notify the customer where and when to pick up food through the app. Uber Eats in general has an app that tracks the moving vehicle and shows the customer the exact location of the vehicle so the customers themselves can track the location of the vehicle and its way to delivery.Uber eats includes real-time information for delivery tracking this eases users concerns about where their order may be.They use fun colourful animations that indicate if food is still in preparation, on its way to delivery and delivered. It also includes a banner of promos and coupons so customers can easily save money and be informed of new discounts. Has a spot in the checkout browser to input coupon code that is added automatically to the customers order.

Skip the Dishes: Skip the dishes has the recent and saved delivery location in bold white font at the top of screen this way customers know which delivery location is originally set and give customer awareness of the delivery location right away. The skip the dishes app displays all the restaurants in a column and shares the restaurant logo, distance from customer, delivery fee, street where the restaurant is located and the delivery time. They use bold font for the restaurants and unbolded for the rest of the delivery information that brings customers attention to the restaurant itself before its delivery info. Their login page has a huge image of their logo with a bar at the bottom reading login or sign up. The app itself is very minimal and simple to use design. Main page is organised into promos in rectangles at the top, then different categories restaurants are put in that may be of customers interest like restaurants with special offers of most popular.

Prime Air: Amazon's drone delivery service has a checkout button when ready for checkout and basic delivery as well as a prime option for a quicker delivery (under 30min). As well as indicates the estimated time of arrival to the customer as well as the time the order was received. The app also indicates the weight of the package in ounces. Prime Air also shows the image of the product on the app with its price bolded and one must scroll down to see any other options for the product such as different colour options etc. Has a small icon that looks like a banner saying bestseller as well as ratings of products

is given so users immediately receive past customer feedback. Prime air would also show a blue icon that says prime to show users that the product will be free delivery for those with prime accounts.

B) Client/User Description, Requirements and Priorities

JAMZ is “a team of students that are revolutionizing future delivery services” according to their website(1). More specifically this team consists of 6 students from the University of Ottawa that have developed drones capable of transporting food from a restaurant to the final consumer at his/her home. They started working on this project during the covid-19 pandemic with the incentive of helping struggling restaurant owners and managers who, due to the pandemic, were struggling financially due to a decrease in customers. This team of students wanted to mainly supply suburban and rural areas approximately 30 minutes away (~10km) from the restaurants ordered from (due to the battery life of the drones available). Their drones can be equipped with two different box sizes in which the food is transported: max 2kg and max 5kg. Their drones are also equipped with a light and a speaker which can be used to scare birds away from the drone as well as make the drone more visible if necessary.

At this point in time they do not have a user interface (UI) in the form of an app which is what they have assigned us to create. We have been given certain requirements which include but are not limited to: a basic login, restaurant browsing and checkout page, as well as a map locating the drone with the customers order. These were all major requirements along with a simple and easy to use design of the app. Other requirements were an FAQ page, a place to give feedback, making the app bilingual, a history section and among other things a page notifying the user of the app that JAMZ is not in service at the moment.

JAMZ also has competition such as Ubereats and prime air which is looking into using drones to deliver food. However, Uber has not released an app for this type of service yet (or have not made this service available on the current ubereats app). For more information of Prime Air see the benchmarking section.

C) Problem Statement

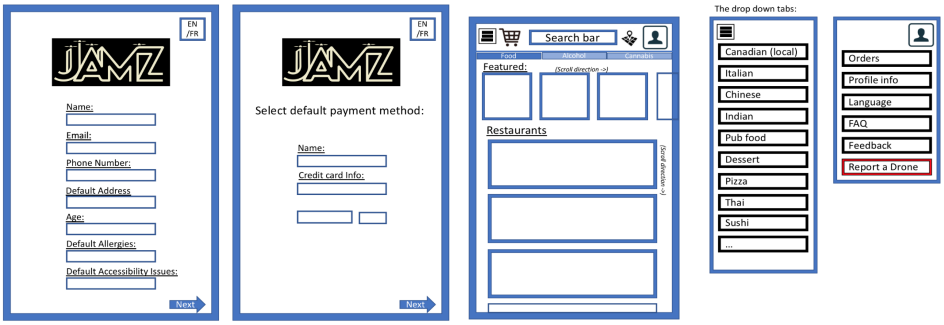
To Design a user interface (app) that is simplistic, accessible, and easy to navigate for a variety of customers, with real time drone tracking capabilities.

The idea behind this problem statement is that not all users will be technologically proficient. The idea behind Jam-Z's drone delivery is to make delivery services available to those who are not within range of conventional delivery services (by car). This means that individuals who may not be as familiar with technology will still need to be able to use the app. Because of this, we chose to design an interface that is straightforward and user friendly.

D) Our Ideas

Maurice's Ideas:

Login:



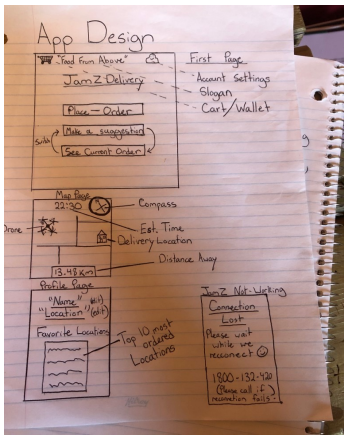
^Main browsing page

Map:

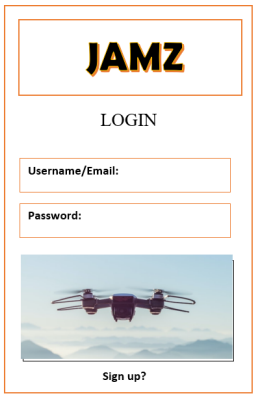
^Steps for when drone arrives^

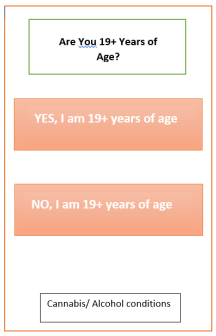
Jamz is not operating screen:

Bradley's Ideas:

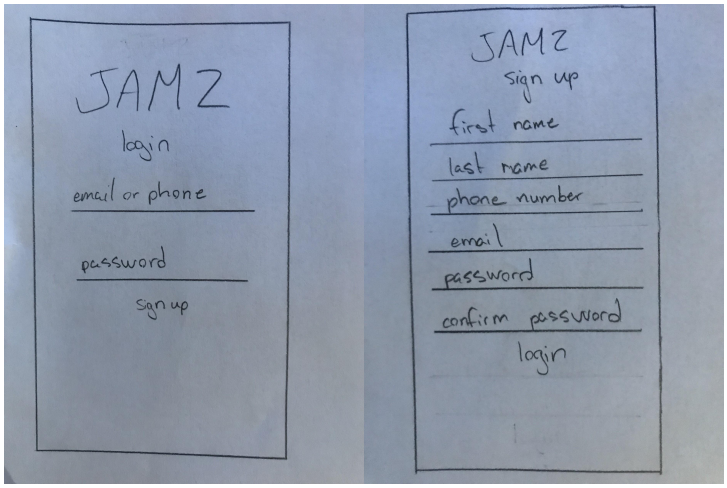


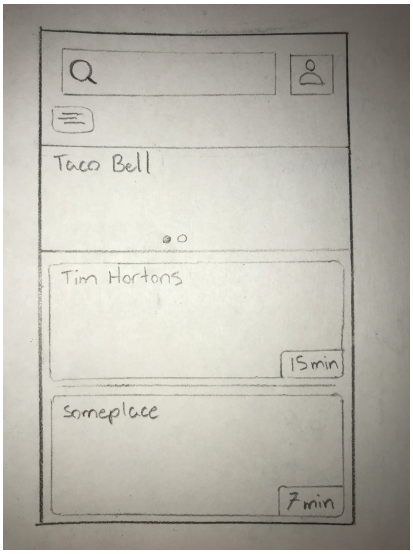
Jean's Ideas:
Login page(include remember me on this device feature), List of restaurants page with promos slide, When accessing alcohol or cannabis section are you 19+ age verification page





Mathieu's Ideas:





E) Design Criteria

We tried to undergo a design approach that was easy to use and minimal to customers. As well as aesthetically pleasing to draw a customer's attention. User interface should be concise and user friendly with many images to draw attention to the available restaurants. As well as logo used several times throughout to develop brand recognition for users and be able to easily recall company.

One of the specific design criteria we incorporated was real time transactions when the food is purchased. The app will record the time the order was placed and paid for and the track the customer’s order and until delivery with real-time information, so the customer knows exactly when the food has been delivered and shipped off.

Also, real time debiting and crediting of accounts. At the time of purchase, the system should debit from the customer’s account for the amount of sale and credit the appropriate vendor account.

Data security and privacy to customers’ orders, location and debit and credit information is another design criteria we incorporate by having a customer’s information secured by a login and password this way only the customer themselves have access to their own personal accounts and their information is only available to them through their accounts.

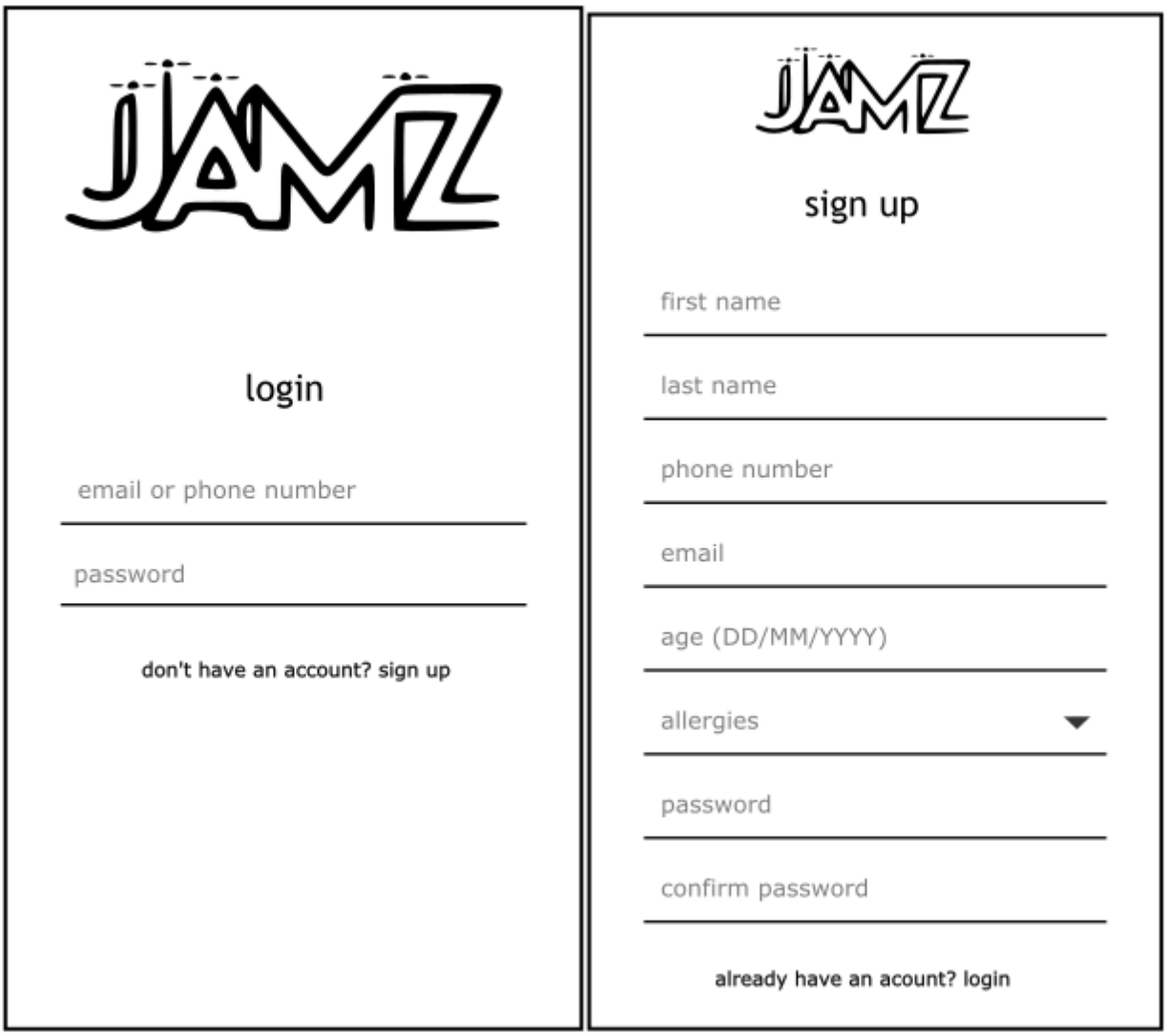
Compatibility with existing browsers or operating systems specifically mobile operating systems. Users using the app should be able to access the system using any commonly available network browser

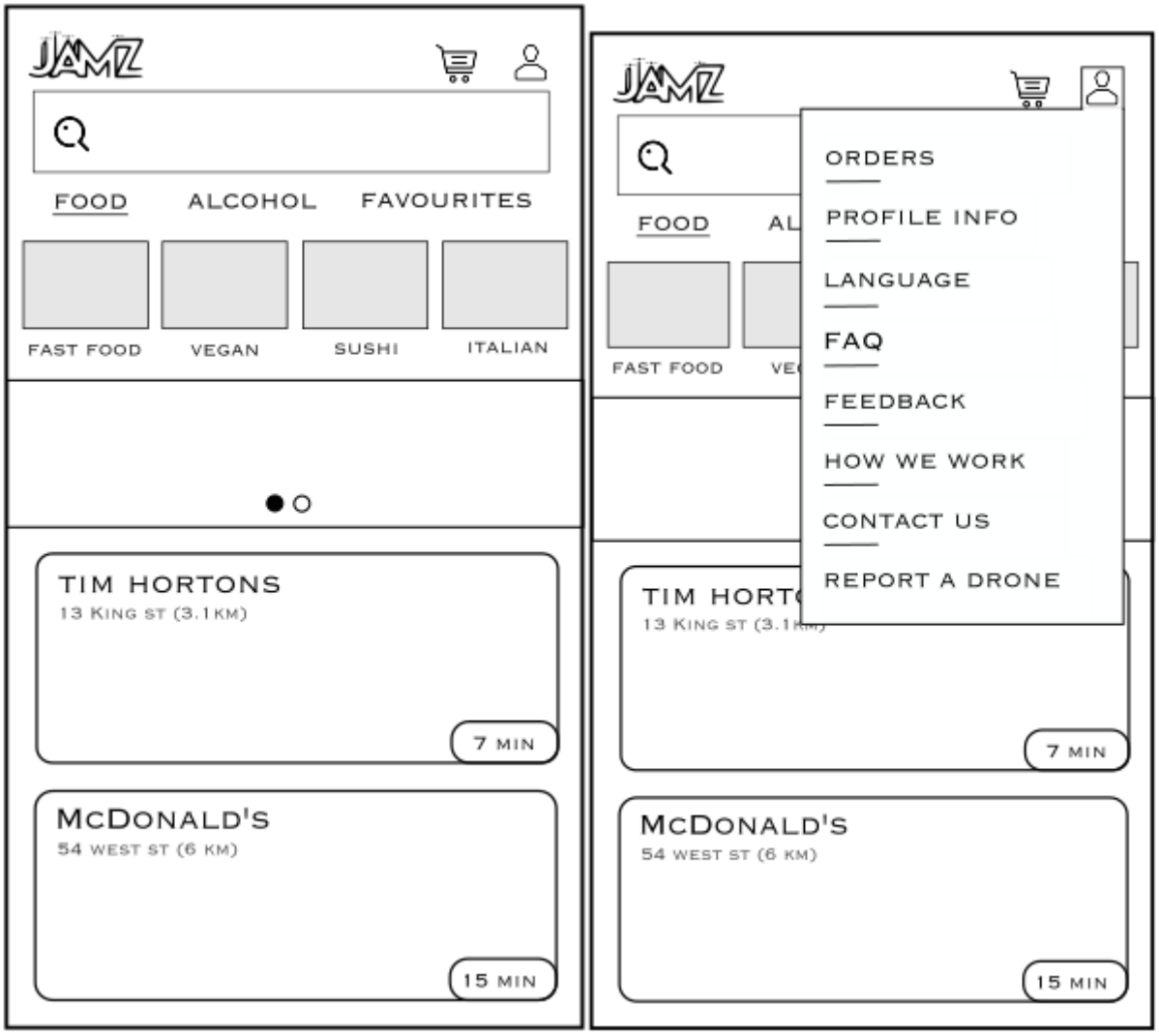
Different language options such as French and English. As the company will serve mostly Canadian users the options of French and English language setting is available however due to the diverse community possible to include several more common languages.

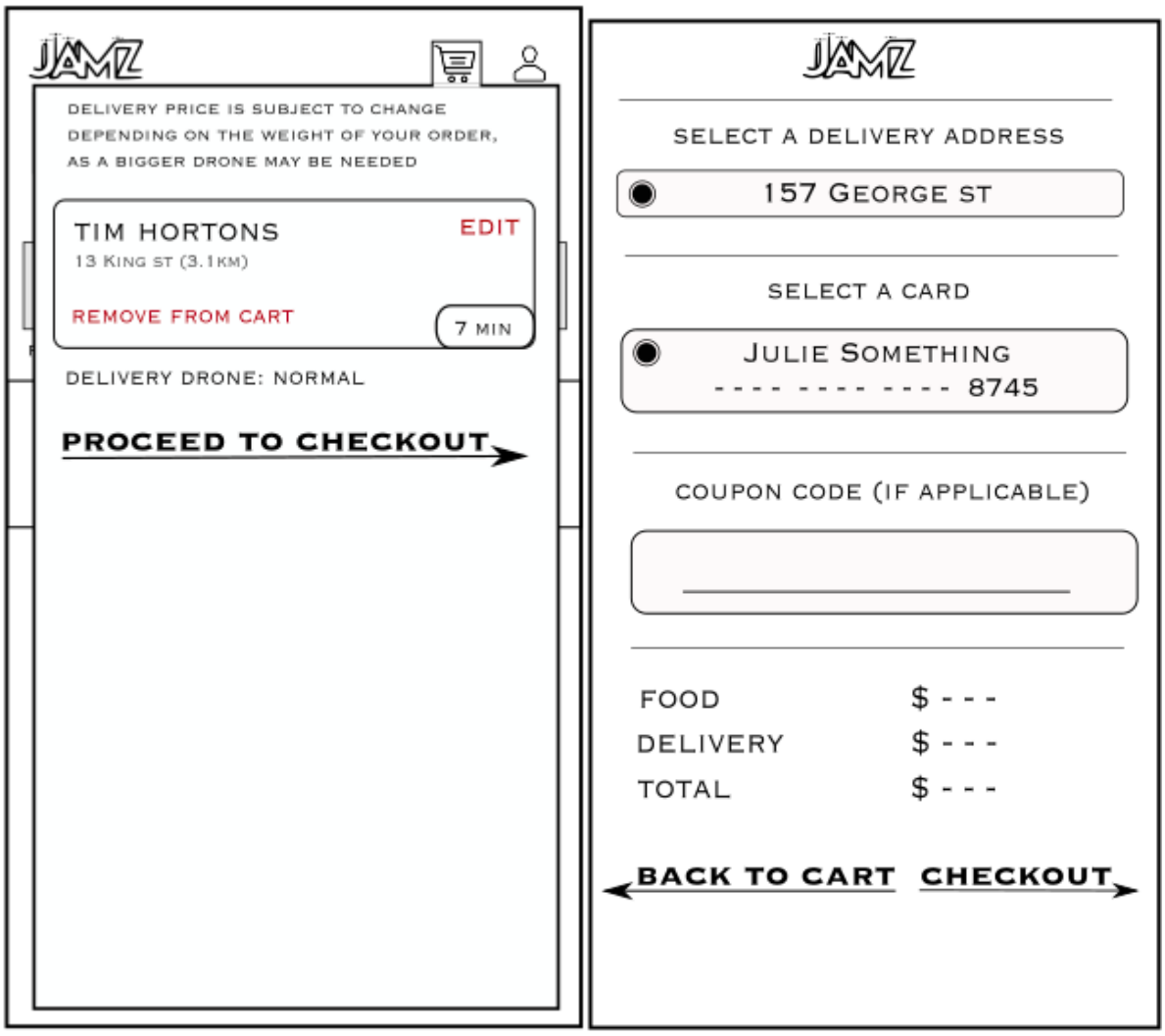
Direct inventory interfaces. So, the app should be able to link directly with the various inventory systems of the restaurants and vendors to allow a real time confirmation that the item is in or out of stock so the user is aware before purchase. When transaction complete removal of an item from a restaurant or vendor's current inventory so that any other users who are purchasing similar items will know the item is out of stock sooner.

Menu items for restaurants show the dietary restrictions so the user is aware before purchasing as well as visual order tracking to ease all concerns of the user about when their order will arrive. The user will be able to track their order from diner to doorstep.

F) Selected design solution




JAMZ
FOOD
ALCOHOL
FAVOURITES
FAST FOOD
VEGAN
SUSHI
ITALIAN
TIM HORTONS
13 KING ST (3.1KM)
7 MIN
MCDONALD'S
54 WEST ST (6 KM)
15 MIN
JAMZ
FOOD
FAST FOOD
ORDERS
PROFILE INFO
LANGUAGE
FAQ
FEEDBACK
HOW WE WORK
CONTACT US
REPORT A DRONE
7 MIN
MCDONALD'S
54 WEST ST (6 KM)
15 MIN


JAMZ
DELIVERY PRICE IS SUBJECT TO CHANGE
DEPENDING ON THE WEIGHT OF YOUR ORDER,
AS A BIGGER DRONE MAY BE NEEDED
TIM HORTONS
EDIT
13 KING ST (3.1KM)
REMOVE FROM CART
7 MIN
DELIVERY DRONE: NORMAL
PROCEED TO CHECKOUT
JAMZ
SELECT A DELIVERY ADDRESS
157 GEORGE ST
SELECT A CARD
JULIE SOMETHING
- - - - - - - - - - - - 8745
COUPON CODE (IF APPLICABLE)
FOOD $ - - -
DELIVERY $ - - -
TOTAL $ - - -
BACK TO CART
CHECKOUT

If no, the app will give you two options (shown above) to locate the drone.

If yes, the app will direct you to the steps (shown below)

JAMZ

STEP 1

ONCE THE DRONE HAS LANDED SCAN THE QR CODE BELOW TO UNLOCK THE DRONE BOX

DONE

JAMZ

STEP 2

PLEASE CAREFULLY TAKE YOUR FOOD OUT OF THE BOX

STEP 3

PROPERLY CLOSE THE BOX AND STAND CLEAR OF THE DRONE

STEP 4

CHECK YOUR SURROUNDINGS, CAN THE DRONE FLY AWAY?

YES

This is the problems alert page

Conclusion

While attempting to come up with designs that fit the parameters of our problem statement, it was apparent that there were no solutions written in stone. The design process was more fluid and incorporated different ideas and views to be shared and compared. Creating a simplistic design is more challenging than it seems. Trying to find the best way to organise a lot of information in a simple and comprehensible manner is a task of its own.

In the end, we were able to come up with our first prototype by incorporating each of our individual design ideas. The result was an app design that had many capabilities but stayed simple and sleek. It is important to keep in mind the capabilities of the software we will code with; these capabilities might not match those in which our design sketch was created. we will have to account for this in our next prototypes.

Bibliography

(1) http://www.jamzdelivery.com/about

Appendix

Updated Trello Board: