Airports

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A Syracuse University School of Design study on airports and how to effect change to improve them as we go into the future of a pandemic-influenced world.

Introduction

Beginning in late August of 2020 we were divided into groups, each group was assigned a transportation hub and tasked with collecting information regarding the current state of the facility, creating an information study for use by other design groups, developing hypothesis about how to effect future changes in post pandemic environment, and finally developing and testing concepts to test the validity of these hypothesis. The topic areas consisted of train stations, bus stations, highways, and airports. Our group was assigned the airport. This project was carried out across three areas of research under the guidance of our professor.

Phase 1: Hypothesis Creation

During phase 1 we began by exploring all aspects of the airport, listing out areas, contact points, and exploring the journeys different users may take to move through the airport. We then traveled to the airport to explore how there physical environment had changed due to the pandemic. Taking in all of these data points we developed a google survey in order to gather concrete data on how people's habits had changed due to covid-19. We also developed a observation guide to set up a structure for us to analyze airports to see what had been implemented already and observe people at set points in the airport environment. After observing the results of the survey and observation guide we developed five hypothesizes.

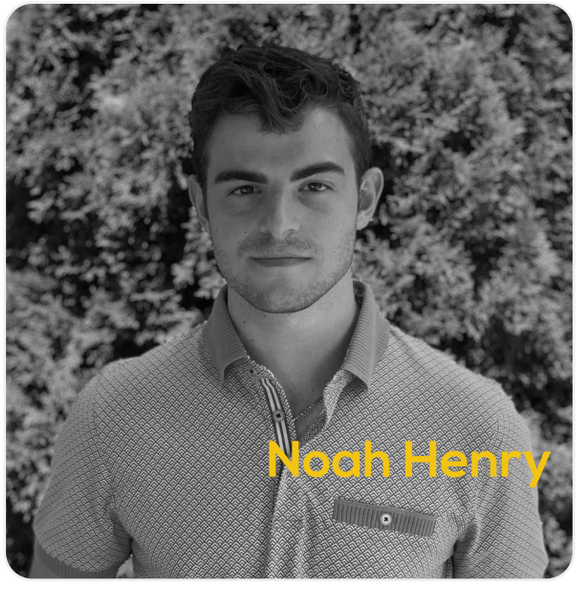
Phase 2: Hypothesis Validation

In phase 2 the goal was to test the validity of our hypotheses we developed in phase 1. In order to do this we first needed to develop product concepts based off of our hypotheses. We started off crating a stick note wall in our collaboration software of all the areas that products could be developed around inside each hypothesis. Then we set off having team members to sketch out product ideas on as many product ideas as they wanted, iterating off these to create further developed ideas. In order to test these ideas and by association there corresponding hypothesis we broke down the airport experience into four septate user stories, and from these created 5 unique storyboards pulling in each of the ideas that corresponded with the appropriate stories. For each of these stories boards we also developed a user story and a set of generic questions. Also making a q-sort to gauge importance. We then interviewed people about these user stories and analyzed there feedback.

Phase 3: Concept Finalization

For phase 3 we applied the feedback to received from our phase 2 interviews. Removing concepts that ranked low in out interviews and Q sort. Then combining and advancing ideas that ranked higher, and finally creating our final product concepts and product renders.

Meet The Team



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Airports Phase 1
Hypothesis Creation

Airports during Covid-19

Research of pandemic impact on the airport environment as a means to generate ideas to improve the efficiency of airports in the future.

Since the beginning of the Covid-19 pandemic, the airport environment has drastically changed with passenger numbers in the United States dropping to around 3% of the volume seen on that same day the year before. Now, in Fall 2020, passenger numbers have slowly improved to around 32% of the volume that they had a year ago. -TSA

COVID-19 spacing at check-in , SYR Hancock International Airport

Although airports provide a plethora of open space and properly conform to Covid-19 guidelines, people are still afraid to enter the airports and take flights. It is the responsibility now of the airports to determine a solution to increase passenger numbers and interaction within the airport. Furthermore:

Is it possible for airports to provide feelings of comfort and safety in a pandemic world?

The majority of our data collection was done using surveys as well as observation guides. The surveys were sent out via email, social media, and texts to friends, family, and coworkers of family members and was completed just over a week long period, in the beginning of September from the 10th to the 18th. The survey was divided into three sections, respondents' demographics, airport experience questions, and ideas for implementation in airports in the future.

Google Survey

https://docs.google.com/forms/d/1UUbCBiVBkz325F0HTsV8ZI80eaZH2f_dUcamkmru4RU/edit

Observation Guide

https://docs.google.com/document/d/1LV6cDM7ICFX3_OyS7kX_a7-BWZ2ExuLPE3Mt54rJ-MA/edit

Airports during Covid-19

Observing COVID-19 precautions taken by Syracuse Hancock International Airport

The questions in the demographics section went over age, occupation, and status in the population (child, adult, ect.) in order to get an idea of the demographics of our surveyed population. The next section largely covered past flying experiences and habits as they pertain to respondents' experiences and habits in airports before Covid-19, then asking related questions to gauge if their habits have changed in response to the current pandemic. A number of questions also enabled us to gauge what main reasons the respondents were likely to travel for, and how frequently they traveled. The final section of the survey contained questions that asked respondents to rate on a scale from 1 to 5 how helpful they would find the implementation of some possible solutions.

We were also able to collect data by observing the Hancock international airport in Syracuse and LAX in Los Angeles. Through careful observation and thorough photo documentation, we were able to record data on both airports' handling of changes caused by the pandemic and travelers' changes in behavior in response to the pandemic. By filling out a number of observation guides, we were able to collect data in real time of whether people actually did prefer to check in through kiosks or in person, whether airports were taking social distancing regulations seriously, how many bags they were likely to check in, the amount of time they were likely to spend waiting in queues, and more.

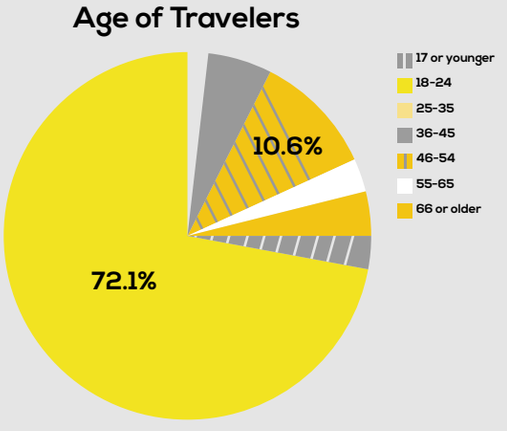
The results of our observations through photo documentation showed that the Hancock International Airport and LAX had put up additional signage and clear plastic shields in order to encourage social distancing, however, had failed to provide adequate sources of hand sanitizers and sanitizing wipes.

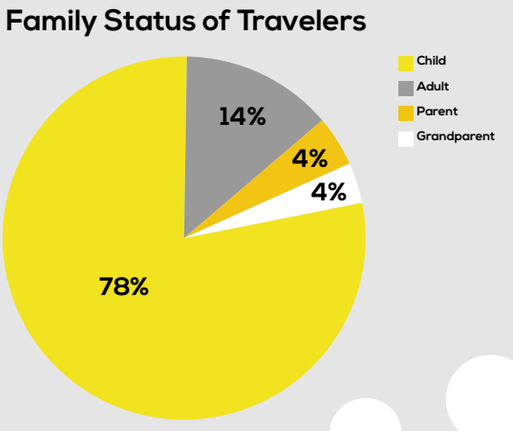
COVID-19 precautions as indicated through signage by Los Angeles International Airport

Quantitative Data: Survey Demographics

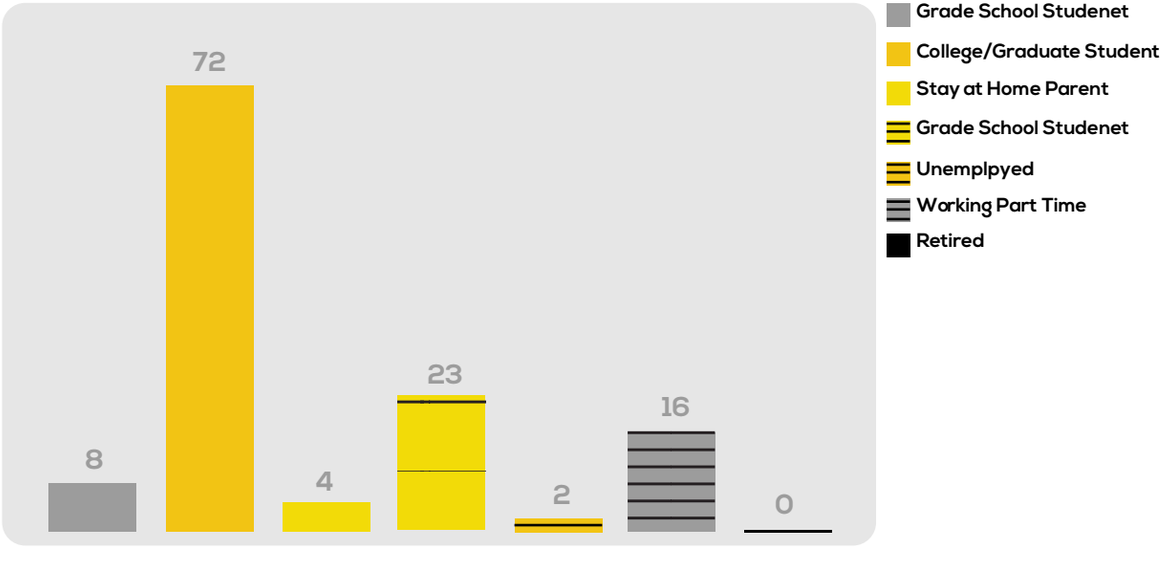
Through the process of collecting survey data on the airport environment a total of 104 responses were gathered. The larger favoring of respondents in a younger age demographic is due to the younger age of the survey creators and the methods used for sending out the google forum to garner responses (Instagram stories, email, and texting people in group chats or individually).

At a first glance, this may appear to be a very even spread of the adult population, however looking at the ratio of adults to the number that selected parents or grandparents, you can still see the fact that the population sample we gathered from the survey is disproportionately swayed towards a younger age group, which appropriately affects the results of our data.



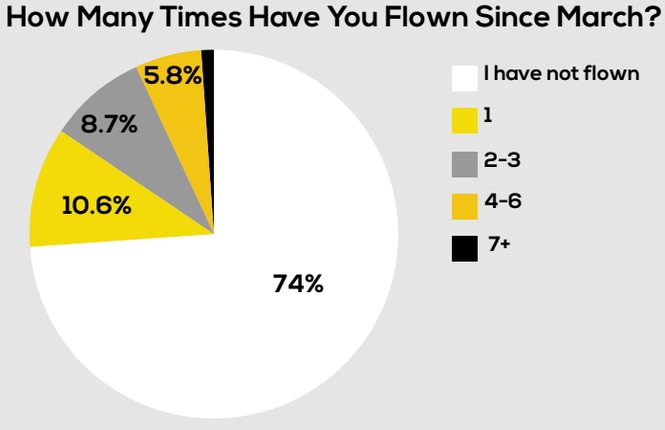


Similar to the age demographics of our survey, the “employment” stats also correlate towards our current status as college students, with the majority of respondents at 69.2% also considering themselves to be in this same demographic.

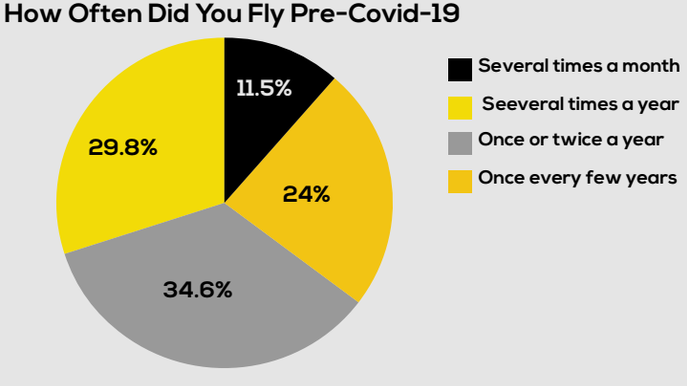


Quantitative Data: Survey Demographics

Only 26% (27 respondents) of the total respondents have flown since March 2020, which could affect the validity of the data based on people who have actually experienced the airport environment compared to the number of those who haven't. This could be further affected by the fact that of those 27 respondents 11 indicated they had only flown once since March 2020, and 9 saying they had only flown 2-3 times since that same time frame. This leaving only 7 respondents that had flown more than three times and experienced the airport environment since the beginning of Covid-19's significant impact on the way travel occurs across the globe.



However, of the 76% of respondents indicating they fly at least once a year, 34.6% say they fly once or twice a year, 29.8% say they fly several times a year, and 11.5% of respondents say they fly several times a month. This data shows that despite the younger demographic of our survey, these young adults still hold a substantial volume of flying time under their belt, with the developed knowledge from experience to share well rounded thoughts in relation to the airport experience.

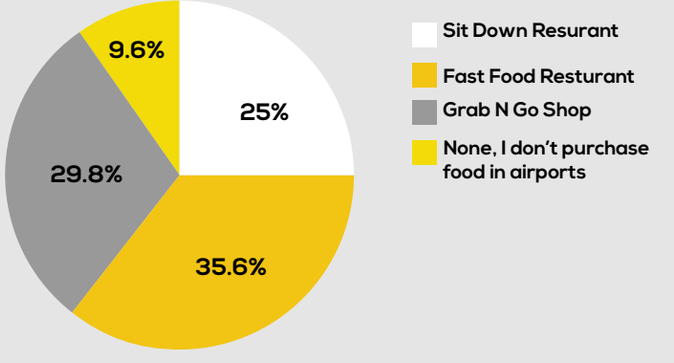


Quantitative Data: Traveler Interactions Between Flights

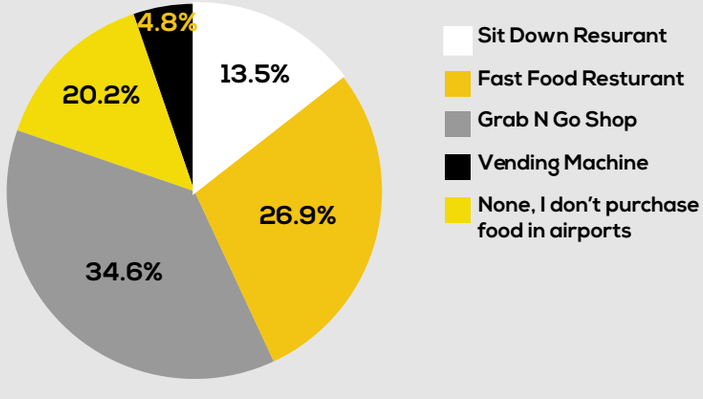
Interestingly, when asked where people were likely to get food before covid-19 and then where they were likely to get food today, each time less people indicated that they would not get food in airports at all compared to the number of those that said they were unlikely to purchase food in an airport. However the number of people who did not purchase food in airports did go up respectively as did the number of those that said they were unlikely to purchase food in the airport.

Within this section the percent of people who would go to places that would require waiting in queues or sitting down also decreased, and in turn, food options that would require less contact with others increased. This continues the trend of people wanting to limit their contact with others and the duration of time spent when getting food.

Pre-Covid 19 Where Were You Most Likely to Get Food/Drink?

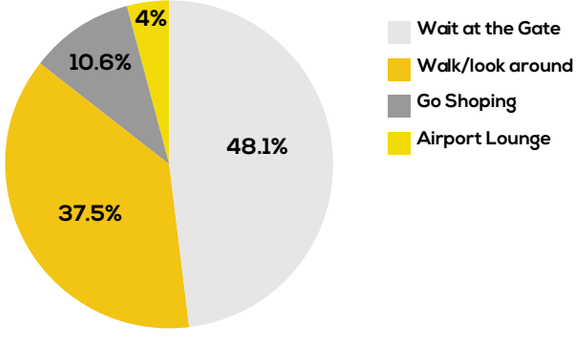


Where Are You Most Likely to Get Food/Drink, Now?

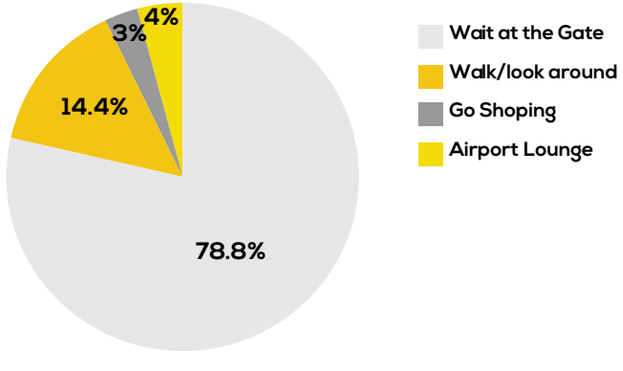


Overall data collected on traveler's tendencies while wating for flights shows that people are wanting to limit their contacts with other passengers and find an area that is comfortable for them. This could also lead to lower amounts of money spent in airports as passengers are not as inclined to move around while waiting for their next flight.

Where Do You Prefer to Spend Time Waiting for Flights Pre-Covid-19?



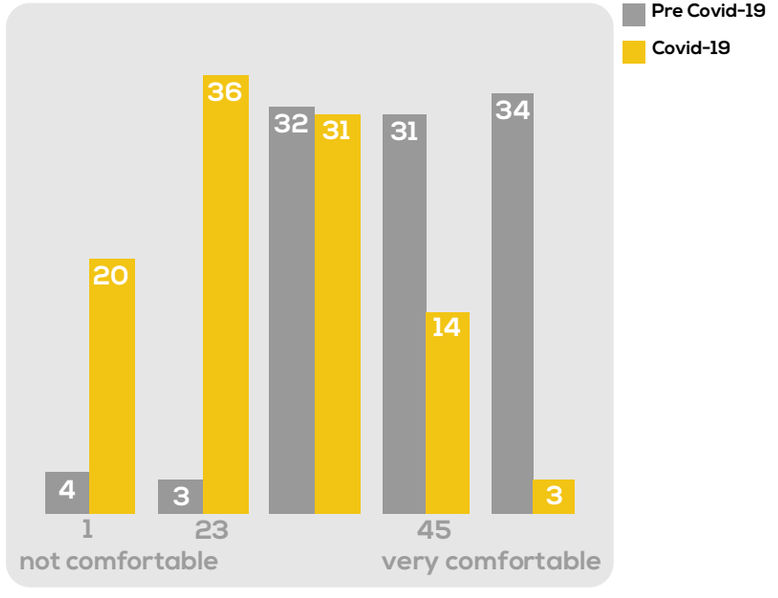
Where Do You Prefer to Spend Time Waiting for Flights Now?



Quantitative Data: Traveler Interactions Between Flights

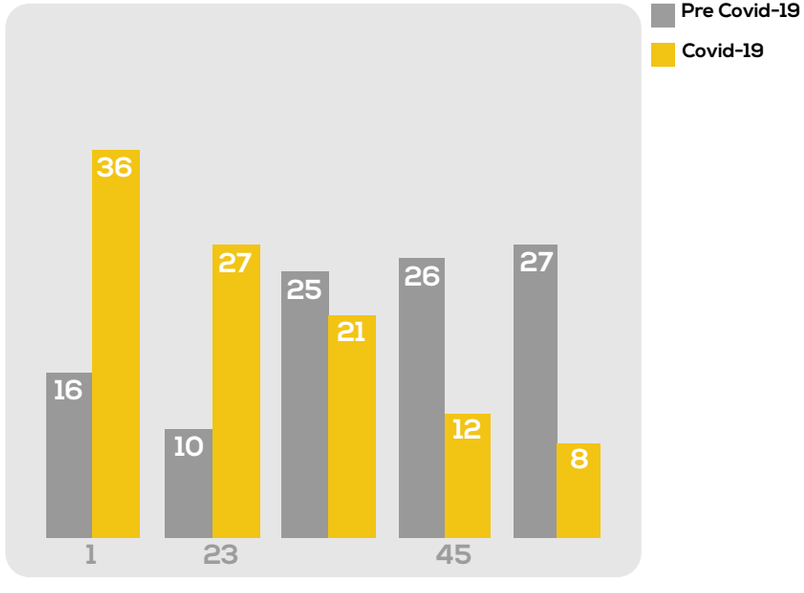
Pre Covid-19, people were very comfortable with waiting in queues, with the majority of respondents indicating that they were on the higher end of the comfort spectrum and very few indicating they were not comfortable waiting in queues today. In comparison, when people were asked how comfortable they were waiting in queues today, the respondents' answers shifted down the chart, with around the same number of people staying in the middle. This overall indicates an area of discomfort for airport users.

Comfort in Queues



When looking at people spending money in airport terminals, more specifically their likelihood to eat at restaurants before Covid-19, and after Covid-19; the data shows a trend that less people found themselves likely to eat in airports now compared to pre Covid-19.

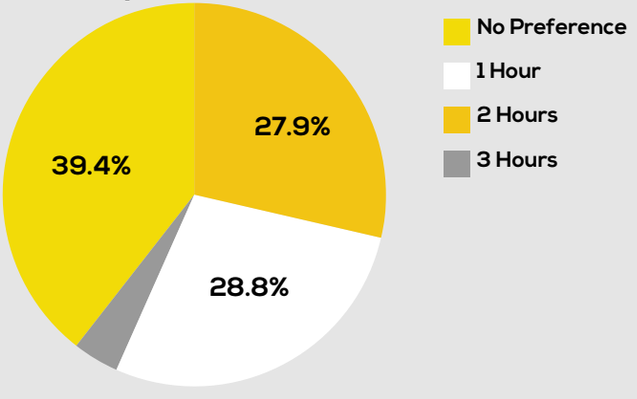
Likeliness to Eat at Restaurants



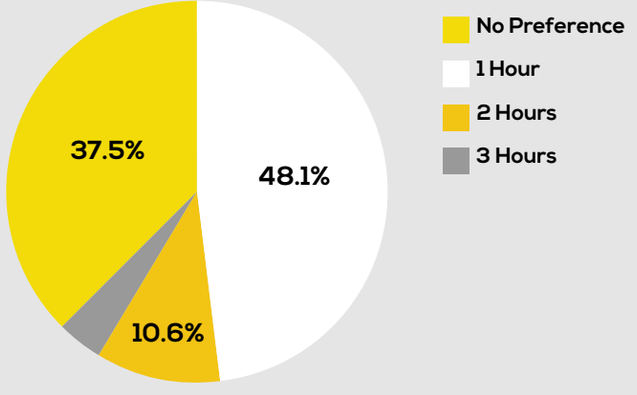
Quantitative Data: Passenger Terminal Analysis

Overall, passengers preferences towards layovers continues the trend set forth by airport users preferring to stay at the gate and not move about the airport. Also connecting to this, passengers who prefer shorter layovers most likely do not have large amounts of spare time to spend around the airport.

Pre Covid-19 Layover Duration Preference

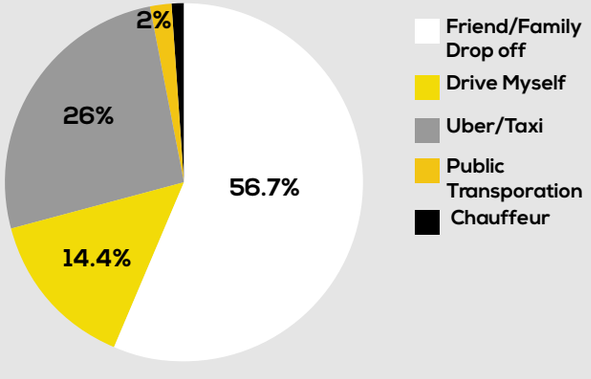


Covid-19 Layover Duration Preference

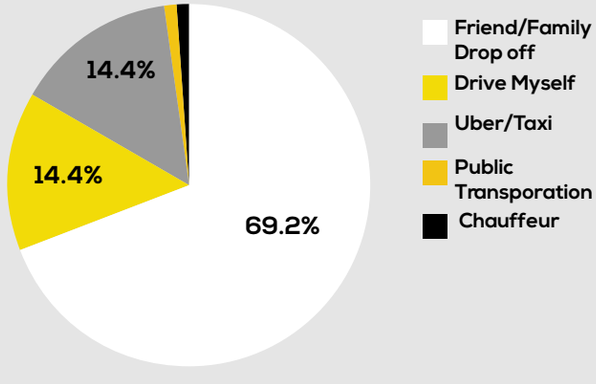


People increased their preference towards transportation that utilizes people inside their inner circle, thus avoiding unnecessary contact with others.

Pre Covid Prefered Method of Transporation When Going to an Airport.



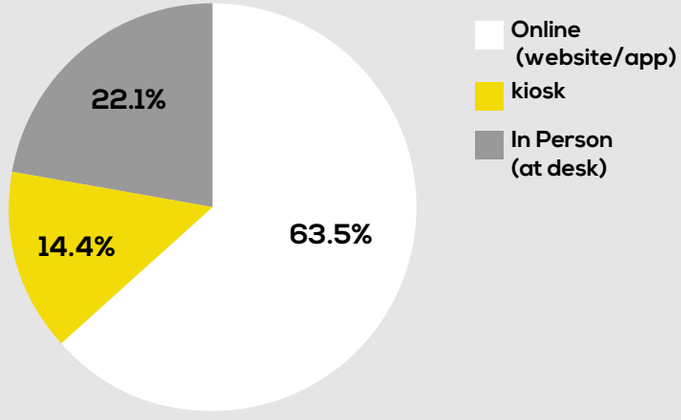
Prefered Method of Transporation When Going to an Airport Now.



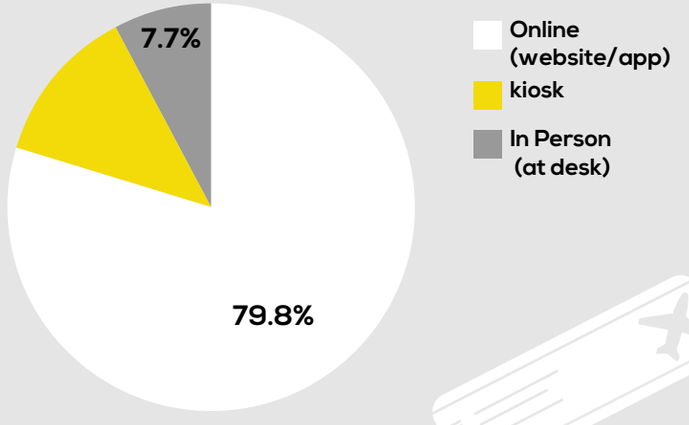
Quantitative Data: Passenger Terminal Analysis

Passengers increased their preference to using methods of check-in that do not interact with other people.

Pre-Covid-19 Preferred Check-In Method

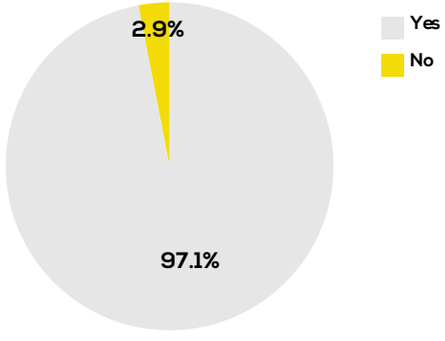


Preferred Check-In Method Now

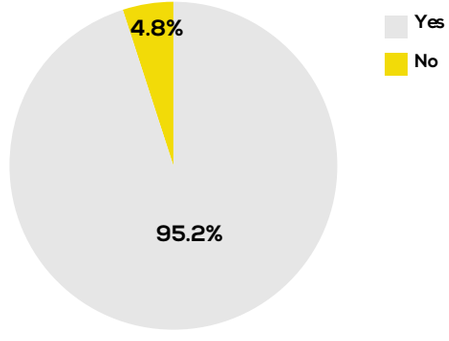


Overall, respondents did not significantly change how many bags they would bring with them while traveling.

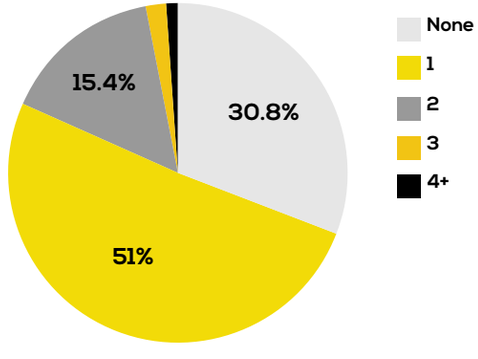
Likeliness to Bring a Carry-On onto Your Flight Pre Covid 19



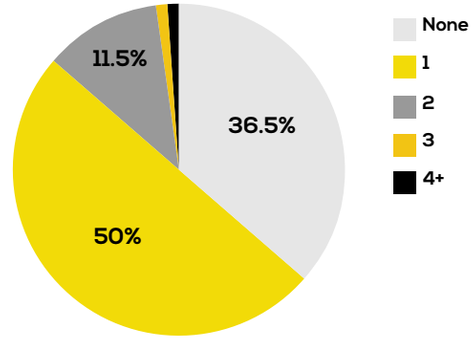
Likeliness to Bring a Carry-On onto Your Flight Now



Before Covid-19, Number of Bags Typically Checked For a Flight



Number of Bags You Would Check For a Flight Now



Hypothesis 1

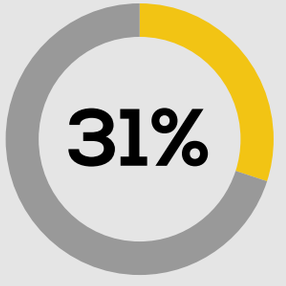
Problem

People are more likely to isolate themselves. Through our primary research, we have found that, due to Covid-19, people more likely to wait at the gate, people are more likely to do Online or kiosk check-in, and people more likely to stay inside their vehicle for pick up or drop off.

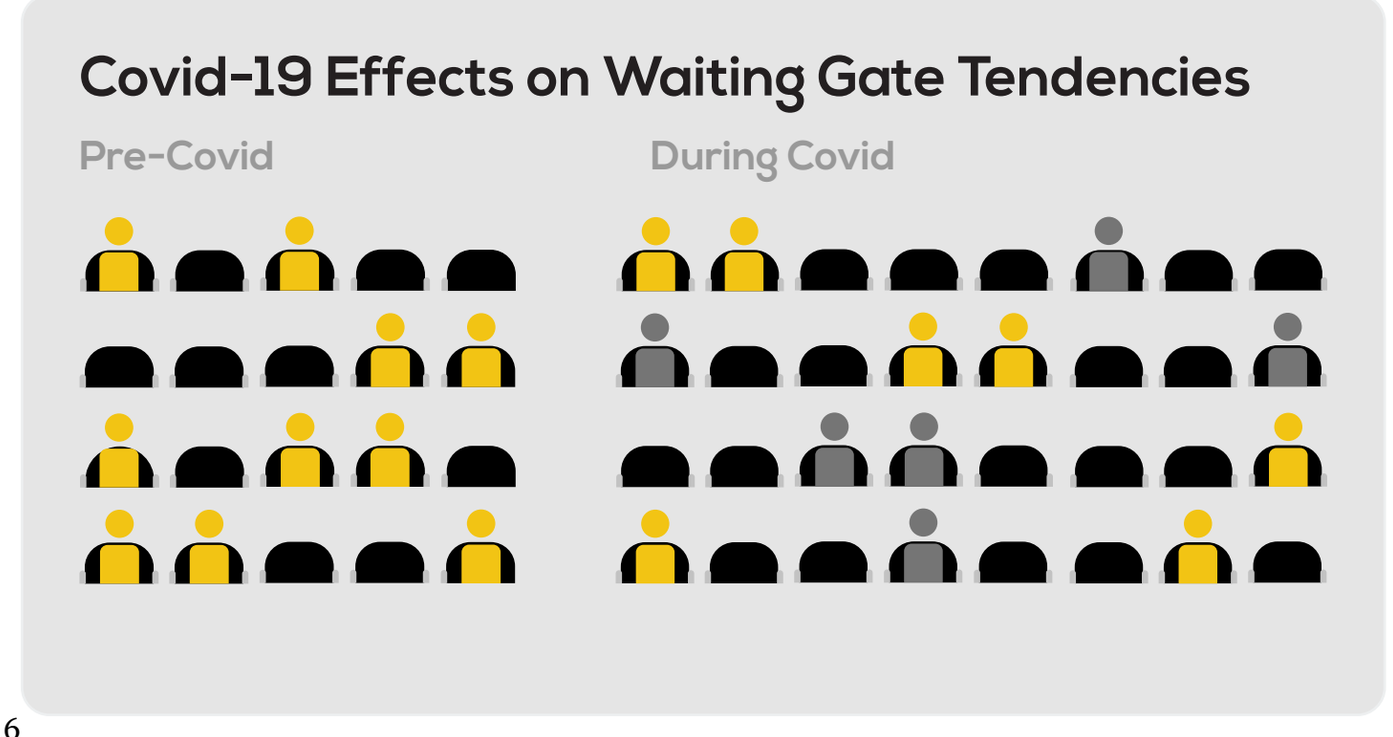
Result

Travelers prioritize self-isolation to prevent health risks.

How can airports reduce contact points to promote sanitary conditions and in turn decrease traveler's tendencies to self-isolate?



Increase in the number of travelers who prefer to wait at the gate due to Covid-19



Thought Process

Data observed by our group and collected in our survey shows that people's behaviors, regarding comfortability, have changed drastically since the Covid-19 outbreak. The most significant impact on travelers' comfort can be seen in travelers' tendencies while waiting for a flight, as well as their pick up or drop off tendencies. From our survey data, people's **tendencies to wait at the gate** increased from **48% to 79%** since Covid-19. This causes space issues in which everyone wants to wait at the gate but they must maintain 6 feet for social distancing. People's **tendencies to remain inside the car** for pick up or drop off increased from **62% to 90%** since Covid-19. This as well creates space issues and could result in traffic backups outside the airport entrance.

Hypothesis 2

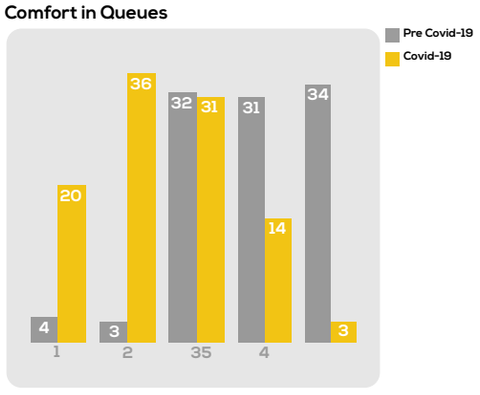
Problem

People are less likely to feel comfortable in high traffic areas such as queues, restaurants, stores, and baggage claim.

Result

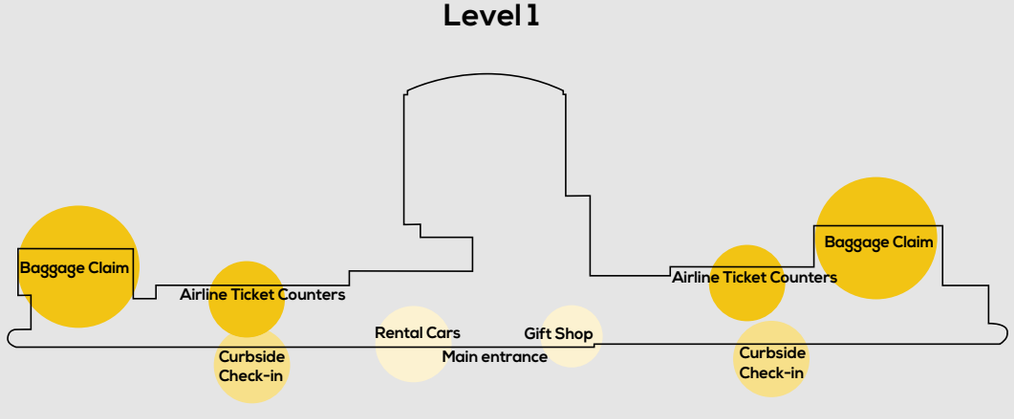
Travelers are more likely to reduce any foot traffic deemed unnecessary and avoid queues to the best of their ability.

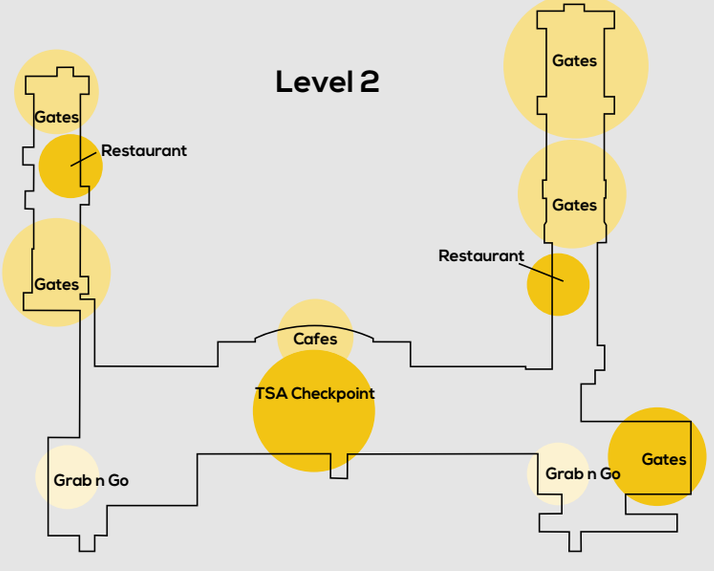
Significant decrease in the levels of comfort travelers experience while waiting in queues after the Covid-19 outbreak



What can be done to increase overall efficiency in airports, in order to prevent crowding in high traffic areas, to better accommodate travelers' tendencies to social distance?

High Traffic Areas in the Syracuse Hancock International Airport Pre Covid-19





Hypothesis 3

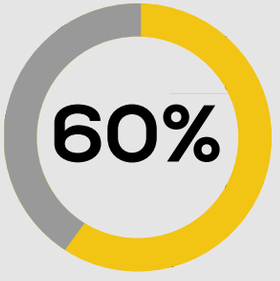
Problem

People are less likely to eat in airports. Most people that do want to eat in airports do not want to eat at sit down and fast food restaurants. People are feeling less comfortable waiting in queues, people are wanting shorter layovers, and are more likely to wait at gates than elsewhere in the airport.

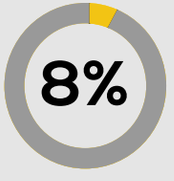
Result

People spending more time there gates with shorter preferred layover periods, people are less likely to spend money.

How can airports reduce contact points to promote sanitary conditions and in turn decrease traveler's tendencies to self-isolate?

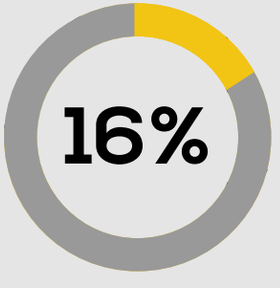


Significant increase in people who found they were not likely to eat in the airport now



Only 8% were still very likely eat in the airport now

Where People are While Waiting for Flights



Only 16% of people felt at least some what comfortable in queues now

Hypothesis 3

Thought Process

Compared to travel before Covid-19, the data shows a significant overall trend of people using the airport wanting to minimize their interactions within the airport while also maximizing the efficiency of time. This can be seen to affect the restaurant space specifically with a substantial amount of people finding themselves less likely to eat in airports compared with before, with almost a complete flip of the data on a scale of passenger comfort. With only 8 people of the total 104 still finding themselves likely to eat at airport restaurants today.

People also stated an increased preference to shorter layovers with the percentage of people preferring a 1 hour layover rising dramatically from 28.8% (pre Covid-19) to 48.1% now, and another increase in people wanting to wait at the gate in comparison to wondering elsewhere around the airport rising from 48.1% to 78.8% today. The trend of people not feeling comfortable engaging with airport services also continues with significantly more people saying they do not feel comfortable in queues compared to before Covid-19.

Finally, when people do get food in airports, there was an increased preference towards places that would theoretically require less human contact, such as grab and go food services and vending machines. In total this shows airports need to increase traveler comfort, through developing and providing services that allow them to access the airport restaurant services with greater ease.

Hypothesis 4

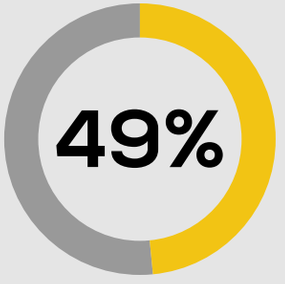
Problem

People don't feel comfortable or safe being within larger groups especially for periods that can last up to 30 minutes. People are more likely to wait at a farther distance in smaller groups, which in turn creates more traffic by creating choke points within these specific spaces.

Result

Travelers and workers feel more comfortable being separated in queues

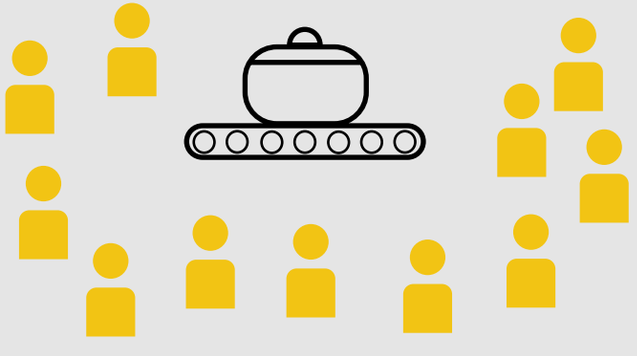
How can airports alter their spaces in order to provide healthy and safe queue environments?



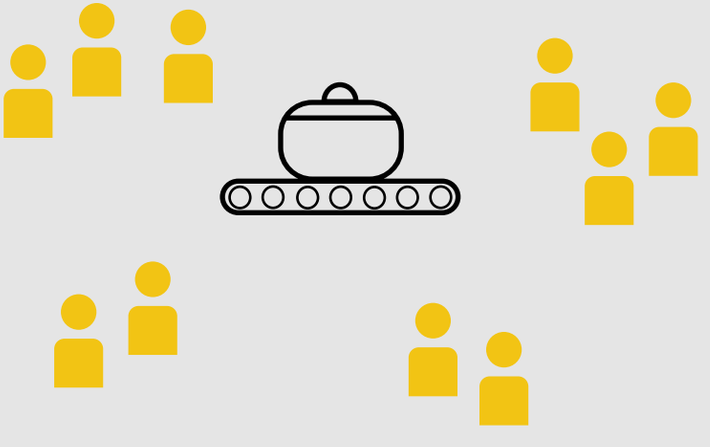
Decrease in number of travelers who feel comfortable waiting in queues due to Covid-19

Covid-19 Effects on Baggage Claim Queue Separation

Pre-Covid



During Covid



Hypothesis 5

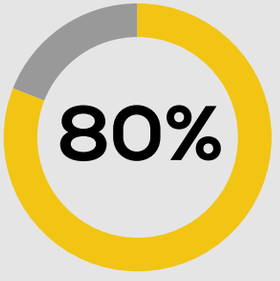
Problem

People are more likely to schedule flights with the least amount of layover time. There are more travelers that care how long the layover duration is. These travelers are also less likely to interact with others if possible.

Result

People are more likely to schedule flights with the least amount of layover time.

How can airports provide safer conditions throughout the facilities so that travelers are more willing to spend more time?



Nearly 80% of respondents choose a layover preference of 1 hour.

Covid-19 Effects on Waiting Gate Tendencies

Pre-Covid

During Covid

Airports Phase 2
Hypothesis Validation

Hypothesis Validation: Definition and Process

Definition of This Stage

In this stage of the project, we worked on gathering research in order to reflect that our hypotheses are true. This is called the hypothesis validation process. During this process, we used interviews and q-sorts ranking statements in order of traveler preference (z -score generated -2 to +2) to gather our relevant data, these tools allow us to analyze our ideas and check the validity of them against potential real world users.

Our Process

Based on the results from the surveys we conducted in Phase 1 of the project, we formed some hypotheses about the behaviors we perceived to have changed in the airport environment in response to the Covid-19 pandemic. Our most significant data points showed that people were likely to isolate themselves, avoid high contact surfaces, and spend less time in the airport overall. Taking these hypothesis we came up with and developed potential products that could be implemented into the airport.

Hypothesis 1

Our first hypothesis states that travelers prefer to isolate themselves by checking in at kiosks or waiting for their flight at the gate. We took these data points and applied them to ideas.

Automated Check-in & Baggage check Process

This aims to reduce high contact points, allowing people to check in and check bags with help from a virtual assistant.

Checking in Bags Online

This idea aims to help people move quickly and efficiently through the check in process upon arrival at the airport.

Hypothesis 2

Our second hypothesis states that people are less likely to feel comfortable in high traffic areas. This led us to come up with ideas to help people avoid lines or crowding in airports.

Pre Scheduled TSA Check-In Times

The goal of this idea is to help travelers avoid large lines at the TSA security checkpoint.

Hypothesis 3

The third hypothesis looks to improve passenger comfort and use of facilities based off findings that people are less likely to eat in airports, are less comfortable standing in cues and are more likely to wait for there flight at the gate area. This led us to believe that developing a variety of food delivery or pick up services would help travelers feel safer about eating in airports.

Flight Bite

This system aims to help passengers with the food purchasing process when they have sorter layovers

Food Ordering Kiosk

This product aims to help people looking to get food avoid airport cues and provide alternate methods for delivery.

Food Ordering App

This app looks to help people order food who don't want to leave there waiting area and go to a restaurant to order.

Hypothesis Validation: Definition and Process

Hypothesis 4

The fourth hypothesis we developed states that people are less likely to feel comfortable being within large groups of people. From this hypothesis, we derived an idea for a safer method of baggage claim for travelers.

Baggage Lockers, Baggage App, and Food

This concept aim to work the baggage process in airports utilizing baggage lockers. This app aims to work in partner with airline apps to rework how baggage is managed in the airport and the travelers experience when exiting the airport.

Hypothesis 5

The fifth hypothesis prompts looking at ways to provide safe facilities for passengers to feel comfortable spending more time in airports. In response to this we looked to reinvent how passengers spend longer layovers.

Rent-able Pods

These rent-able pod areas aim to help feel safer during layovers allowing them to avoid the from the crowded gate waiting areas.

Story Development

Taking the ideas we developed from our initial hypothesis we looked at they ways people spend time in airports and divided it up into four separate user journeys:

- -Arrival to airport and taking off on a flight.
- -Landing at an airport for a short layover and then taking off again.
- -Landing at an airport for a long layover and taking off again.
- -Landing at and airport and claiming your baggage.

Taking these four user journeys we developed 5 separate user stories, each focusing on one of these user journeys, and implemented all of the ideas that fit within each journey into them. Paired with each of these stories was a set of questions that were asked during user interviews to gauge how effective these ideas could be when implemented into real world environment this allowed us to see which ones have merit for further development. A total of 15 people participated in the interviews using zoom, each interview lasted between 30min and 1hr.

Hypothesis 1 Validation: Idea 1 - Contact-less Check-in

Drawing from the hypothesis

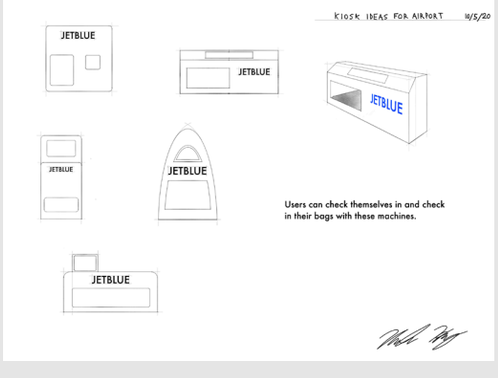
People in the airport environment want a feeling of safety and need sanitary conditions. As people continue to travel post Covid-19, comfort is a key point that needs to be addressed for travelers to feel safe moving about the airport.

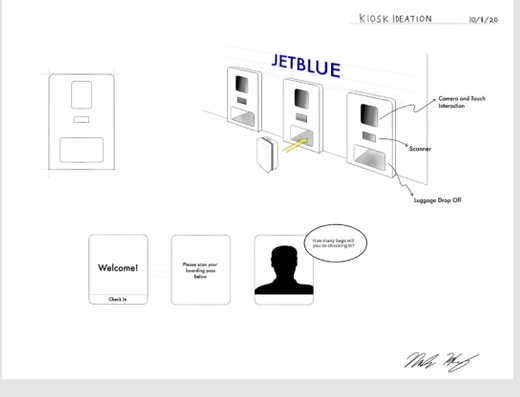
Ideation

Taking these points into consideration, we thought of how a new kiosk design and check in process could provide more comfort to travelers. Being the first thing that people do when they enter the airport, a sanitary check in area and a check in process with minimal contact could generate initial feelings of safety and comfort to travelers.

How can airports reduce contact points to promote sanitary conditions and in turn decrease traveler's tendencies to self-isolate?

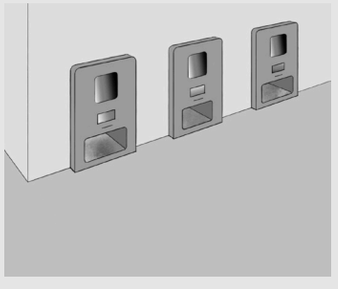
Sketches

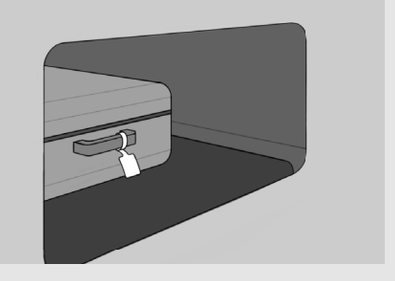




User Story

John's journey at the airport begins with him locating check-in kiosks along the back wall. He is then greeted with a virtual assistant who guides him through the check-in process. While doing so, John has no need to touch any high contact surfaces.





Questions

What are your thoughts on having no direct human contact at check-in?

What do you think about being able to check-in yourself and your luggage without touching any high contact surfaces?

Hypothesis 1 Validation: Idea 1 - Contact-less Check-in

Key Quotes from Interviews

"I think it would be nice. Because with this, I don't have to touch anything unnecessarily, and I think I want to avoid touching anything if possible. But I do think that a lot of people will be touching the kiosk. It would be important for airports to somehow sanitize surfaces often and let people know that they're being sanitized often." -Grad Student

"I think it is smart and can be done... It should be pretty easy to reduce human contact through this process" - College Senior

"I personally prefer to have human contact because a lot of times you run into situations where you worry it might be difficult to get your particular question answered from a computer" - General Contractor

"Great for me, however not so great for other people such as those with disabilities." -Grad Student

"I think it's a good idea considering the pandemic recently. I think a considerable amount of people are wary of coming into contact with others. I think it would be important to make sure that the kiosk should be easy to use or accessible for all kinds of people. Other than that, the lack of human contact is great." - College Junior

Q-Sort Data

Statement:
I would prefer minimal to no human contact when checking in

Z-score: 0.8257 | Rank: 3/10

Analysis

Targeting the way people check into the airport is a way to provide initial impressions of sanitary conditions to passengers. According to results from our interviews and q-sort data, minimal direct human contact with others is proffered by many travelers.

Many travelers like the idea of being able to check in themselves and their baggage without having to come into contact with a human or touch any high contact surfaces. Referring to the Q-sort data, with a Z-score of 0.8257, travelers ranked minimal contact at check in 3rd out of our 10 statements. Reducing contact with human and surfaces is the preferred method that most traveler's that we interviewed would like to check in.

Problems that traveler's could see happening with this solution include issues of sanitation and miscommunication. Traveler's want to be informed that the kiosk is being sanitized even though there is no need to touch it. In case certain situations come up, people would want the ability for an actual assistant, rather than virtual, to aid their specific needs.

Overall, this concept of the check in process proves to be a popular area traveler's would like to see developed in airports. Going into the next phase of our research, we will use this data to improve our check in ideas.

Hypothesis 1 & 2 Validation: Idea 2 -Online Bag Check

Drawing from the hypothesis

People are less likely to feel safe waiting in lines or large crowds. Travelers are wanting to avoid lingering in high traffic areas such as queues for check in, TSA security check, restaurants, and baggage claim.

Ideation

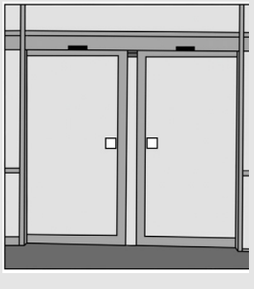
People would feel safer in less crowded areas, so in order to accommodate for this, airports need to reduce crowding in high traffic areas by increasing the overall efficiency of the check in process to shorten the amount of time people spend checking in. One way that this can be done is by allowing travelers the options to check their baggage Online from home before arriving at the airport.

Sketches

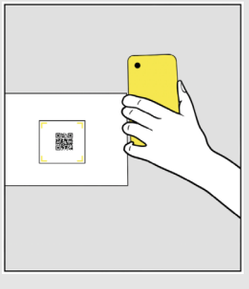
The purpose of this sketch was to show how a user would go through the process of checking a bag Online via mobile app and the various options they would be given.

Sketches

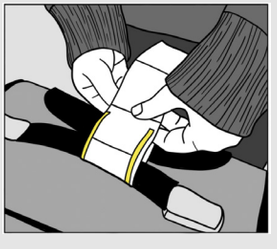
Jane uses the airline app on her mobile phone to check in for her flight. After checking in, she uses the same app to check her baggage and pre-schedule her TSA check in time.



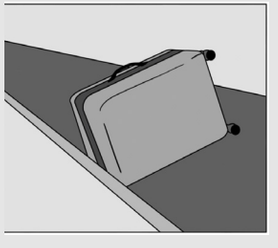
Jane arrives at the airport 45 minutes to an hour before her flight



She uses one of the kiosks along the back wall of the airline ticketing center to scan her mobile boarding pass and prints out a paper boarding pass and her checked baggage tags



Jane attaches her printed baggage tags to her luggage so that it is visible.



She then weighs her bags on the conveyor belt, which then takes her checked bags to the baggage loading area

Hypothesis 1 & 2 Validation: Idea 2 -Online Bag Check

Key Quotes from Interviews

"Easy to do it yourself, Works for me, for frequent fliers this is great." -College Educator

"Looks efficient and easy." -Business Executive

"That would be very convenient. Doing anything online makes things automatically easier. The more you can do before you get to the airport, the faster you can get through the whole process and the less stressful it gets." -College Student

"I think it would be convenient and fast." -Grad Student

"It sounds simple and convenient. It seemed fairly easy to do." -College Student

"Very seamless, liked that no one touches my bag." -Business man

"Very convenient because it cuts down your times." -College student

"Should be no problem using QR code, it is super-fast normally, I like having things ready before hand." -College Educator

"Definitely reduces contact and will help everyone" -College Student

Q-Sort Data

Statement:
I would prefer minimal to no human contact when checking in

Z-score: 0.8257 | Rank: 3/10

Analysis

Results of the q-sort studies and interviews conducted showed that many participants were interested in the idea of contact-less check in. Ranking third in the q-sort study with a Z-score of 0.8257, contact-less check in was a fairly high area of interest. Many of our participants agreed that having the option to check baggage online from home would be useful and convenient. A majority of participants found this feature to be effective at speeding up the check in process, thus reducing the amount of time spent checking in at the airport.

Many participants also agreed that being able to check in without touching any high contact surfaces by scanning a QR code is beneficial and possibly preferable in he current airport environment. A number of participants were concerned about the possibility of technical issues and the learning curve for the relatively new technology, and suggested that kiosks be used alongside check in desks.

Hypothesis 2 Validation: Idea 1 -Scheduled TSA Check In

Drawing from the hypothesis

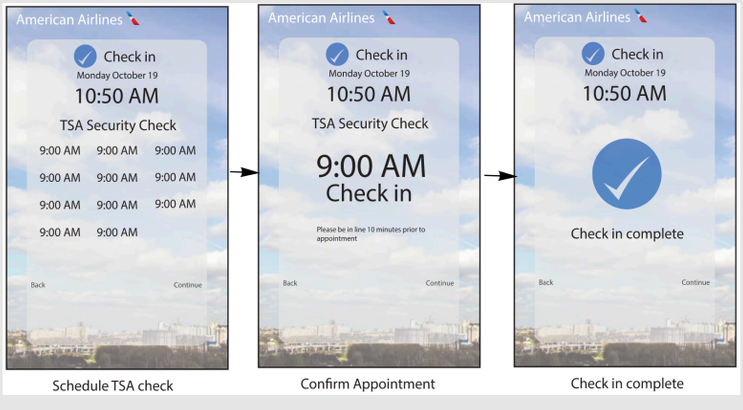
People are less likely to feel safe waiting in lines or large crowds. Travelers are wanting to avoid lingering in high traffic areas such as queues for check in, TSA security check, restaurants, and baggage claim.

Ideation

In order to reduce traffic and crowding in queues, airports would have to find a way to increase the effectiveness of the processes that travelers go through to get to their destination. One way this could be done is by giving people the option to schedule their TSA check in times to prevent people from showing up and getting in line for the check in time in large crowds.

Sketches

The first phase of sketching ideation: the purpose of this sketch was to show the process a user would go through to schedule their TSA check in online via mobile app.



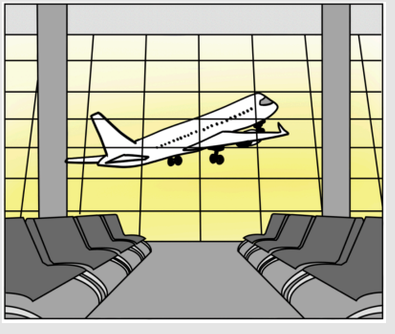
Schedule TSA check | Confirm Appointment | Check in complete

User Story

After taking care of her checked bags, Jane receives a notification from her mobile airline app, reminding her to get in line 10 minutes before her scheduled TSA check in time

Jane's gets into line 10 minutes before her scheduled TSA check in time to make sure that she doesn't miss her appointment time

Jane quickly gets through the line and passes through the TSA checkpoint within 15 to 20 minutes and gathers her belongings



Jane is then able to go directly to the gate to wait for her flight

Hypothesis 2 Validation: Idea 1 -Scheduled TSA Check In

Key Quotes from Interviews

"I would use this around holidays or if I'm unfamiliar with the airport." -College Educator

"Airports would have a good place to get through security and I would be able to be around less people." -Business Executive

"Yes, I would [use this feature] to avoid long lines." -General Contractor

"I think I would [use this feature], especially because I'm an organized person and I like to have things scheduled out beforehand." -College Student

"Really depends on if you have TSA pre-check or not.. on a busy day it could be useful." -College Educator

"The biggest time waster in airports would definitely be waiting in line in security" -College student

"Pre-scheduled TSA check would be helpful for someone who wants to get through the process quickly because it's the most varying in terms of time that you go through." -College Student

Q-Sort Data

Statements:
I can schedule an appointment time for my TSA security check

Z-score: 1.6086 | Rank: 1/10

Analysis

From the results of the interviews and q-sort studies, we found that the option to schedule an appointment for TSA check in was the idea that people found to be most interesting. The statement "I can schedule an appointment time for my TSA security check" ranked first in q-sort study results with a Z-score of 1.6086. Feedback collected from a total of 15 interview participants showed that the majority of participants were interested in this feature and believed it to be effective at shortening the amount of time a person would have to spend in the airport.

Though a couple of participants stated that they would personally prefer not to schedule a TSA check in time for various reason including possible road traffic, delays while checking in, and the possibility of getting held up for other issues and missing the appointment time, the majority of participants found that it would be a useful tool. Multiple participants made the remark that this tool would be easier to use for "seasoned" or frequent flyers and that new flyers would possibly require some guidance.

Hypothesis 3 & 1 Validation: Idea 1 -FlightBite

Drawing from the hypothesis

Most people are unwilling to eat in airports with the unsanitary conditions and uncomfortable feelings brought about by Covid-19. Continuing into the future, people need a way to get food that makes them feel safe.

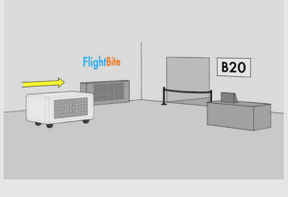
Ideation

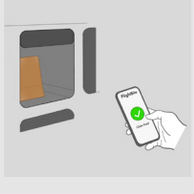
We generated ideas of food pick up and delivery services that would enable minimal to no direct human contact. The delivery and pick up methods bring the food at a location convenient to you. This allows for an efficient method for travelers to get their food without hassling to find locations scattered across the airport.

What can airports do to increase traveler use, comfort and accessibility to restaurant and store services in the airport?

User Story

John continues his journey by boarding his plane. He becomes hungry and is able to order food from the plane for pickup upon arrival at his destination.

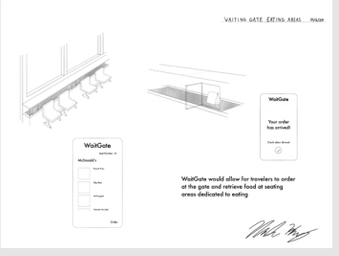


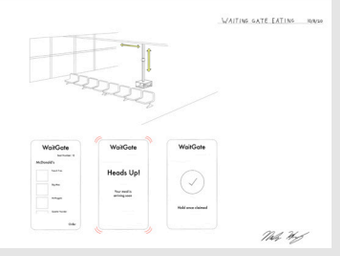


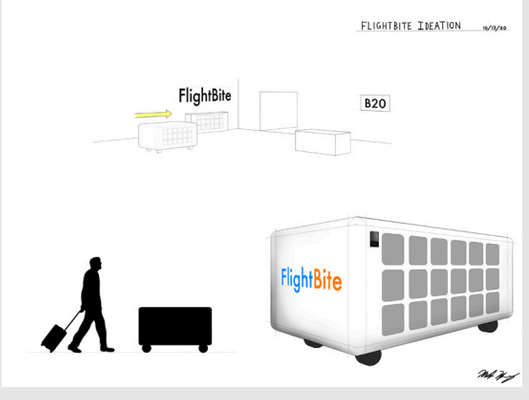
Questions

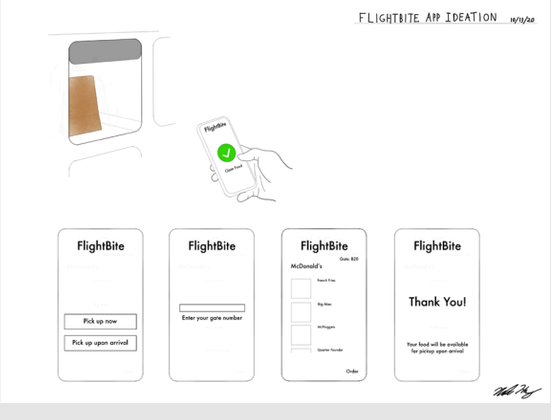
What do you think about having hot food readily available for you when you arrive at an airport?

Sketches









Hypothesis 3 & 1 Validation: Idea 1 -FlightBite

Key Quotes from Interviews

"Honestly, the ease of all that was provided as well as the minimum contact was one thing that really stuck out to me. It seems like a very fluid process that although people have not done in their lives it seems like they would be able to pick it up right away because it seems so intuitive. Picking up food in a hot locker like that would honestly be amazing. I'm surprised I haven't heard of or seen anything like that as well." - College Senior

"I would prefer to order directly from a restaurant instead of receiving food in lockers. I would be concerned about these lockers since they are high contact" - Engineer

"Wonderful and ingenious idea, however expand the idea to also include cold food." - Grad Student

"I really like this idea. I would be willing to try something like this if there were a restaurant that I'm already familiar with to see how it goes. I would want to know that it would be pretty clear what to do if something were to go wrong. It would just be a hassle if something were to go wrong and I had to go to the restaurant to go and fix it, but I think it's a great idea." - UX Designer/User Researcher

Q-Sort Data

Statement:
I can have food ready for me as I exit the plane

Z-score: 1.5199 | Rank: 2/10

I would prefer minimal to no human contact when ordering or picking up food.

Z-score: -0.4477 | Rank: 7/10

I can order food from mulitple restaurants at once

Z-score: -0.1808 | Rank: 6/10

Analysis

Food services paired with minimal contact is a way for user's to feel comfortable with their food and receive it in a convenient way. Through using a food locker system, traveler's would have the ability to pickup their food at a location close to them and not have to worry about the safety of food pickup .

A high number of traveler's we interviewed enjoyed the idea of being able to have food readily available for them as they exit the plane. The idea of ordering food on the plane to be picked up is something that people were surprised they had not heard of or seen before. Our Q-sort data displays this concept at rank 2 of 10 with a high Z-score value of 1.5199. Many traveler's are willing to try this new food pickup method and think it would be very intuitive.

On the other hand, some traveler's ranked minimal to no human contact lower in the Q-sort. This idea was ranked 7 out of 10. One measure that could be put in place is to have a worker stationed near the locker to ensure the safety and sanitary conditions of the locker and surrounding area.

Going into the next phase of development, we will ensure the locker is a sanitary location for people to conveniently pick up cold or hot food as they exit their boarding tunnel.

Hypothesis 3 Validation: Idea 2 -Food Ordering Kiosk

Drawing from the hypothesis

Hypothesis three looked to increase traveler use, comfort and accessibility to restaurant and store services in the airport. Drawing from the data point that people are less comfortable waiting in cues, wanting to have shorter layovers, and want to move around the airport less and just wait at the gate.

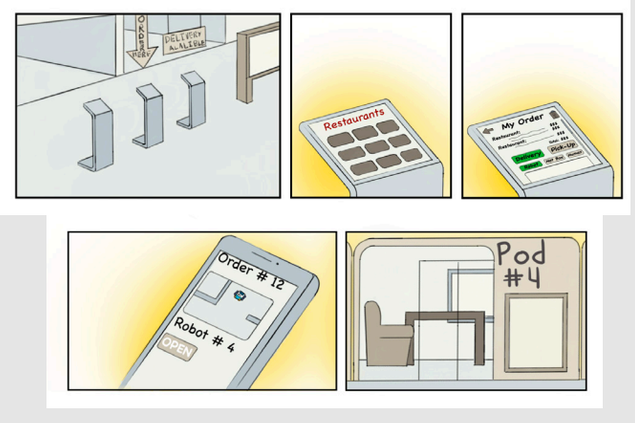
Ideation

With this in mind we developed the concept for a food ordering kiosk that is out in the airport terminal away form the main lines of restaurants. These kiosks would allow you to order from multiple restaurants at once and would allow you to select from multiple delivery methods, including a robot that would deliver right to where you are in the airport.

Sketches

User Story

Laurens journey begins in the airport terminal, after landing she sees a kiosk in the center of the walk way with an order here and delivery available sign above it. Lauren explores the nearby restaurants' menus and ends up selecting food to order from a couple of the restaurants at once. She then puts in her information to have the food delivered to her and it arrives via robot it is when ready.



Questions

Would you find the multi restaurant kiosk in the airport terminal useful?

How would you use the food delivery methods available? What one would you have chosen?

Do you have any other comments on this passengers storyboard?

Hypothesis 3 Validation: Idea 2 -Food Ordering Kiosk

Key Quotes from Interviews

"Multiple restaurant ordering is especially great and useful if you are with someone and you both like different types of food. This would be great as an app on your phone." -College Educator

"I like that you could get food from different places so that you can get what you really want." -UX Design/User Research

"I think this idea is nice, I could see myself using it often" - College Junior

"I think the robots are unnecessary." -Grad Student

"I would probably do the locker. Still gives convenience of the robot, but I will feel a little weird with a robot or anything like that. Person and locker are tied for me." - College Senior

"I like the robot, I think it's pretty cool. I think I would like to be able to talk to the robot if something were wrong with my order so that I can get it corrected quickly and brought to me." -UX Design/User Research

Q-Sort Data

Statement:
I can order food from multiple restaurants at once.

Z-Score: -0.1808 | Rank: 6/10

I would prefer minimal to no human contact when ordering or picking up food.

Z score: -0.4477 | Rank 7/10

While waiting for my flight, an automated device brings me food that I ordered.

Z-Score: -2.5226 | Ranked 10/10

Analysis

Based on the feedback received from the interview people were very receptive to this idea. Many people thought it would be a great concept in the broader picture, however there was differentiating of opinion when looking at where to take this idea. Most everyone enjoyed the idea of ordering from multiple restaurants at once since it enabled you and other people to get exactly what you want, especially if you have different tastes in food. Many people thought this idea would be great if implemented into an app, amplifying the convenience while still partnering it with a kiosk for the ease of use in the terminal.

When looking at the specific delivery options available within the app people were indifferent about having a human to deliver the food to. However people disliked certain things about all delivery methods offered. Surprisingly, while some people spoke highly of a delivery robot, overall aspect of this product experience ranked lowest on the Q-sort at a 10/10. Thus this would not be included if this idea was explored further.

If you do not include the ranking for the food delivery robot this product idea ranked just bellow middle of the board overall on the Q-sort statements and thus could be explored further as a potential idea to implement into the airport. Especially since many of the hypothesis on why people would use this healed up to be true for the most part. Overall Features of this idea would be best further perused in combination with the other food ordering platform ideas also based off hypothesis 3. Together if perused these ideas could make a strong concept to be implemented into the airport environment.

Hypothesis 3 Validation: Idea 3 - Food Ordering App

Drawing from the hypothesis

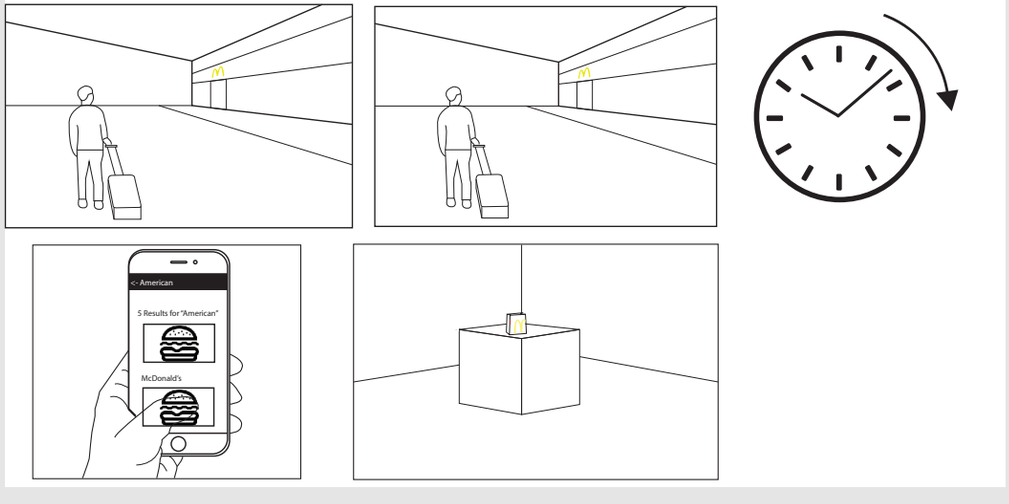
People are less likely to eat in airports. Those that are likely to eat do not want to eat at a sit down restaurant but rather refer fast food restaurants. since people are feeling less comfortable waiting in queues, more wanting of shorter layovers, as well as preferring to stay at the gate to wait for their flight, a food ordering app was designed.

Ideation

We came up with bringing the food delivering scene to the airport given the circumstances and behavioral changes due to the pandemic. The concept revolves around travelers ordering food and selecting their gate or another designated area to deliver to. This was to encourage travelers to still consume food at the airport while maintaining a safe environment

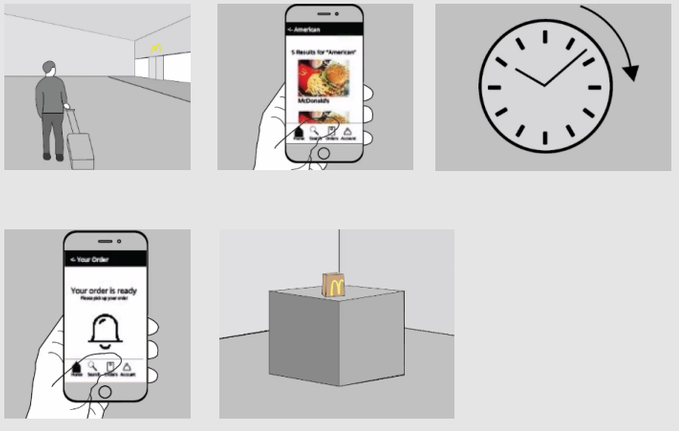
How can airports provide safer conditions throughout the facilities so that travelers are more willing to spend time?

Sketches



User Story

Bob arrives at an airport for a short layover. He is a businessman that is hungry, but does not want to be in contact with others.



Questions

What are your thoughts on having minimal direct contact with others?

What are your opinions on automated deliveries?

How do you feel about the safety of these kinds of deliveries?

Hypothesis 3 Validation: Idea 3 - Food Ordering App

Key Quotes from Interviews

"I think that there's a lot more close interaction with other people and the food itself, but less interaction between me and other people. I also like that you don't have to wait in line, so a more guaranteed social distancing is happening. I think I would be worried about whether the food would come on time or not though. I feel like maybe it would be easier to just go and pick it up in person." - College Student

"Not great. I think someone would steal the food. The contact-less food delivery would be safer, but the safety of the food wouldn't be guaranteed. What if I don't pick up my food and it sits there? Someone could do something bad to the food or take it." - Grad Student

"Feels right, would want to know where the food is located at." - Business Executive

"Absolutely fine. The only issue I see with those is the employees themselves working at the restaurant, but that would only be an issue with the restaurant itself" - College Student

Q-Sort

Statement:
I can order food from multiple restaurants at once.

Z-Score: -0.1808 | Rank: 6/10

I would prefer minimal to no human contact when ordering or picking up food.

Z-Score: -0.4477 | Rank: 7/10

Restaurants are flexible and can deliver food to me within the time constraints of my flight.

Z-Score: 0.6664 | Rank 4/10

Analysis

With the food ordering application, there were many concerns regarding the interaction between the restaurant employees and the food as well as the person delivering the food. The notion that there would be very minimal direct contact with other people was appreciated however this concern was formed. Realistically, there is no scenario where another person is not in contact with your food in the entire food making and food delivery process. Unless automated devices made the food and delivered the food, there will always be indirect contact.

With the safety of the delivery process in itself as well as the safety of the food being delivered to the right hands, there was another concern. There was simply a miscommunication in terms of presenting the information. The employee delivering the food would wait at the gate or at the designated area for the person to pick the food up and confirm their identity using the app. Food ordered will also factor in the flight time if travelers choose to input that information so that travelers with less time will have their orders prioritized.

The Q-sort data shows that ordering food from multiple restaurants at once and preferring minimal to no human contact when ordering or picking up food are not much of a priority, but regardless would be great options to have. The idea that restaurants are flexible and can deliver food to travelers within the time constraints of their flights was a much higher priority sitting at 4th out of 10 statements.

Hypothesis 4 & 3 Validation: Idea 1- Baggage Claim App

Drawing from the hypothesis

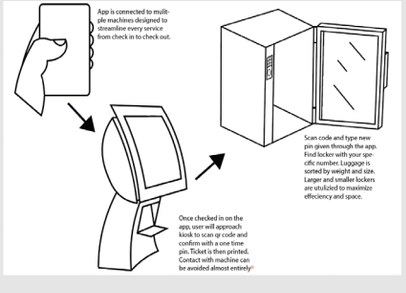
People are more likely to prefer to claim their baggage and exit the airport as fast as possible. People are feeling less comfortable waiting in queues, prefer less crowding, and would prefer to have their own personal spaces to enjoy peace while they wait for their baggage and possibly grab and go style food..

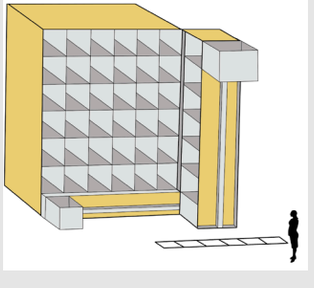
Ideation

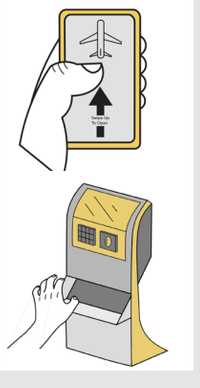
People only spending more time at baggage claim if they plan to get food and rent a space because of overcrowding. Otherwise, airport exits will become even faster for most people. Baggage claim could become a safer and faster experience if travelers could pick up with luggage from specified areas while avoiding high traffic areas.

Sketches

My overall Sketch progression was far more of a focus on attention to detail over form. In general, when drawing digitally, I always try to make the first ideation carry its style throughout to the final. I think in terms of changing the kiosk and locker, this may have been the only aspect of variation.

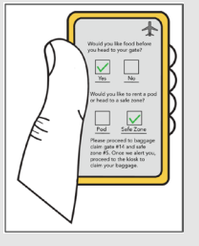


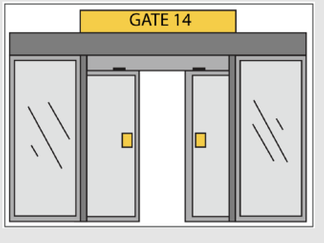


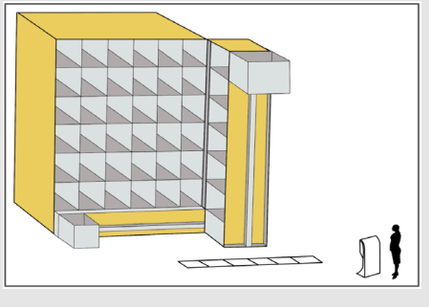


User Story

John's lands at the airport opens up his app and selects what food he wants, once is baggage is unloaded off the plane he is notified what locker it will be located in, and given a qr code to access the locker. He can easily claim his bags and be on his way.







Hypothesis 4 & 3 Validation: Idea 1- Baggage Claim App

Key Quotes from Interviews

"They should be strict about crowd control. It would be a lot safer if they restricted crowding." -Grad Student

"I think people would use it if it properly estimated traffic and effectively regulated it." -College Student

"I think it would be a good idea to know the status of when I should go and get my luggage. It would be helpful." -User Researcher

"I would want it more strict to make sure its the safest and fastest way possible" -Business man

"Would prefer it to be more strict"" -College Student

"More strict as in more regulated and monitored right? If so, then yes more strict" -Engineer

Q-Sort Data

Statement:
I can check, track, and claim my baggage using my mobile device

Z-score: 0.0959 | Rank: 5/10

I can have food ready for me as I exit the plane

Z-score: 1.5199 | Rank: 2/10

I can securely claim my baggage from an individual locker

Z-score: -0.7004 | Rank: 8/10

Analysis

Compared to travel before Covid-19, the data shows a significant overall trend of people using the airport wanting to minimize their interactions within the airport while also maximizing the efficiency of time. This can be seen to affect the entire transition of exiting the plane and heading towards baggage claim. Specifically in the sense that at least more than half of participants changed their comfortability of being in a queue from somewhat comfortable to not comfortable at all.

People also stated an increased preference to having grab and go styled food over fast food or sit down restaurant. A substantial decrease was seen specifically with sit down restaurants with almost 50% of people stating that they would much prefer faster and safer options. Specifically before covid, at least 25% of users didn't mind eating in a sit down restaurant, but now only 12% still feel the same way. The trend of people feeling uncomfortable being within large queues or a concentration of people has risen substantially. This can be seen specifically within baggage claim as well. People who have opted to bring food to baggage claim might feel unsafe eating in a public space, and while a rent a pod is possible, the overall trend stated that people would prefer to leave the airport first before they eat. Lastly, while people still preferred to consume some type of food item within the airport the largest concern within baggage claim is safe distancing and prevention of overcrowding. While food may not directly affect this, grab and go styled food helps greatly with making sure the safety standards of this specific environment are up to par.

Hypothesis 5 Validation: Idea 1 -Pods

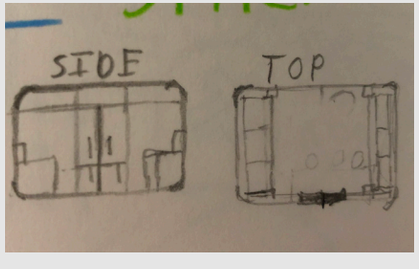
Drawing from the hypothesis

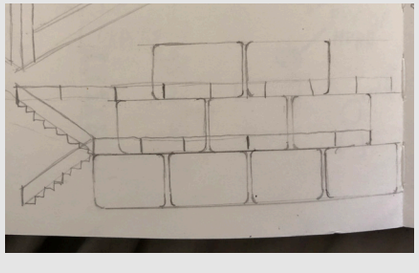
Hypothesis five looked to provide safer conditions throughout the facilities so that travelers are more willing spend more time in the airport. With the data showing people wanted shorter layovers, and to spend less time around others as much as possible.

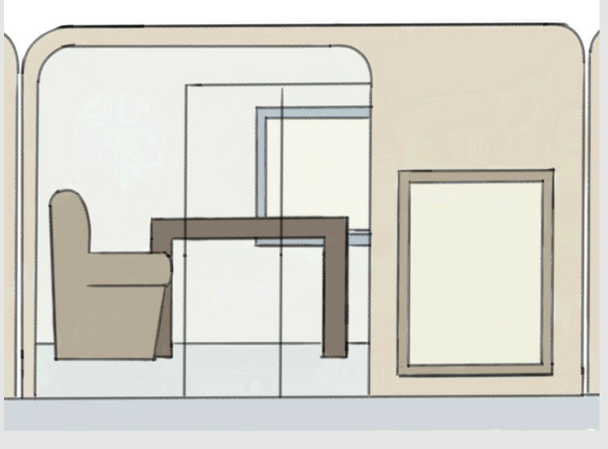
Ideation

With this in mind we developed the concept of a furnished pod people can rent to spend time during longer layovers so they can escape the larger crowds of the airport. This space would be cleaned in between each use and would be accessed though a phone app allowing users to lock and unlock the space as they wish through out there use of it. These pods could be stackable to maximize space in taller airports.

Sketches

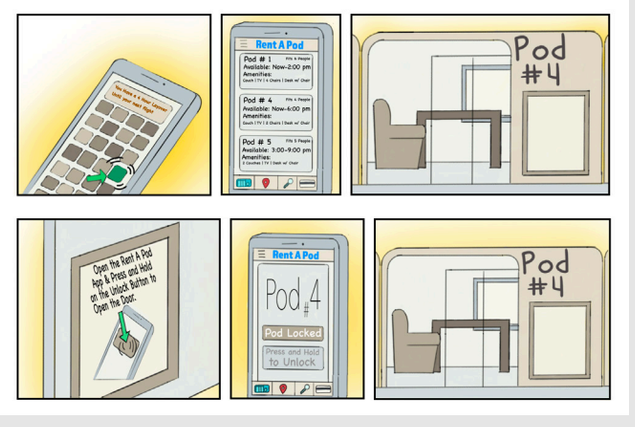






User Story

Lauren's journey begins at deplaning for a long layover, she then rents a pod to focus on her work and escape the large airport crowds via a app on her phone and spends her long layover in her pod before heading onto her next flight.



Questions

How would you use the rent a pod? How would you use the frost-able windows?

Would you find the baggage updates useful?

How do you find accessing the pod with your phone?

Do you have any other comments on this passengers storyboard?

Hypothesis 5 Validation: Idea 1 -Pods

Key Quotes from Interviews

"I think that's a pretty cool idea.
I'm surprised it hasn't been done already."
- General Contractor

"I love this idea, I am just worries that the pod will be too expansive."-College Educator

"Rent a pod idea is great and awesome to get work done with privacy from others, presuming it gets cleaned between uses, frost-able windows might be a bit over the top." -Business Executive

"Yes, that's a good idea. If your phone doesn't work or is out of battery you could have a keypad or some other method of entering" -General Contractor

"I think it would be nice to have the pods.
The frost-able windows also seem useful.
I would use the pod to do work or rest and
I would definitely use the frost-able windows for privacy." -Grad Student

Q-Sort Data

Statement:
I can rent a private space to wait for my flight

Z score: -0.8649
Rank: 9/10

Analysis

Based on the feedback revived from the interview, people were very receptive to this idea overall. Many people who regularly take long hall flights and business people who often spend some of there time in the airport on phone calls or working expressed supersize that this idea was not already in use. That said, some did mention that it would need to be priced at a point where it was cheaper than the price to get into the first class lounge.

Looking at some of the suggested features, people recommended not including complementary snacks since you do not know who has touched them. While some people said they would use the frost-able windows for taking a nap, the majority of people did not express a high need for this feature. People also expressed a desire for a secondary method of opening up the pod in case their phone ran out of power while you were using the pod. This could potentially be fixed by including a desk at the entrance to the pod area where people could go if this problem arose, a simpler solution could also be including a key pad on the door of the pod. People also wished they could schedule a reservation farther in advance so they could plan where to have a meeting. In the end, while people expressed great interest in this idea, it did not rank very high on the Q sort, ranking at the bottom of the list at 9 out of 10 total sort options with the statement "I can rent a private space to wait for my flight." This may in the end may be due to how the statement was worded, since people often did not express a fact that they enjoyed it being a private space. Rather they often emphasized things that they could take advantage in the space such as scheduling a meeting or catching up on sleep. While this is an idea that could be perused further. It dose not take top priority since most people enjoyed the idea of the service due to things that existed before covid.

Airports Phase 3
Concept Finalization

Design Development: Hypothesis 1 -Automated Check-In

Things we Learned

Virtual Assistant

Many interviewees expressed concern of having an AI assistant and wanted to ensure that the virtual assistant would be communicating through a live video call.

Frequent Fliers

People notified us that this process of automated check-in would be fluent for frequent fliers. However, new fliers may have trouble interacting with the check-in kiosk and virtual assistant.

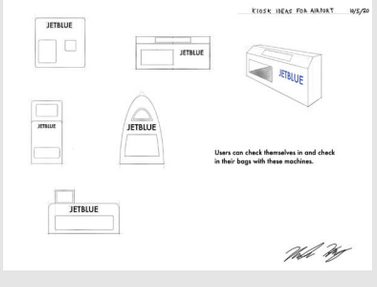
In Person Assistant

Interviewees brought up the idea that an in person assistant should be able to be called over in case users are having trouble or need help with a situation.

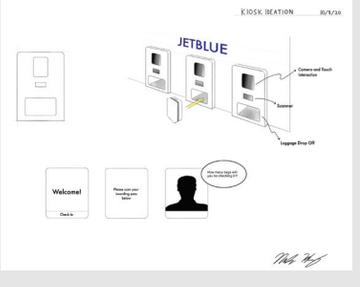
Accessibility

Interviewees expressed concern for users who may be impaired or have a disability that would make this check in process difficult for them. In this situation, a real time assistant should be called over.

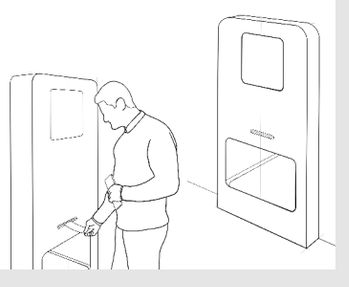
Sketch Development



Initial sketch development for the automated check in kiosk was much shorter and bulkier. It did not include a virtual assistant or printing area for boarding passes or luggage tags.

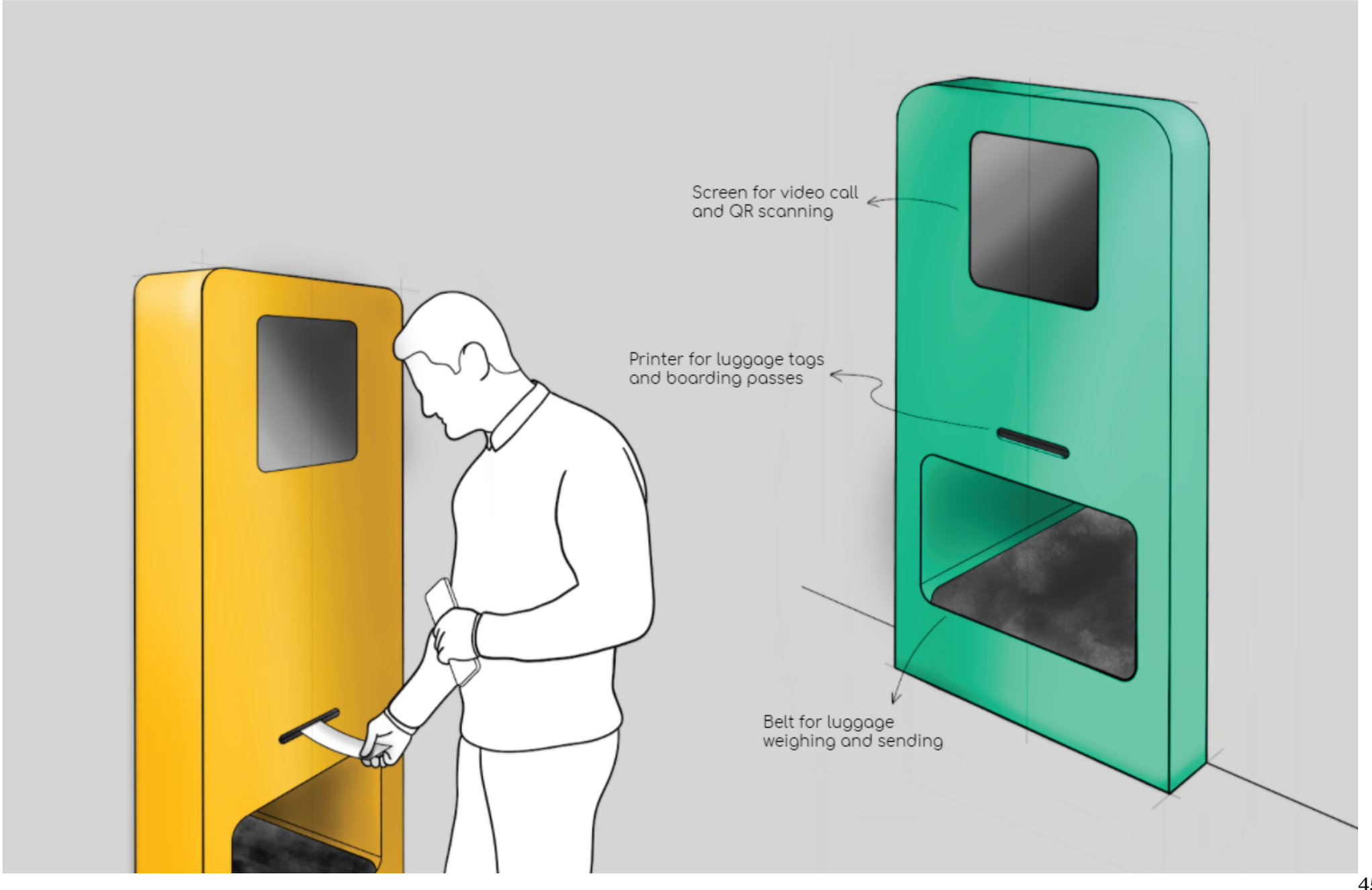


Further ideation and sketch development led to the idea that was tested in our interviews. This stage of the design was thin and tall. It is located along the back wall to allow for more room in the airport environment. Users would interact with a virtual assistant, print or scan their boarding pass, and weigh their luggage for send off.



Final development of the check in kiosk included the virtual screen in which users would interact with an assistant through a live video call. Users can also scan a QR code through the screen. The kiosk includes printing for boarding passes and luggage tags. Luggage can also be weighed and sent off. If in need of a real time assistant that can be requested to the virtual assistant.

Final Render: Hypothesis 1 - Automated Check-In



Design Development: Hypothesis 1 & 2 - Airport App

Things we Learned

Online Baggage Check

Many participants expressed concern about moving the baggage check in system to a completely digital platform and how it would affect people who are unfamiliar with smartphones.

Scheduled TSA Check-In

A main point of concern that interviewees had were delays or missed appointment times. A number of participants also questioned whether this would actually help to speed up the TSA check in process .

Learning Curve

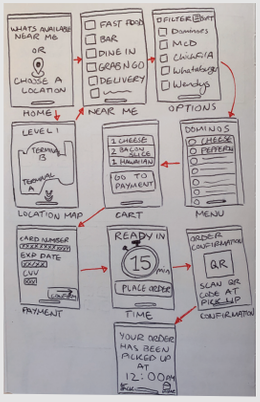
One area of concern that participants had with the airport app and its functions were that it would difficult for new fliers to become accustomed to using. It was mentioned, however, that frequent fliers would experience a significantly smaller learning curve .

Accessibility

A problem area that interviewees picked up on with using a completely digitized system for airports was that some individuals with disabilities could experience trouble with a number of the self-service systems in the airport .

Sketch Development

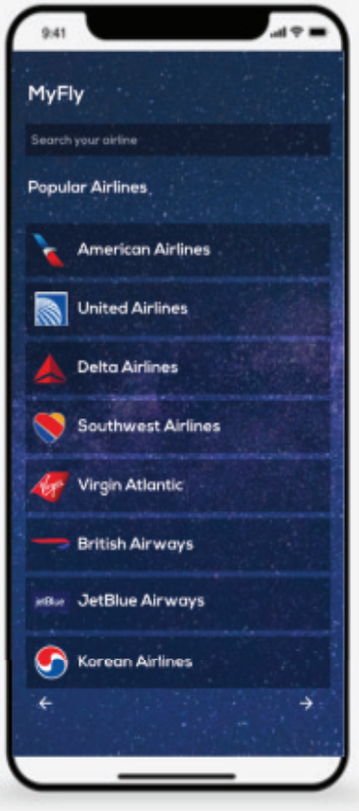
I started by sketching out a storyboard for the airport check in process I envisioned for the use of the airport app. This rough sketch shows the process of a traveler scheduling their TSA check in appointment time before arriving at the airport and going through the check in process .



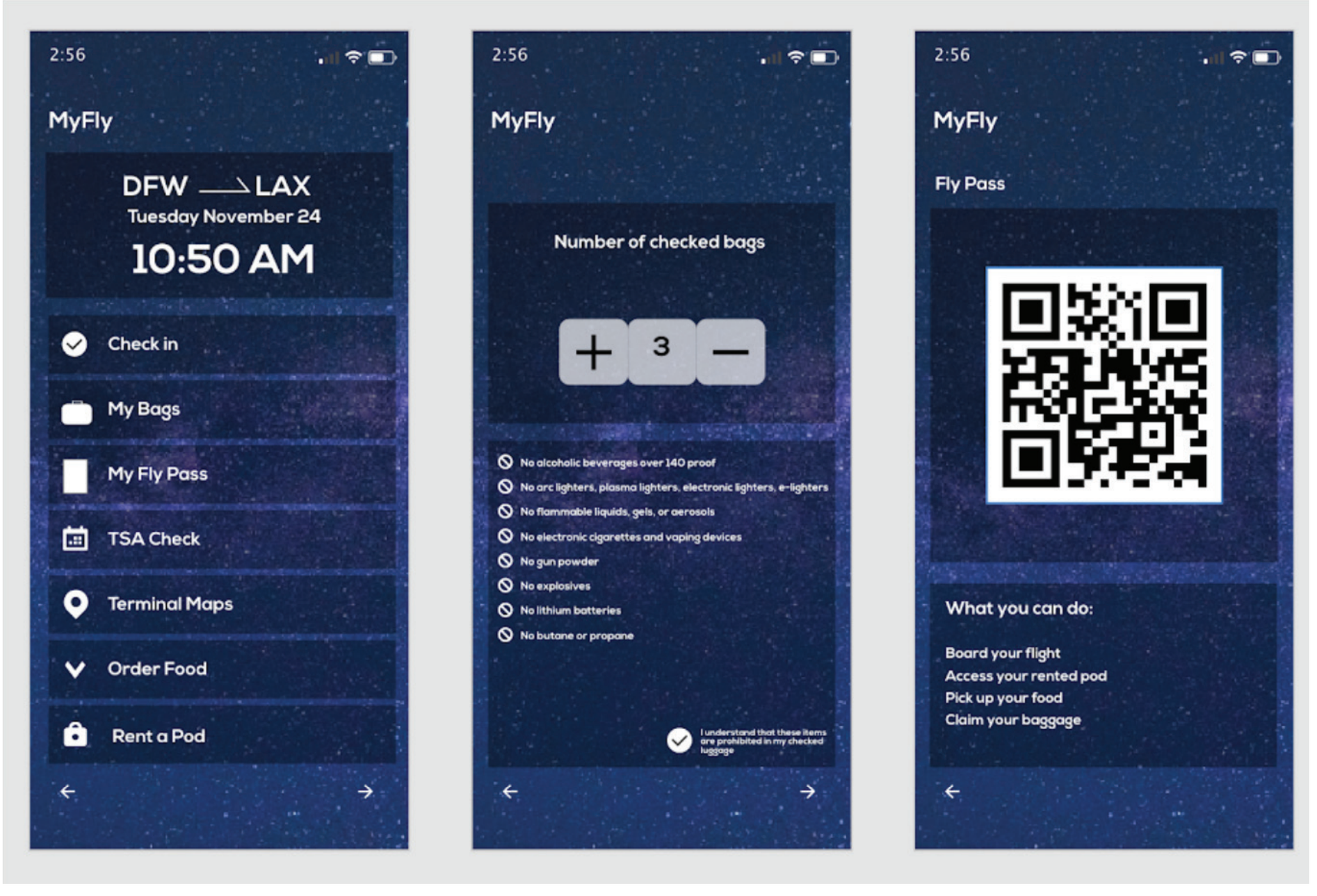
In order to go into more detail regarding the functions of the airport app, I started mapping out the UX design for the application and the pages that would be displayed on the app for use.

Before the final development stage, I worked on refining the previous storyboard and UX design sketches in order to more clearly visualize the application and its uses. This UX design sketch went more into depth about the processes a flier would go through to check in online, check their baggage online, and schedule their TSA check in time as well as show the other different functions of the application .

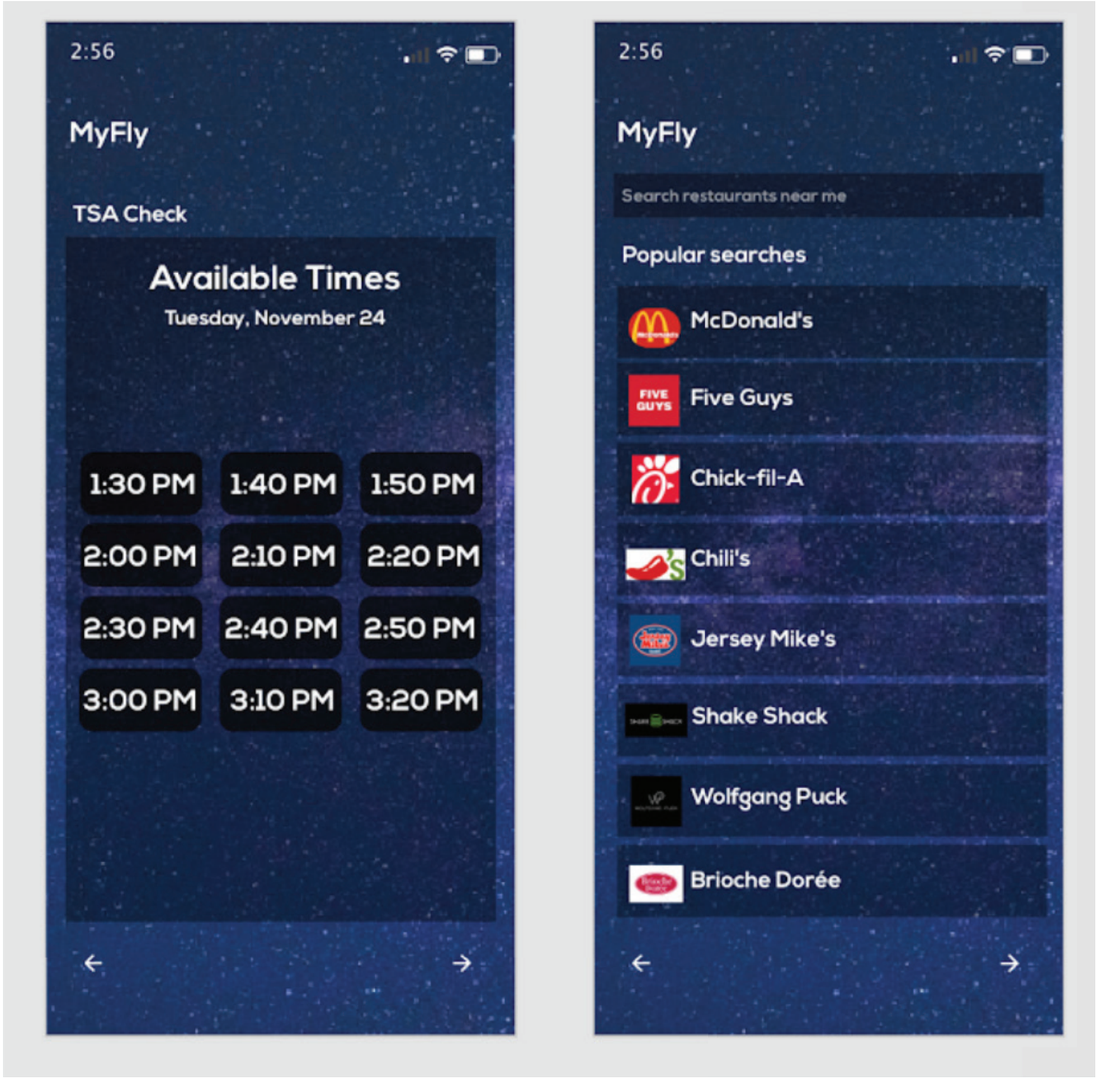
Final Render: Hypothesis 1 & 2 - Airport App Final



Final Render: Hypothesis 1 & 2 - Airport App Final



Final Render: Hypothesis 1 & 2 - Airport App Final



Design Development: Hypothesis 3 - Food Oder App

Things we Learned

Multi Restaurant Ordering

Although an automated device or robot delivering food was the least popular idea, interviewees reacted positively to the option to order from multiple restaurants at once.

Food Delivery

A majority of participants voiced that the safety and security of the food in the pick up locations were a concern.

Order Notifications

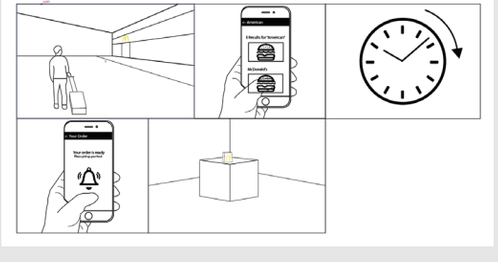
Participants mentioned that they would prefer to receive notifications letting them know when their food is being prepared, when it's on its way, and when it is ready for pick up

Order Time Adjustment

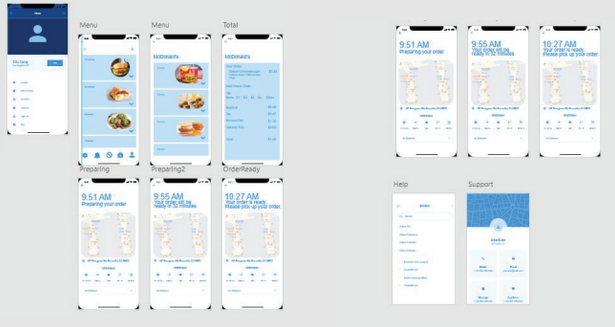
Participants were also concerned with the distance of the food lockers from the respective gates for their flights and whether the food would be prepared in time for travelers to pick it up before their flights.

Sketch Development

Initial sketch development involved very rough sketches of the food ordering app we came up with.

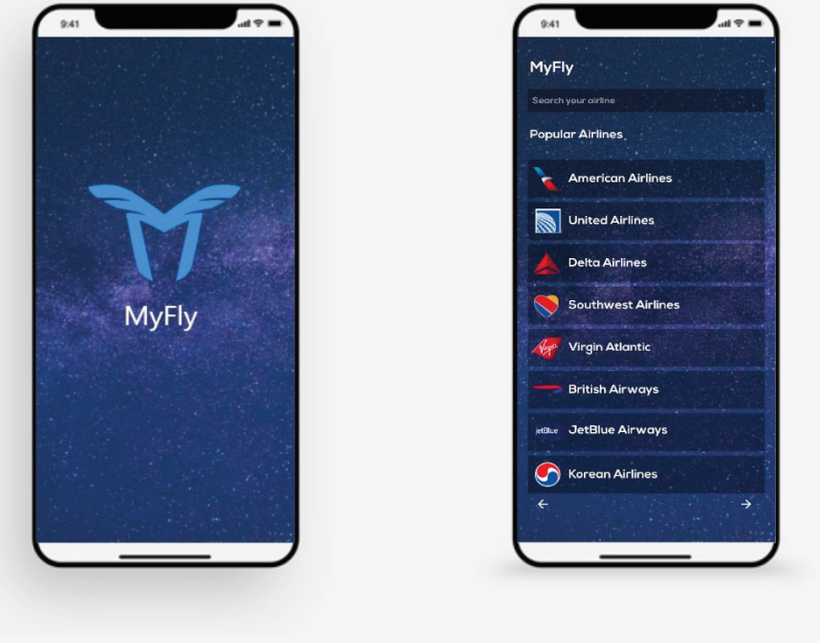


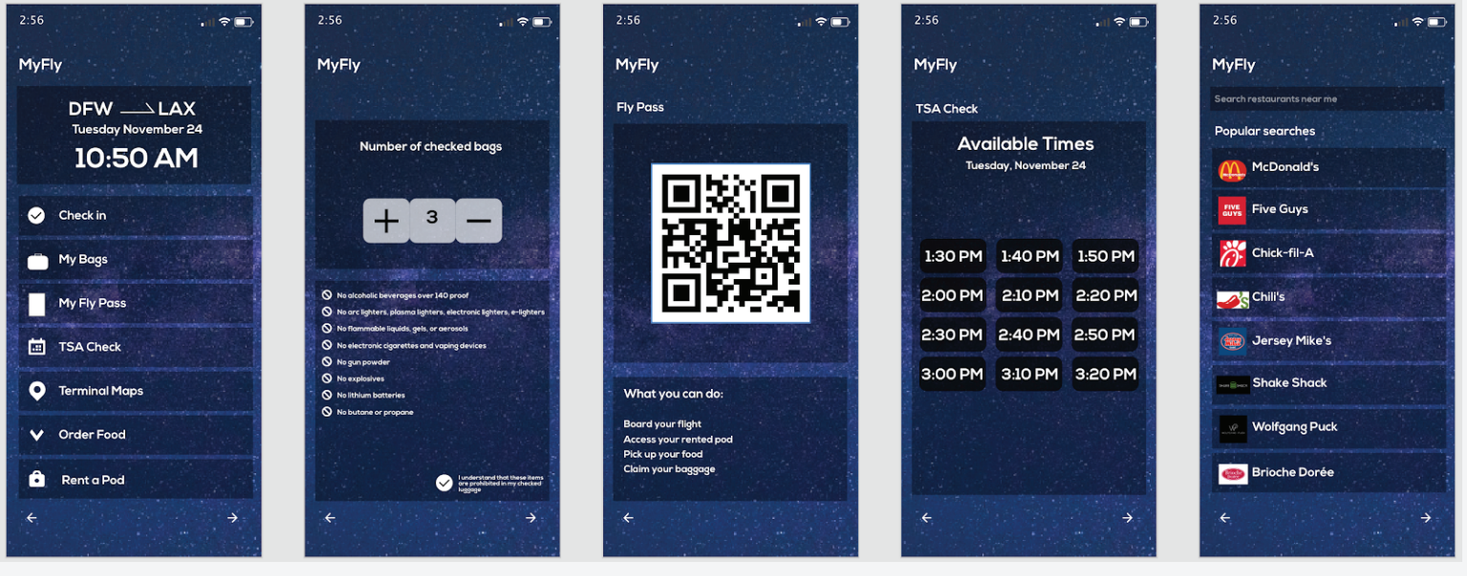
The following set of ideations involved the food ordering app as we felt that this would be an essential part of the airport experience. These ideations were rough ideas as to how the app would function and the average user would utilize such an app.



The Final development involved using Adobe XD to create a UI/UX design of how the app would literally look like. We decided that this app would encompass much more than just food delivering but also the whole airport experience. From checking in to dining to claiming baggage, this app would act as a personal assistant all throughout one's flight.

Final Render: Hypothesis 3 - Food Oder App





Design Development: Hypothesis 3 & 1 - FlightBite

Things we Learned

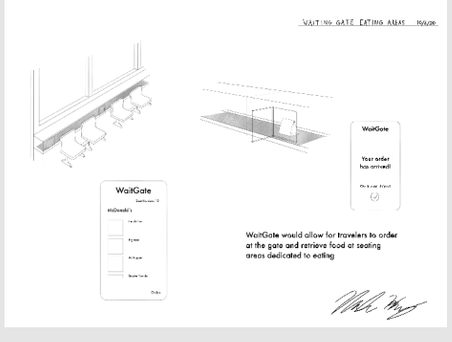
Cold and Warm Food

After noticing the locker system indicated hot foods could be ready for you, interviewees pointed out that users would want both hot and cold foods available for the food locker system.

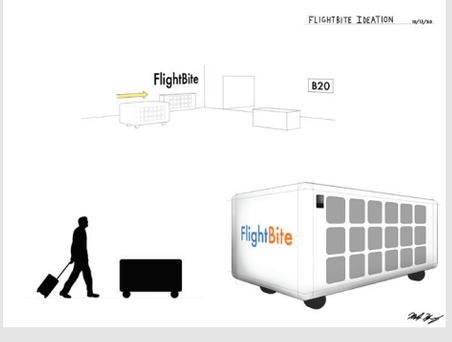
Cleaning Protocols

People expressed concern for the cleanliness and safety of these food lockers and noted that there should be a regular cleaning process.

Sketch Development



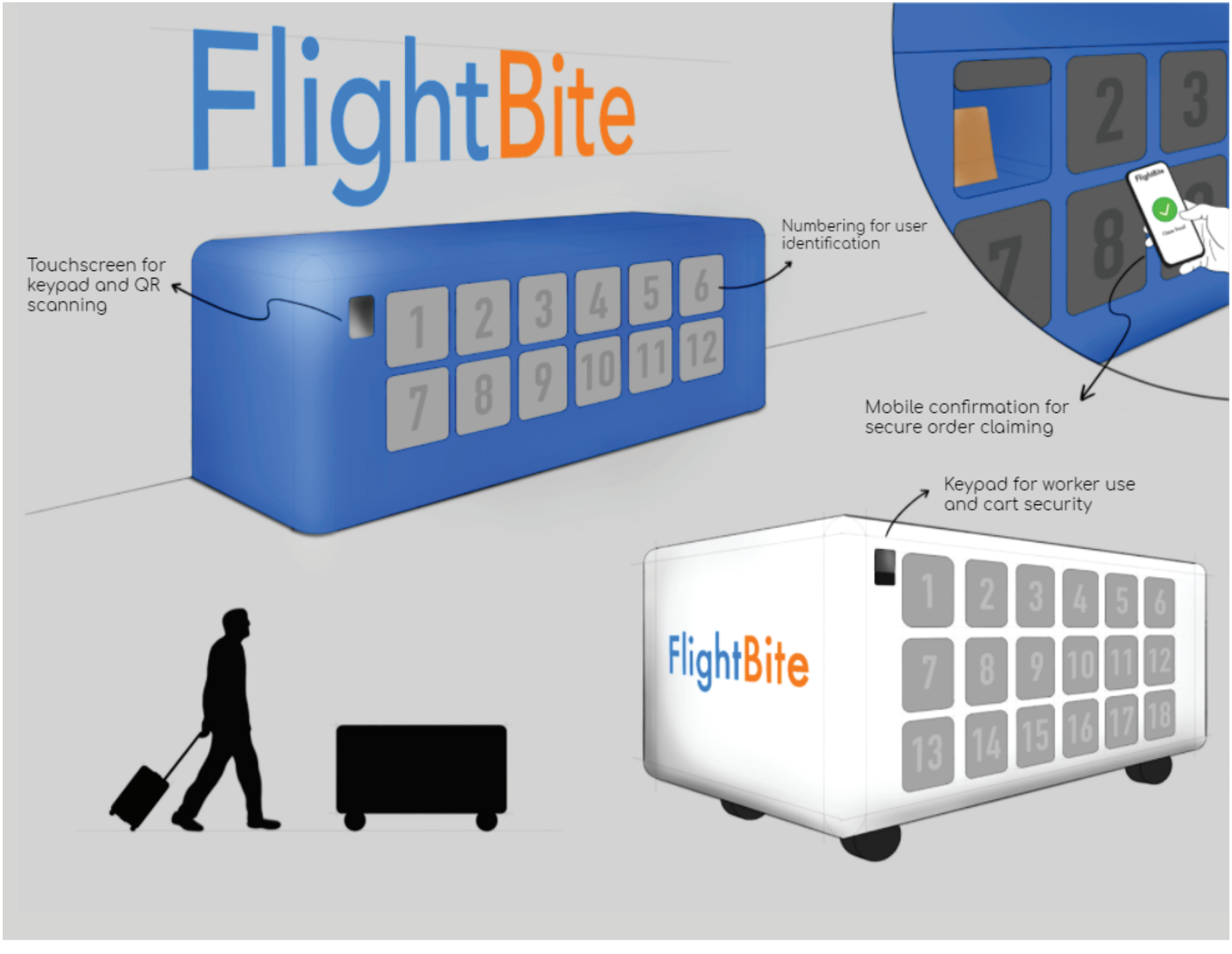
Initial sketch development for a food delivery service was WaitGate, a service that would provide automated food delivery to a waiting gate location at your convenience. This would allow for travelers to receive foods from anywhere in the airport while feeling safe in their seat.



Moving onto a different idea, FlightBite allows for users to order food for immediate pickup or for when their flight arrives. This gives travelers the convenience of having food readily available for them as they exit the plane. This idea was tested in our interviews and it is what we took further.

Final development of FlightBite includes a locker with keypad or mobile claiming abilities. Hot or cold foods can easily be claimed with no risk to theft or tampering. The FlightBite cart has a keypad for workers to access and transfer foods between lockers across the airport. Through the FlightBite app, users are notified that their locker has been recently sanitized.

Final Render: Hypothesis 3 & 1 - FlightBite



Design Development: Hypothesis 4 - Bag Management

Things we Learned

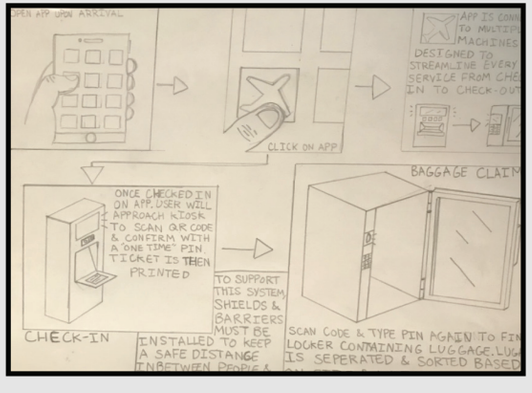
Locker and Bag Management

A lot of interviewees seemed concerned with sizing of their bags and that they would like to know immateriality once they land where their baggage will be to avoid the stress. Constant baggage updates allow for a stress free experience.

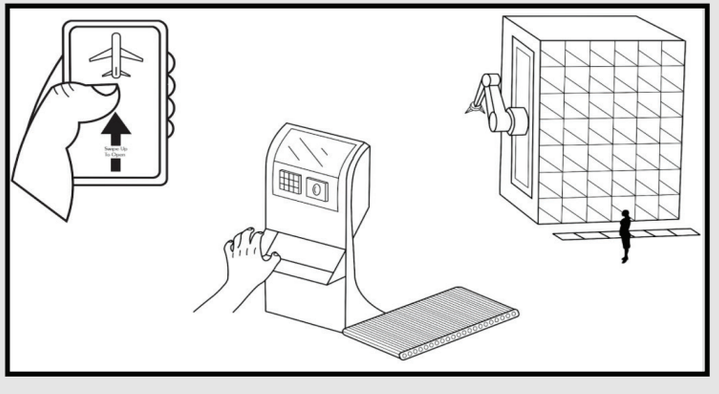
Food and Crowd Management

Many interviewees were concerned with how many people will be in the same area, and what types of food will be available once exiting the plane and proceeding to baggage claim. Active crowd control, as well as grab-and-go style foods would be used to control these concerns.

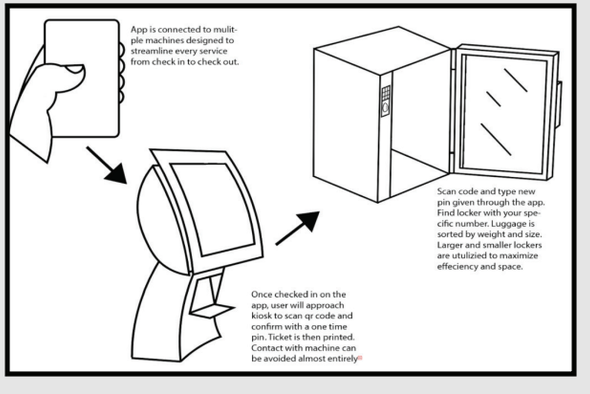
Sketch Development



I started by sketching out a storyboard for the airport baggage collection process. To better understand how people retrieve bags, and how it could change.

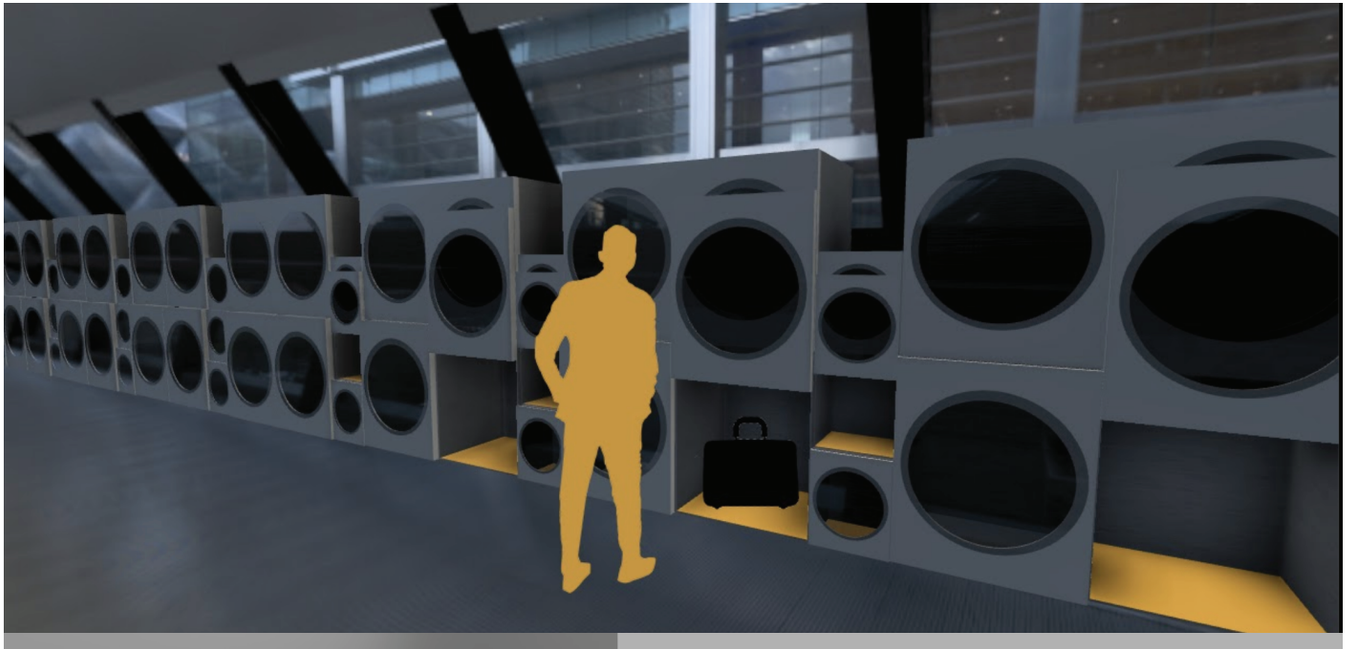


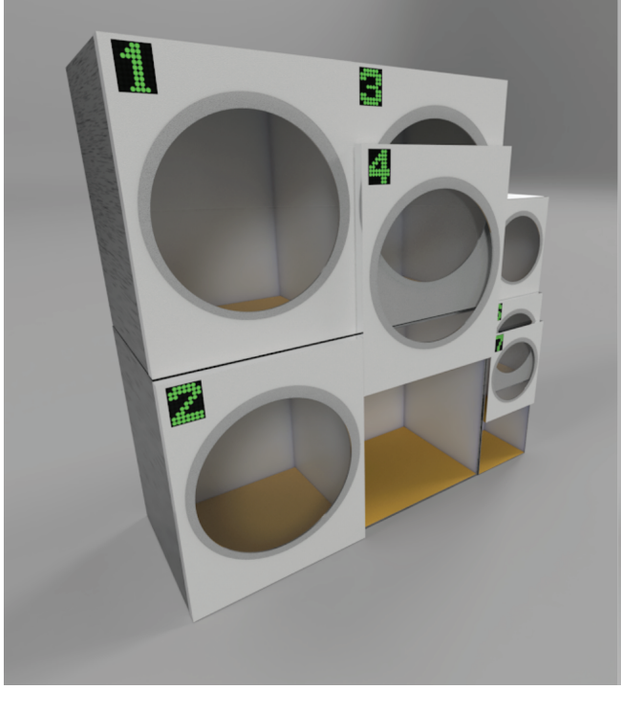
In order to go into more detail regarding the functions of the baggage collection system, I started designing more in depth various features.

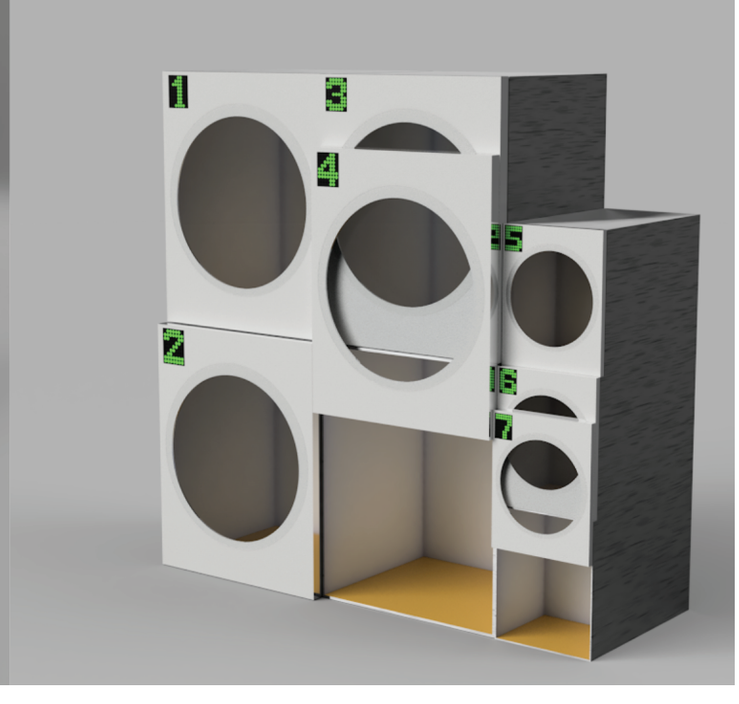


Before the final development stage, I refined this process into a more concrete system for baggage to be retrieved that could easily fit into many airport sizes.

Final Render: Hypothesis 4 - Bag Management







Design Development: Hypothesis 5 - Rent A Pod

Things we Learned

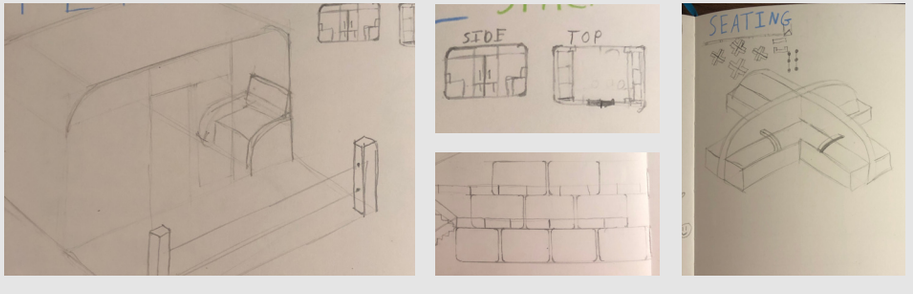
Cleaning Protocols
Many participants expressed concern about what procedure would be put in place for sanitizing the pod in between uses. Cleaning staff should be on standby to clean the bod after each user.

Excess Features
While numerous features were expressed as part of the pod, many of these features the interviewees deemed as unnecessary, such as the frost-able windows or complimentary snacks.

Pod Users
After gathering feedback from the interviews, it appears the pod would largely be used as a tool to help business professionals do work, hold meetings, and optimize there time, instead of being used to isolate ones self from the general population.

Accessibility
A problem area that interviewees picked up on with using a completely digitized system for the pods was that some individuals with disabilities could experience trouble with the digital system. People also about what would happen if there phone ran our of battery while using the pod.

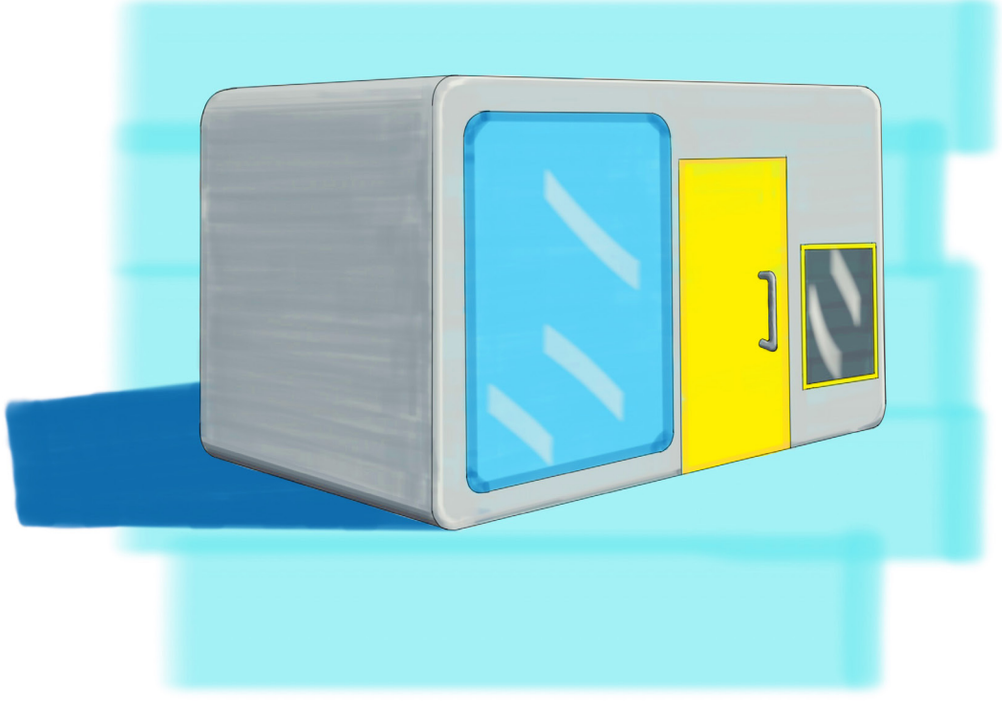
Sketch Development

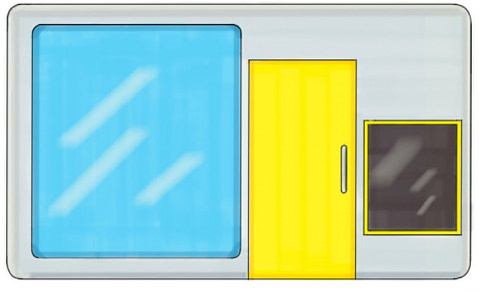


I started out with rough sketches on how the outside layout of the pod could look, along with mechanic on how it could stack with others to maximize space, and sketch note ideas for top down layouts and size views. Also considering various layouts for open are pod spaces.

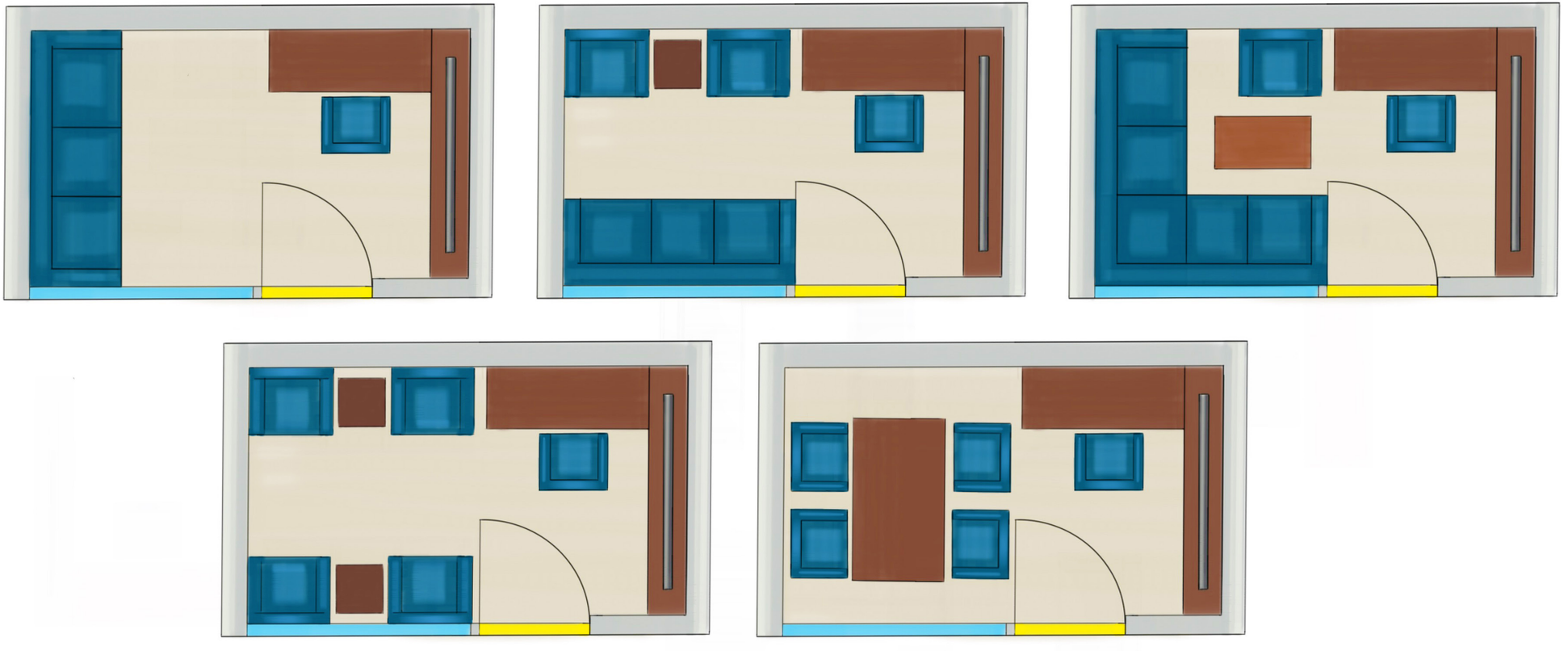
At this point I focused in on the enclosed pod space as the open air pods did not seem to meet the needs of the airport consumers. I then created a more refined version of the pod along with ideas for what a app for the service could look like.

Final Render: Hypothesis 5 - Rent A Pod

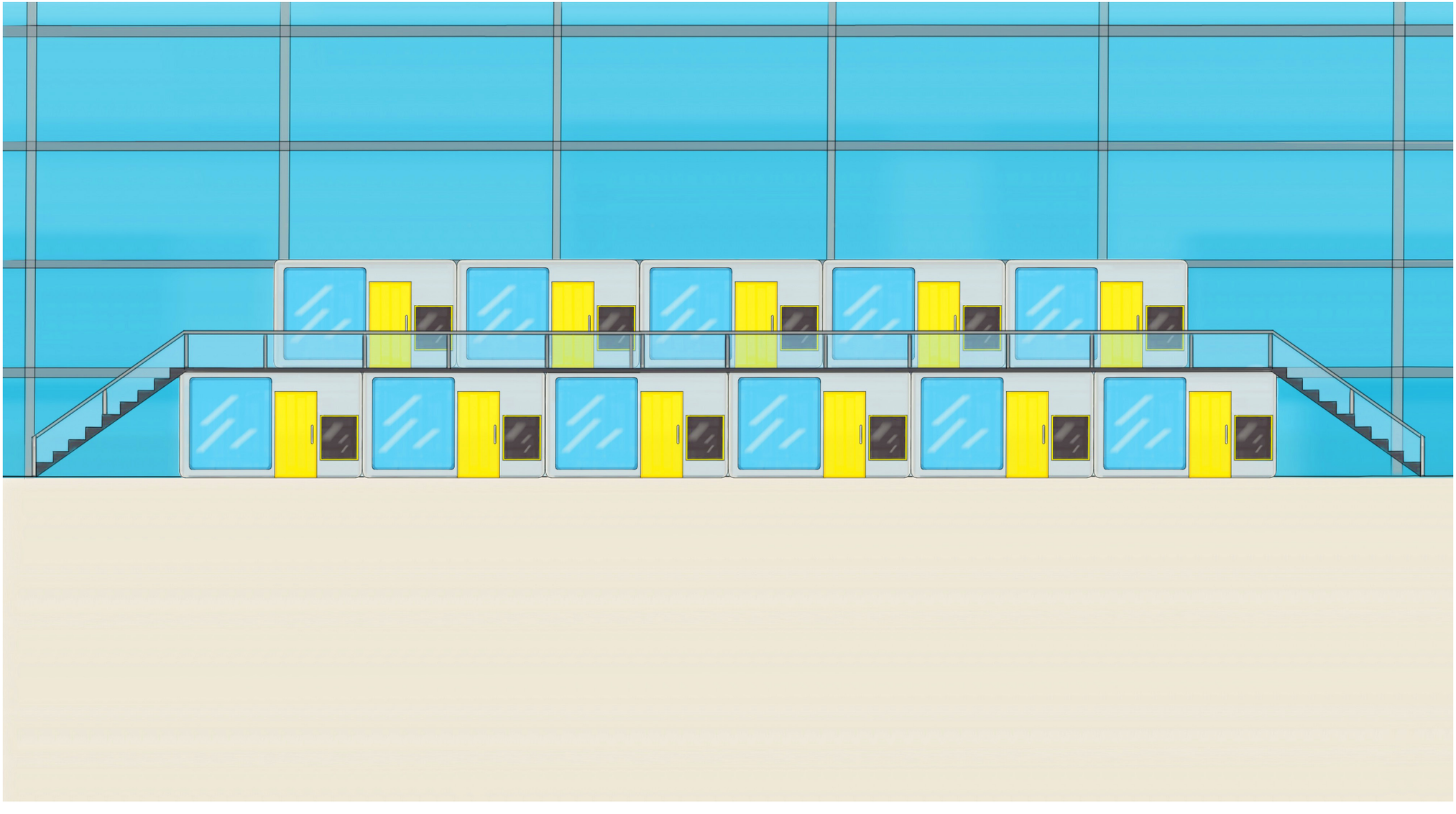




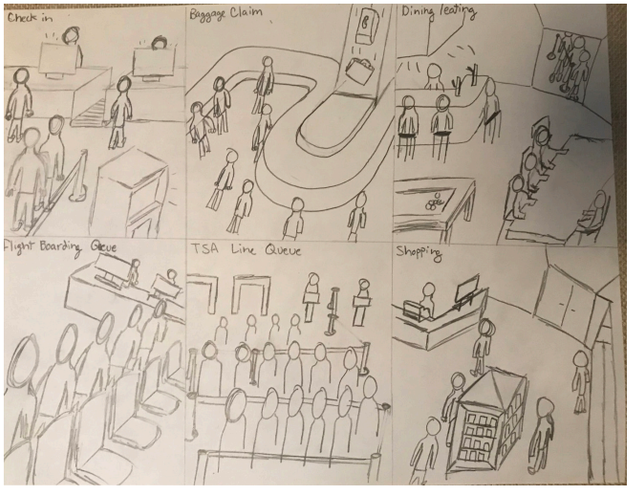
Final Render: Hypothesis 5 - Rent A Pod

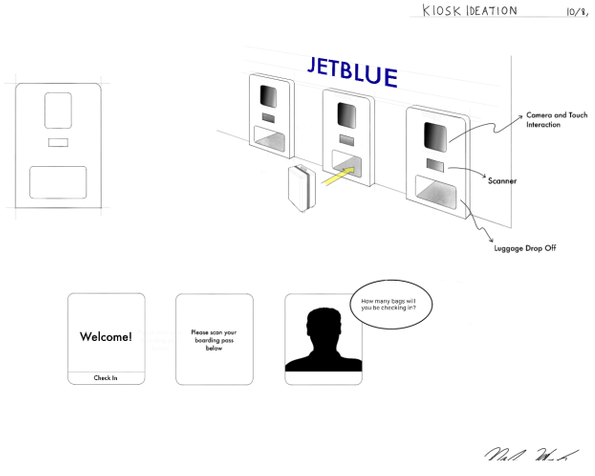


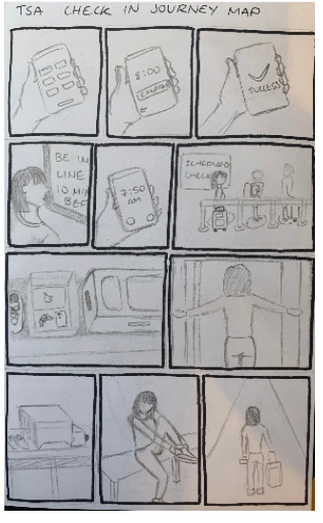
Final Render: Hypothesis 5 - Rent A Pod

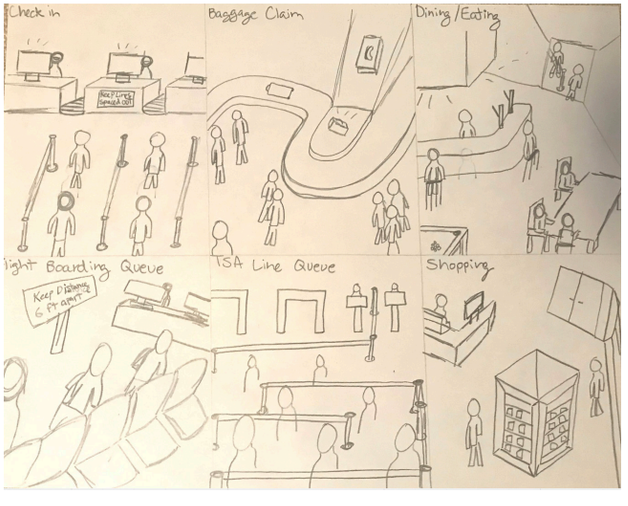


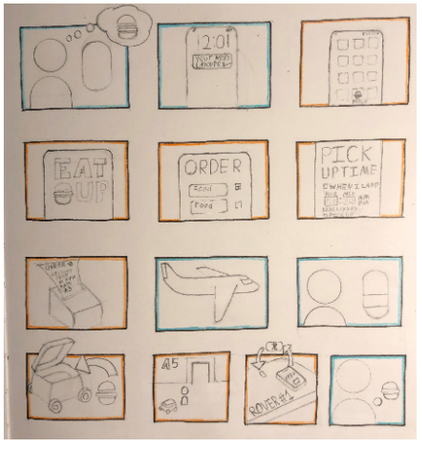
Storyboard Development: Storyboard Sketches

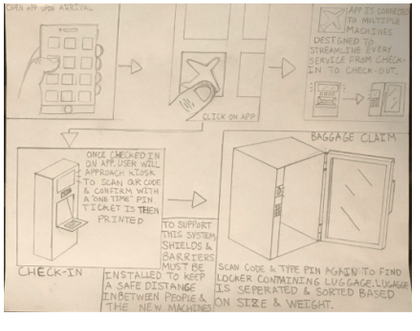






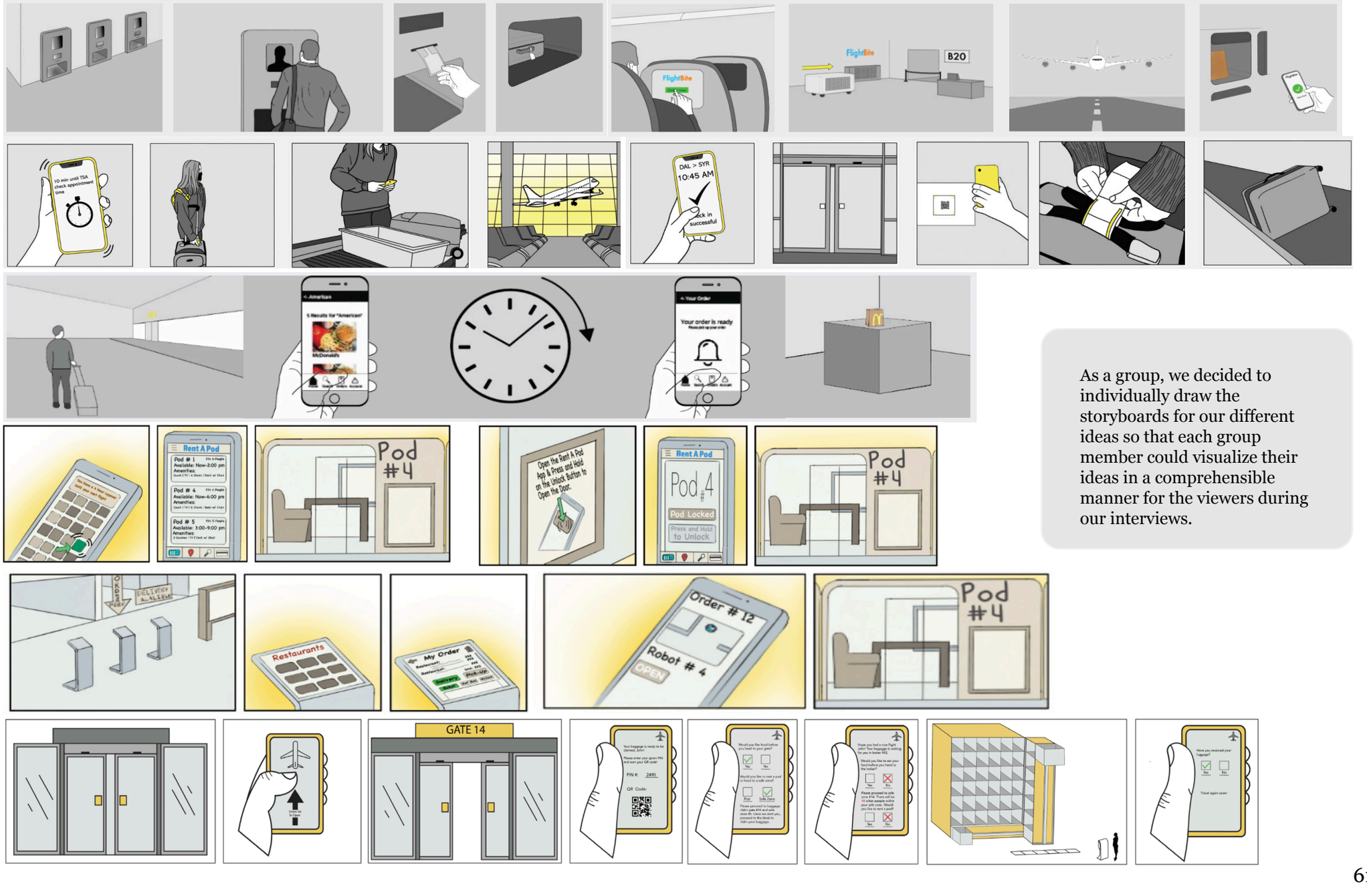






Our initial storyboard sketches were drawn with the intent to help explain our concept designs and ideas to other members within the team during the beginning of phase 2 development. Using these sketches, we were able to grasp a better understanding of each other's ideas and concepts that we each wanted to see developed further. Eventually, these sketches did help with the development of the storyboard sketches for the interview process.

Storyboard Development: Storyboards for Interviews



As a group, we decided to individually draw the storyboards for our different ideas so that each group member could visualize their ideas in a comprehensible manner for the viewers during our interviews.

Storyboard Development: Final Storyboard

Our final storyboard is a combination of all of our interview storyboards after refining and adjusting our design ideas/ concepts accordingly to the feedback we received from interviewees. For our final storyboard, we decided to have one person draw it so that it would be more visually uniform and consistent. This final storyboard shows the journey of a single traveler and their process through check in, their flight, a long layover, and baggage claim.

Final Warp Up

Throughout this semester long process we researched the airport environment to create concepts that effect change in the airport in the pandemic influenced world. We were able to cover the broad scope of many aspects of the airport including, check-in, TSA check-in, airport restaurants , waiting areas, and baggage claim. Given further time and resources, other areas of the airport that should be explored further to effect greater change in the pandemic influenced world would include; drop off/pick up, car rental, TSA security layouts, in terminal shops, restrooms, airline lounges, and gate areas.