



ImInfo:

Public Information Kiosk

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Interaction Design Project Part I: Task Centered Design and Prototyping

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Task Centered Design and Prototyping

Grading Sheet

Student Names and Emails:

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Note: The list below is a set of guidelines, or a "convenience" checkpoint. Getting many satisfactory checks does not necessarily indicate a good project (or vice versa).

Structure and format

	Included	Not included	
Portfolio uses a binder	1	0	
Section separators	1	0	
Name on outside cover	1	0	
Name and contact information on the first page	1	0	
This grading sheet included in portfolio	4	0	
	Complete	Missing portions	Not included
Table of contents	2	1	0
	Great: no problems	Good: a few minor problem	Poor: Problems throughout (your mark in other sections may also be affected as well)
Appearance (organization, layout and whitespace)	6	4	0
	No typos, grammatical or spelling errors, clear writing style	Minor typos or grammatical errors or spelling mistakes or some writing may be a bit vague	Problems in two areas (spelling, grammar, style)
			Problems in all three areas

Language and writing style	7	5	3	0
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Setting the stage

	Clear and complete (yes)	Clear and complete (no)	
Background	1	0	
Expected uses of the system	1	0	
Systems constraints	1	0	
	Lists user groups along with relevant skills and experience	Lists user groups with no additional information	Information not included
Expected users	2	1	0
	Clear & complete	Some information missing or unclear	Information not included
Work context	2	1	0
	Spoke directly with actual users	Spoke with a representative of the user	Made it all up
Approach for getting background information for tasks	2	1	0

Tasks

	Appropriate No. (~5-7)	Fewer than what's needed for the usage of the system	No tasks were included in the portfolio
Number of tasks	2	1	0

	Covers all relevant activities	Missing a few important tasks	Missing many important tasks	No tasks were included in the portfolio
Coverage of the tasks	8 No violations	6 A few minor violations	2 Many violations throughout	0 No tasks were included in the portfolio
Do the tasks follow the properties of a good task?	8	6	2	0

Prototypes

	Two or more	One	
Number of versions/iterations	2 Marked improvement from version to version	1 Few and/or superficial changes from version to version	 No evolution between prototype versions
Evolution of prototypes	6 Provides clear idea of how prototype changed from version to version	2 Describes changes but some parts are unclear	0 None
Description of how prototypes evolved	4	2	0

Requirements

	Requirements are grouped into categories with clear and detailed explanations based on the users and their tasks	Requirements are grouped into categories, no indication of how functions were put into particular categories	Requirements are shown in a single list, no attempt at prioritization	No requirements listed
Description of system functions to be implemented	5	2	1	0

Walkthroughs

	Walkthroughs for all relevant tasks	One	Zero	
Number of walkthroughs performed	4	1	0	
	Walkthroughs conducted, all or most usability problems were caught	Walkthroughs conducted, some minor problems were missed	Walkthroughs conducted, many minor or several serious problems were missed	Walkthrough not performed
Results of conducting the walkthrough algorithm	10	8	4	0
	Walkthrough results summarized for each scenario/task An analysis conducted that summarized for all tasks what are the high level and major problems	Walkthrough results summarized for each scenario/task but not for all tasks	Walkthroughs conducted and results shown in table but no additional analysis, summarizing problems	
Analysis of walkthrough results	6	3	0	
	Walkthroughs easy to follow (e.g., included diagrams at all relevant points of walkthrough, diagrams are annotated)	Some points of the walkthrough difficult to follow (e.g., walkthrough description didn't match interface, additional diagrams would have made things clearer)	Walkthroughs not conducted	
Ease of following/tracing the walkthroughs	6	3	0	

Tutorial presentations

	Provides clear background information, good tasks presented, requirements properly categorized	Minor problems: some background information unclear, minor violations in the descriptions of the tasks, requirements could better justified	Poor: task violate many properties of good tasks, or background missing or largely incomplete, requirements are not justified	No presentation
First presentation: Phase one and two	4	3	1	0
	<p>Walkthrough: caught most problems, clear indication of what future improvements should be</p> <p>Prototype: Gives a good feel for how the interaction unfolds, covers main system functions</p>	<p>Walkthrough: Missed a few minor problems in the walkthrough</p> <p>Prototype: Some parts of the interaction unclear, a few minor system functions (relevant to task) or a major function is missing</p>	<p>Walkthrough: Missed many minor problems in the walkthrough or a few major usability problems</p> <p>Prototype: several main system functions missing</p>	<p>Walkthrough: Many serious problems were missed in the walkthrough</p> <p>Prototype: main system functions were missing</p>
Second presentation: Phase three & four	4	3	1	0
All team members completed all weekly 'Most Valuable Team Member' surveys to portfolio due date	Complete	Incomplete		

Section 1: Identification and requirements

0. Phase 0: Setting the stage for the project

Through our research regarding new immigrants arriving to both Canada and Calgary, coupled with many personal experiences from our group members, we settled on the idea of creating a useful service that can be utilized by many new immigrants. Our goal is to help resolve some of the major common problems that immigrants face when arriving at their new destination. These problems include but are not limited to the following (Source: Laczko, 2018). Many immigrants are not proficient in English nor French which will negatively impact their ability to communicate and interact with other citizens. While the government does offer many useful resources, not many know that these resources and services exist nor where to find them. The lack of local knowledge and housing information leads to problems which also expands upon the previous issue regarding language barriers. Without prior extensive research and knowledge, many immigrants find themselves overwhelmed and at a loss of how to secure safe and affordable housing. Access to transportation is important and though the city offers public transportation methods, these public transit timetables and routes may be confusing, especially for those who lack knowledge of local areas within Calgary.

ImInfo is a public information kiosk focused mainly on providing services catered towards new immigrants to the city of Calgary. We want to create an easily accessible consolidated database of information and services that immigrants will want to use. ImInfo will provide a solution to the problems that new immigrants face mentioned previously along with other potential complications that they may face. Our system will be expected to provide nine different service applications with an easy to use interface. Three of these services are aimed to provide solutions for three of the aforementioned problems (access to local services, housing, and public transportation) alongside the additional services of an interactive map, a quick way of telecommunications, locations of various religious sites and places of worship, a catalog of both noteworthy travel destinations and events, and a condensed list of our local city laws. The system will also support the option to choose from five different system languages (English, French, Filipino, Hindi, and Chinese). The decision to include these five languages were determined through including Canada's national languages and the data we obtained from the both the *Focus on Geography Series, 2016 Census* (Source: Statistics Canada, 2016) and *Government of Canada's 2020 Annual Report to Parliament on Immigration* (Source: Government of Canada, 2020) which stated that the top three countries where immigrants arrive from are the Philippines, India, and China.

Ideally, there will be multiple kiosks situated throughout our city airport as well as in various public locations within the city. Due to the fact that the kiosk is located in an open and public space, ImInfo will not ask for nor store any personal information from our users and should be weatherproof if situated outside. The kiosk will be built to run on Windows with the touchscreen interface situated on a standup kiosk. Despite the kiosk being intended for new immigrants, anyone is welcome to access and make use of the services ImInfo offers.

1. Phase 1: Identification

a. Expected types of users of the system, including their experience, expected training, etc.

i. Visitors/Tourists

This group of users includes both domestic and international visitors to our city, which means that each user has their own unique background, experiences, and expected training. Users will be of various ages, may not be proficient in English, as well as have varying experiences, knowledge and interactions with the technology involved with using a kiosk, which can range from a person having no experience and knowledge at all to a highly experienced and knowledgeable expert.

ii. Students

This group focuses on students who come to Calgary for educational purposes which includes both domestic and international students. Depending on the level of education (elementary, middle school, and post-secondary), this group involves various age groups across the board. Additionally, every student is proficient in English with the exception of fairly young elementary students. A large majority of students usually have had many interactions and experiences with technology which results in a good grasp on how technological devices function and operate. However, there may be rare cases where a student has not had any or limited exposure to technology, which means that they may not have knowledge on how to operate a kiosk.

iii. Workers/Business Immigrants

This group of users includes migrant workers and entrepreneurs. Users will usually fall within working-age (which is typically around 18 to 54) and these users will be proficient in English. The majority of the users who fall under this

category will have had some experience with and have knowledge of how to operate technological devices. However, this still involves the rare cases in which a small portion of these users have had none to little interaction and knowledge of technology.

iv. Permanent Residents

Users of this group will be of various ages, are proficient in English, and have varying levels of experience, interaction, and knowledge of technology ranging from none all the way to being highly informed and experienced.

v. Sponsored Residents

Users of this group will be of various ages, may not be proficient in English, and have varying levels of experience, interaction, and knowledge of technology ranging from none all the way to being highly informed and experienced.

vi. Refugees

Users of this group will be of various ages, highly likely that they may not be proficient in English, and will have varying levels of experience, interaction, and knowledge of technology ranging from none all the way to being highly informed and experienced.

b. Work contexts that describe the work setting and typical situations of the users.

i. Visitors/Tourists Representative

Raymond Smith is a 50 year old visitor from Vancouver, BC, currently visiting Calgary to spend some time with his daughter who is attending the University of Calgary. He enjoys travelling and is a photography enthusiast who enjoys taking pictures of all the different places he visits. His first language is English which means that he will have no problems with communicating and interacting with his surroundings and the people around him. Despite knowing how to operate a camera and some basic operations of his smartphone, he lacks experience and knowledge in operating other devices.

ii. Students Representative

Glenn Sheppard is a first year international undergraduate law student with a study permit coming from Australia to pursue her postsecondary education at the

University of Calgary. This is her first time in another country that is drastically different from her home country, which means she has very little knowledge about her new environment. As a plus, English is her first language which means that she will have no problems with communicating and interacting with her surroundings and the people around her. As a student, she is very familiar with the use of different technologies and has enough knowledge and experience to quickly learn how new devices operate.

iii. Workers/Business Immigrants Representative

Zilin Chen is a 40 year old new migrant worker from China coming to work in Calgary with an approved work permit. As with the majority of immigrants coming from a very culturally rich country, he has a very religious background. English is his second language which means that his English skills are proficient, however, he prefers using his native language whenever he can. Additionally, he has a good grasp and understanding regarding the use of most technological devices as required from his job. Despite being very successful with his career, Zilin is not as lucky in other aspects. He is in the minority group within his workforce and this has a negative effect on him as he feels that he does not have a place of belonging within the new environment.

iv. Permanent Residents Representative

Navjot Singh is a 35 year old skilled worker from India and is here with his wife and two children for the first time. All of them have a permanent resident status. For the time being, the family is staying at their registered temporary location until they receive their PR card. His English skills are proficient but as with many immigrants with English as a non-primary language, they prefer to use their native language. Navjot has had some experiences with and knowledge of operating some basic functions of a few technological devices such as a smartphone and tablet.

v. Sponsored Residents Representative

Harry Kim is a 13 year old boy who just recently moved to Calgary from South Korea with his mother through the family sponsorship program prepared by his father. Harry has limited English skills, but understands enough to help him interactive with others and his surroundings. Coming from a fairly technologically advanced country, Harry has had a great deal of experiences and knowledge of operating many devices.

vi. Refugees Representative

Ahmed Radid along with his wife are an elderly couple who arrived at Calgary along with their young grandson under refugee status. Under such circumstances, the family knows very limited English and Ahmed has difficulties seeing due to his partial blindness. Their assigned care worker has helped the family settle down and took care of all their necessities, such as enrolling their grandson in a nearby elementary school and registering the family for all the necessary identifications and documents. The family has never had any interaction with technological devices before and therefore, has no experiences and knowledge about operating such devices.

c. Concrete task examples.

i. Visitors/Tourists

Task description:

During Raymond's week-long stay in Calgary to visit his daughter who attends the University of Calgary, he is excited to be able to get out and explore his new surroundings in order to capture some memorable moments together. Raymond searches for any interesting local attractions and events in Calgary to visit. Once he has decided on which locations and events to visit, he notes down all the locations and corresponding dates and times of the events. He begins a search for these locations so that he can plan out his driving routes accordingly and familiarize himself with the city. During their exploration, he finds himself separated from his daughter within the busy streets and discovers his phone has no power. He quickly searches for another way to locate his daughter and waits at their agreed meeting spot.

Task information:

Raymond represents a commonly encountered and typical visitor/tourist and goes through some fairly frequently performed tasks by many visitors/tourists sharing the want to explore their new environment. These tasks involve searching up any notable and interesting tourist locations and events occurring that can be visited during the traveller's travel duration. Additionally, many people will look up how to get to these destinations and use this information to plan their trips accordingly, for example, determining when to set out on the trip if they want to reach the destination at a specific time. Lastly, there are many inconvenient times where a traveller's cell phone runs out of power or has no cellular service within their current location.

This task was formulated through a few very recent personal experiences from our group members and stories of experiences from family members when travelling abroad. When traveling with family, there are many times where a trip is planned with the goal of relaxing and enjoying time away from home with no set itinerary beforehand. During such a situation, travellers tend to come across different activities and events as they are happening.

ii. Students

Task description:

Glenn Sheppard has just finished her landing procedures and needs to search for directions to get to the University dorms. She pinpoints the address and looks for a method of transportation to get there. After settling down in her residence, Glenn consults the International Student Checklist provided by the University and finds that she needs to obtain the necessary documents she will be needing for her four years stay in Calgary. She begins with her health care card. Glenn searches up the necessary requirements to obtain the card, locates the nearest registry, and finds the directions on how to get there.

Being an undergraduate within the Faculty of Law, she is interested in our city bylaws. She would like to be familiarized with any important and necessary laws that might prove to be useful in the near future and to do so, she begins by searching up the city bylaws.

Task information:

Glenn represents a commonly encountered and typical international student arriving in Calgary for their first time. The first few tasks she completes are very commonly done by first time visitors who plan to stay for a long duration. These tasks involve the frequent need to search up locations and directions on how to get to their destinations when in an unfamiliar environment. As well, it is very important for long term visitors to obtain and prepare all required official Canadian documents and identifications during their stay here. Most citizens are unaware of and not interested about our city bylaws. Therefore, the last task Glenn performs, realistically is a very infrequently performed task.

Glenn's task was generated from the experience and input obtained from a current international student at the University of Calgary as well as information from the UCalgary Welcome Centre (Source: UCalgary Student Life, 2019).

iii. Workers/Business Immigrants

Task description:

Zilin Chen is now a few weeks into his new job and has started to feel fairly isolated and homesick. As someone who comes from a very religious background, he wishes to find people that he can connect with. He begins to research about his new surroundings and comes across some notable religious centers. He continues his search, narrowing it down to the Chinese CommunityCenter in downtown. Once satisfied with his search results, he looks for the location of the building, the opening hours and how to get there.

Task information:

Zilin is a less commonly encountered user who represents a minority within the migrant working group and in Calgary's population in general. Although his tasks are infrequently performed, the tasks of searching for relatable religious centers or other ways to connect with those who share similar cultural background and language is still an important situation to consider since this covers a solution for many new immigrants going through similar experiences of isolation and homesickness.

This occurrence is most notably occurring currently due to the ongoing COVID-19 pandemic as many people are unable to return to their home countries. This task situation was formulated through our research of commonly faced challenges that new immigrants face, one being known as *cultural shock* (Source: Popa, 2017), which describes an immigrant's experiences of feeling isolated within their new environment. Furthermore, the solution within this task was generated with the aid of solutions suggested by the Government of Canada (Source: Government of Canada, 2016).

iv. Permanent Residents**Task description:**

The Singh family are new permanent residents who have just settled down at their registered temporary residence. After the long flight, they need to find some food and re-energize. Navjot searches the nearby area for any hotels that are available for temporary stay, he finds location and directions to reach it. After a couple days, the family has now received their PR card and Navjot wants to quickly locate an affordable permanent house for the family to move into. He begins his house hunting quest and inspects the current houses that are available for purchase. He discovers a promising candidate and examines the description. He obtains the address along with the realtor agent contact information and gets the directions to the home so that the family will be able to view their potential new home together.

Task information:

The Singh family represents one of the smaller portions of immigrants who migrate to Canada through the admission of permanent residents (Source: Government of Canada, 2020). Which means that this task represents a group of users who are rarer or uncommonly encountered. Although this is a rare user, the tasks described in the description is important as this highlights one of the commonly encountered challenges that new immigrants face - finding housing in the new environment.

This task was formulated with the help of an online Youtube video that stepped through the process of what to expect when arriving in Canada as a new permanent resident immigrant (Source: Our Canadian Diary, 2020).

v. Sponsored Residents**Task description:**

Harry was meeting with a new friend he had recently made and the two youngsters are on their way to the movie theatre. However, both friends have very little experience with using public transit and were unsure of which bus to take to the nearest theatre. The two consult a map of the neighbourhood transit routes along with the transit schedules and note the corresponding buses they would need to take to get to the movie theatre and back. After the movie ended, they stepped outside and found that it was quite chilly. Unfortunately, the two friends reached the bus stop just as the bus left. Not wanting to wait outside in the cold, they looked up when the next bus was going to arrive and waited inside the nearby theatre.

Task information:

Harry represents a less commonly encountered user for the system due to his young age. However, he still represents an important user and scenario that we have to consider, which is accounting for the situations involving a much younger audience as well those who may not be proficient in English and are not a part of the previously mentioned top three countries immigrants usually come from. The task that Harry performs is another critical challenge that immigrants face - the weather.

This task was generated through a common situation that many people experience in general, especially during the colder seasons which makes using public transportation in Calgary quite difficult. This task was also coupled with our personal experiences as students using public transit. As well, this represents a

common situation for many people who do not have much knowledge about the parts of the city one would rarely visit.

vi. Refugees

Task description:

Ahmed Radid is his way back from dropping his grandson off at the local elementary school for class when he suddenly began to feel unwell. He wants to seek out the nearest medical aid center and the building location. However, this proves to be difficult as he knew very little English. He eventually obtained the required information and luckily for him, the medical center was close by.

Task information:

The Radid family represents a fairly small portion of the immigrants that come to Canada making them a more rare user of the system. Despite that, in 2019, Canada has resettled one of the highest numbers of refugees worldwide (Source: Government of Canada, 2020). In fact, this means that refugees are still a very important group of users that should be represented. The task and situation that Ahmed displays represents a smaller portion of users that may access our system for help, but it is important to consider both elderly and impaired individuals making use of our system.

2. Phase 2: Tentative list of requirements.

a) System requirements we must include:

- A map of nearby area
- The map should list nearby areas (buildings, restaurants, medical centers, shopping centers, etc.)
- The map must be able to show routes and directions
- The map must be able to provide addresses
- A search function for the map
- Lists of important local laws
- Display public transit options
- Lists immigration services
- Multiple system languages (English, French, Filipino, Hindi, Chinese)
- Current local time, date, and weather information

As with all useful kiosks, our system must provide a map of the nearby area along with any locations of interest for the user (restaurants, medical centers, hotels, etc.) and allow users to perform searches for their own destinations. The map must also be capable of displaying accurate routes to the selected destinations based on the transportation method

(car, transit, walking, etc.) no matter how far the user is from the destination. It must provide the following requirements that we feel have the most importance and usefulness for new immigrants. The system must display nearby public transit stops, routes and their corresponding bus schedules, lists all important local laws that the ordinary citizen should be aware of, lists all important documents and identifications one must have while living in Calgary and information on how to obtain and where to obtain these.

Furthermore, our system should display useful information such as the current date, time, weather information, and provide the options to select from our five system languages (English, French, Filipino, Hindi, Chinese) to accommodate non-English speakers.

b) System requirements we **should** include:

- List local events and their times locations/addresses
- List local tourist destinations, their locations/addresses and any operation times
- Display nearby religious centers and operation times
- Provide an option to search for nearby accommodations and provide location/address
- List building operation times if any

The map implemented into the kiosk should be able to allow users to see local events that are occurring, any local tourist attractions, any nearby religious centers and should allow the user to be able to conveniently search for any nearby accommodations. All these above options should come with their corresponding addresses and any opening/closing times, along with the ability of the map to display routes and directions.

c) System requirements we **could** include:

- Ability to make calls and dial emergency helplines
- List current exchange rates
- Voice reading/narration
- Voice recognition

Normally, kiosks do not typically provide the option for users to use it as a calling service, but this is something that we could consider implementing into the kiosk, especially with the option to quick dial the emergency helpline (911) in emergencies. Exchange rates may also be something of interest for new immigrants to the city. Additionally, the ability for the kiosk to perform voice reading/narration and voice recognition will greatly improve its attractiveness and usage for both visually impaired users and users who have hearing difficulties.

d) System requirements to **exclude**:

- The kiosk will not be designed to store any personal information

Since the ideal is for the kiosk to be situated in various locations within the city airport and around public places so that the kiosk will be in convenient and easy to find locations, the kiosk should never ask for nor store any personal information from our users.

Section 2: The first prototype and walkthrough.

3. Phase 3: Prototyping

During the development of our low-fidelity prototype, our group went through two iterations before reaching our final prototype. The two initial prototypes and the final prototype is shown and explained in **Appendix 1: Iterations of our prototype.**

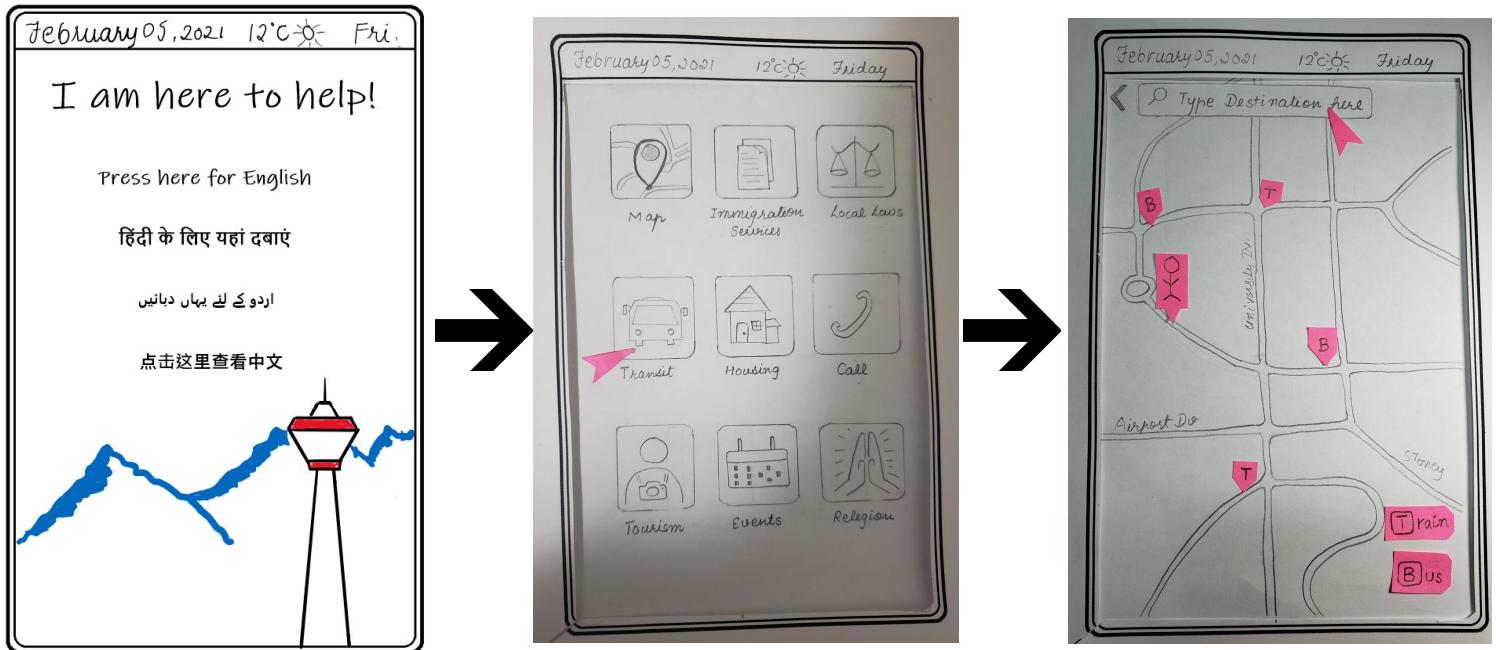
4. Phase 4: team discussions and walkthrough.

We did 3 iterations to get the final Lo-Fi prototype. As we were going for the first iteration we were debating about the system constraints, screen the application is going to be running on, the size of the screen and the locations of KIOSK. In the design process with all other factors we also prioritised the location of the kiosk for example if the kiosk is in an airport only or is it also in the remote location of Calgary city. Moreover, narrowing down the type of user for the system was another challenge in our design process, it caused the design to go back and forth on several features.

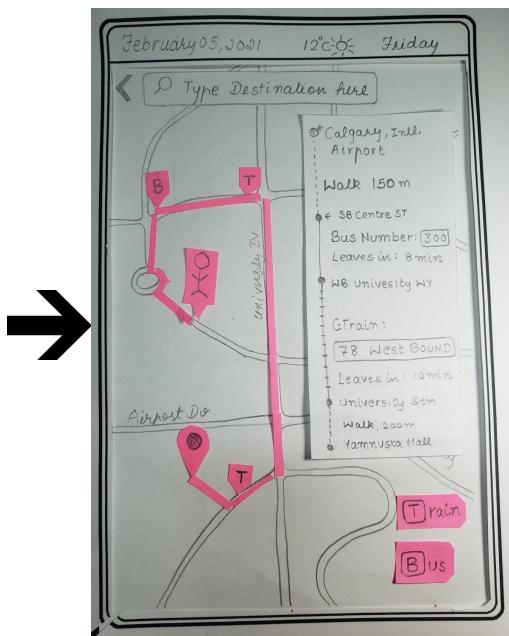
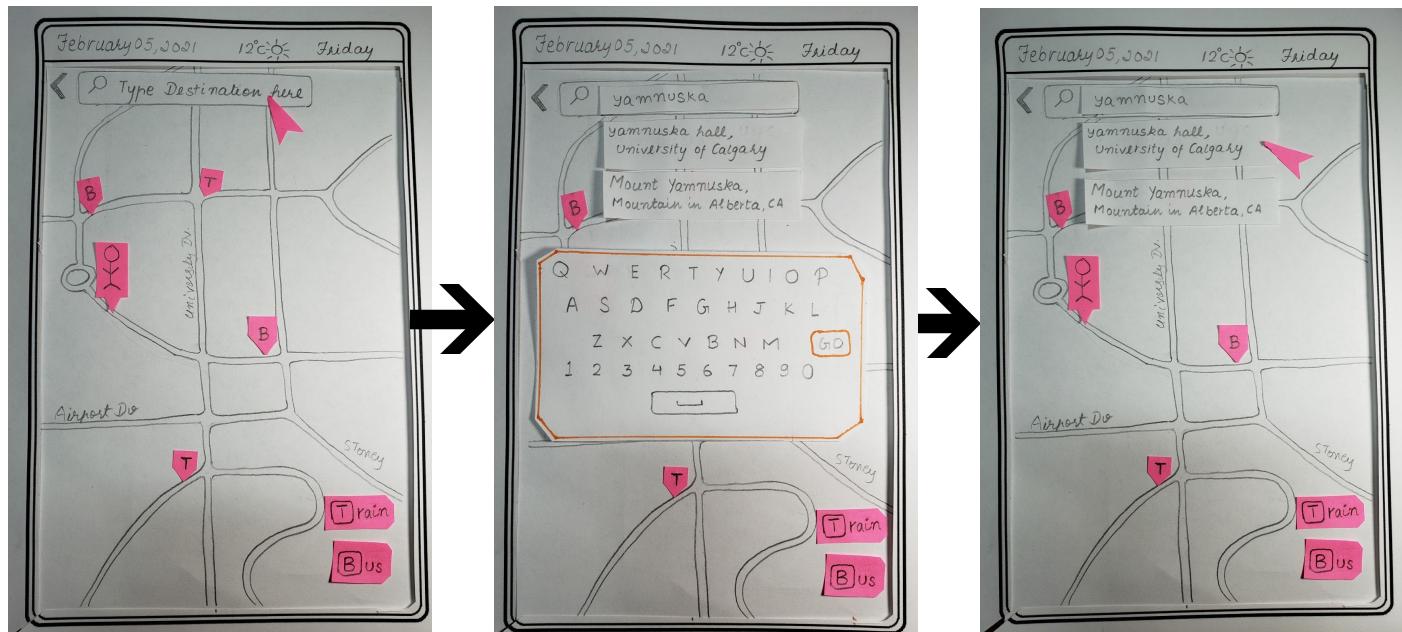
Another challenge was to decide the template of the UI. There were several UI template ideas but from our designers personal experience and other intensive research we decided the system looked like a mobile UI. Our main menu page and the top bar resemble Iphones UI. It makes the system more accessible and usable for any first time users.

Adding the language feature is the major part of the design. Now we have only demoed a walkthrough using the HINDI language but different languages will completely change how each page and its content will be aligned. We certainly need to keep the language factor and the UI alignment in mind in our later designs.

Walkthrough #1: Glenn Task 1 - Getting transit directions to college dorms

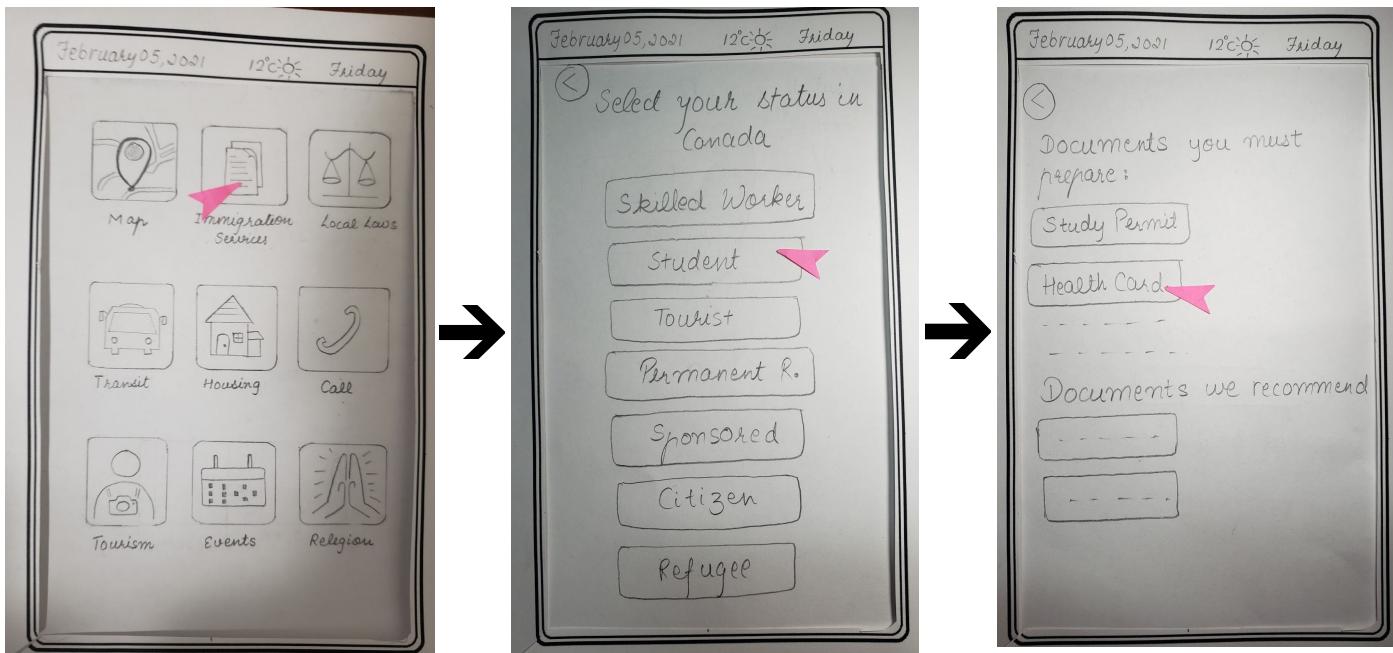


Step #	Step Description	Knowledge/Believable/ Motivation?	Comments
1	Glenn presses "Press here for English"	<p>Knowledge: This step does not require any prior knowledge.</p> <p>Believable: A trivial interaction of the user with the system. Hence, believable.</p> <p>Motivation: Glenn saw the friendly message at the top from a distance, so she is motivated to seek help using the kiosk.</p>	<p>Successful:</p> <ul style="list-style-type: none"> - Language options appeal to users who do not understand English <p>Problems:</p> <ul style="list-style-type: none"> - Can not provide every language
2	Glenn chooses "Transit" from the menu that pops up.	<p>Knowledge: This step requires no prior knowledge. Glenn chose "Transit" because she did not want to get a taxi.</p> <p>Believable: Believable since a lot of immigrants are reluctant to spend money on a taxi.</p> <p>Motivation: The option is accompanied with an easily visible and easy to understand icon. Therefore, she is motivated to do this step.</p>	<p>Successful:</p> <ul style="list-style-type: none"> - This application is frequently used, so having it on the main menu will increase accessibility and ease of completing the task <p>Problems: None</p>

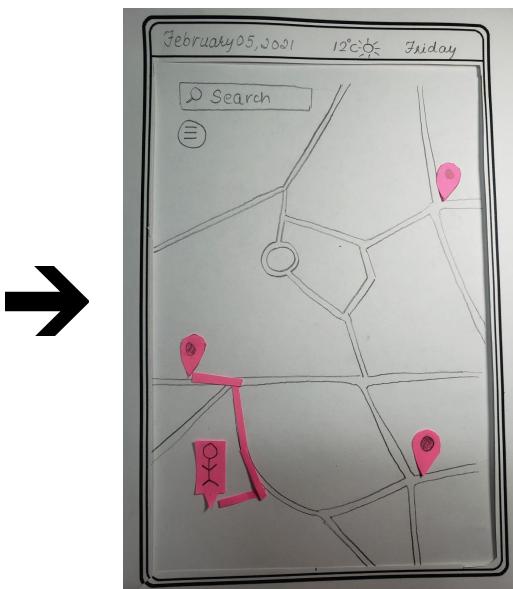
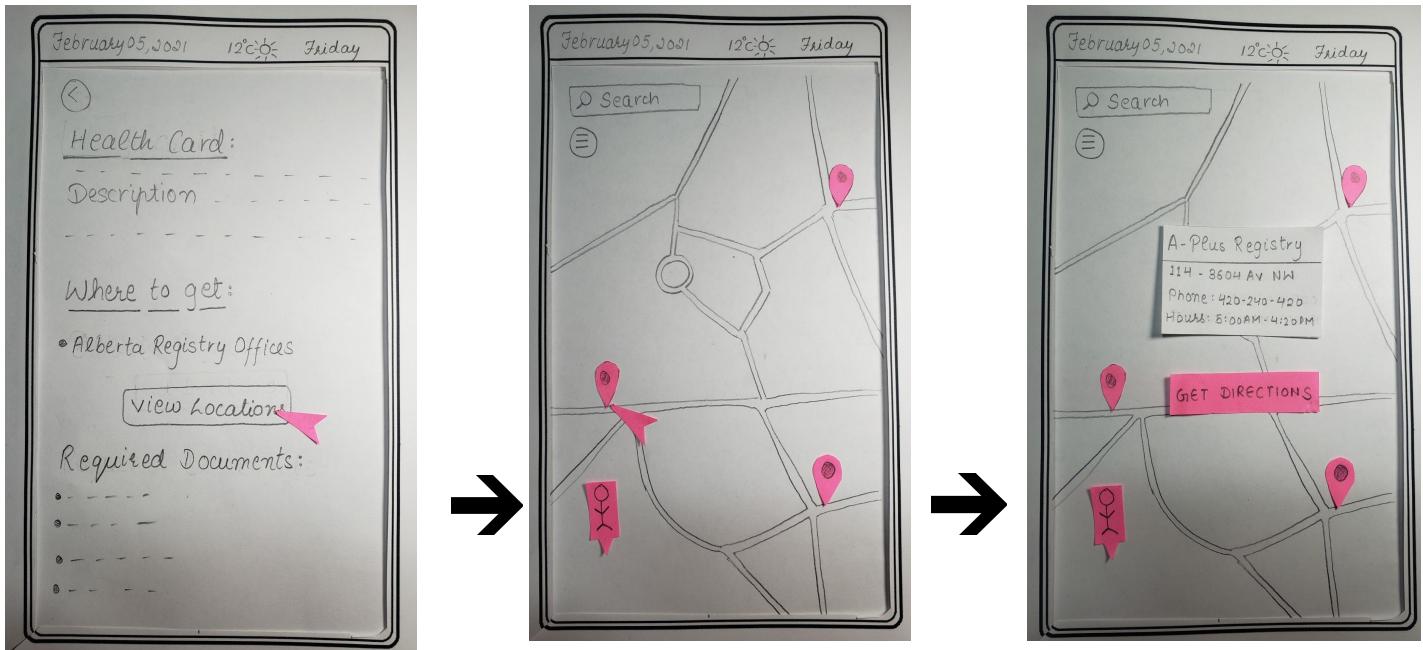


3-5	<p>Glenn clicks on the bar at the top in order to enter the address of her university dorm. She then enters the address and chooses the right suggestion.</p>	<p>Knowledge: The user must know the address of their destination in order to make use of the “search” facility. Believable: Users who already know the address of their destination would be willing to directly search the route for it. Motivation: The search bar says “Type destination here” which conveys a clear message regarding its purpose. A list of relevant suggestions also helps the user make the right choice. Hence the user is motivated to use it.</p>	<p>Successful: None Problems: <ul style="list-style-type: none"> - Some users may not know the exact address of their destination Solution: <ul style="list-style-type: none"> - Kiosk suggests the closest matches to what the user enters </p>
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Walkthrough #1: Glenn Task 2 - Figuring out which documents she must prepare and where to go in order to get them ready



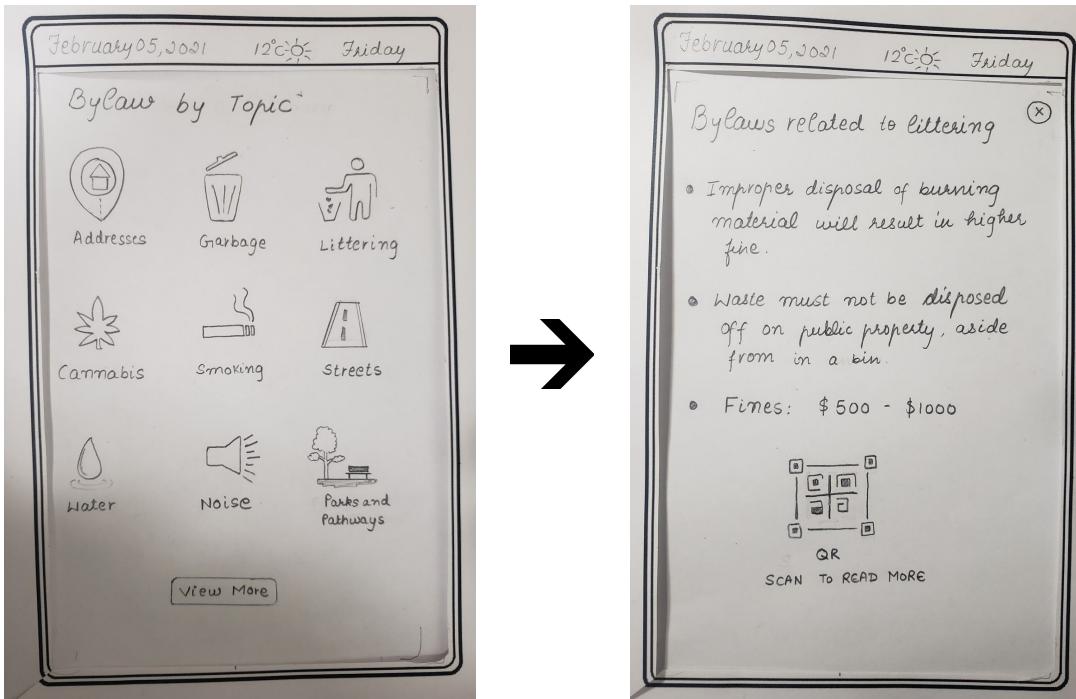
Step #	Step Description	Knowledge/Believable/ Motivation?	Comments
1	User chooses the “immigration services” option.	Knowledge: This step does not require any prior knowledge. Believable: Yes, the user needs information regarding the health card. Motivation: The user requires information regarding her health card, by selecting this application, she will be able to obtain this information.	Successful: None Problems: None
2	User selects “Student” as her status in Canada.	Knowledge: This step requires the user to be aware of their current status within Canada. Believable: Yes, the user should know their status. This is a trivial step. Motivation: Low.	Successful: None Problems: None
3	User selects “Health Card” from the “Documents you must prepare” list.	Knowledge: No knowledge is required for this step. The user only needs to know which document they are searching for. Believable: Yes, by selecting the corresponding document, the user is one step closer to obtaining the information she needs. Motivation: The user has come across the document she is interested in which means that she will want to click on the specified document.	Successful: None Problems: None



Step #	Step Description	Knowledge/Believable/ Motivation?	Comments
4	User reads the document description and selects "View Locations"	Knowledge: This step does not require any prior knowledge. Believable: Yes, since the user is new to the city, she will need to know where her destination is located. Motivation: By clicking on the button, the user will be able to easily tell where the location is and how far it is.	Successful: None Problems: None

5	User chooses the registry office that is closest to their current location.	Knowledge: This step does not require any prior knowledge. Believable: Yes, by choosing the closest registry, the user will be able to reach their destination quicker. Motivation: By selecting the closest registry, the user will be able to reach their destination faster than selecting a registry that is far away and inaccessible.	Successful: None Problems: None
6	After reading the details of the registry, the user chooses to get directions and follows them to get there.	Knowledge: This step does not require any prior knowledge. Believable: Yes, the user is new to the city and will need to know the directions to reach the location. Motivation: Since she does not know where the registry is, she will require directions on how to get there.	Successful: None Problems: None

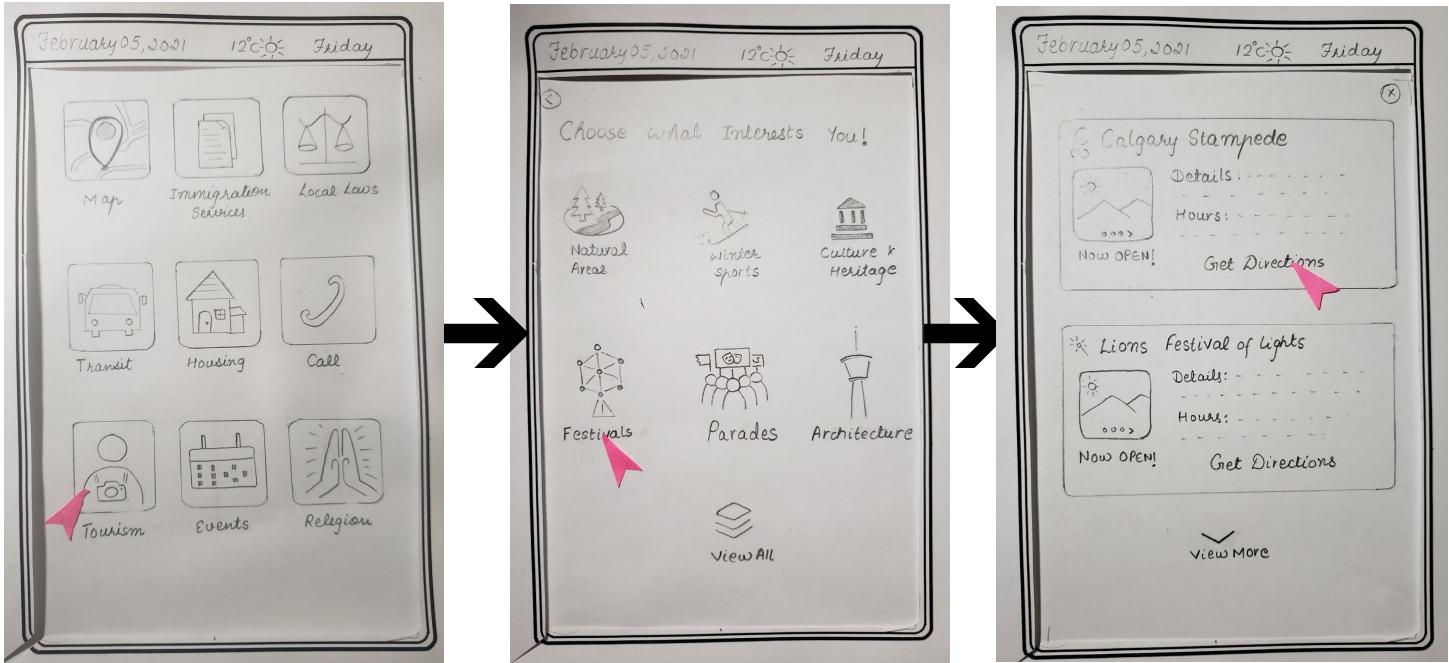
Walkthrough #1: Glenn Task 3 - Reading about the city bylaws



Step #	Step Description	Knowledge/Believable/Motivation?	Comments
1	User chooses "Local laws" from the main menu.	Knowledge: This step does not require any prior knowledge. Believable: Yes, the user is interested in learning more about the city bylaws. Motivation: By clicking on this application, the user will be able to obtain what she is seeking.	Successful: None Problems: None
2	User decides to read about the local laws	Knowledge: The step requires the user to know what a QR code is and how to scan it.	Successful: None Problems:

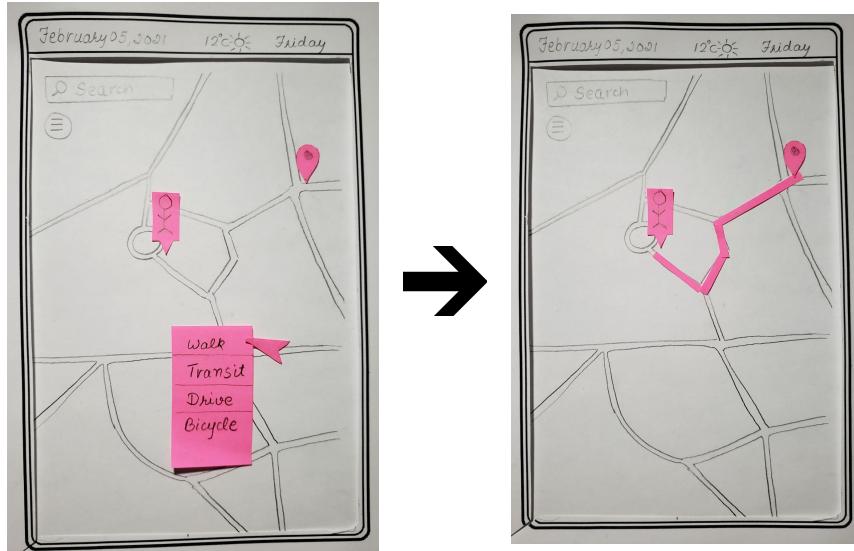
	<p>related to littering and taps on it, and then scans the QR code to read into further detail about them.</p> <p>Believable: May not be practical. There are users who may not have phones capable of scanning QR codes or they do not know what a QR code is.</p> <p>Motivation: Low - Users will have to take their phone out and scan the QR code. This creates more work for the user.</p>	<ul style="list-style-type: none"> - User does not have a smartphone with them - User does not know that a QR code is
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Walkthrough #2: Raymond Task 1 - Looking for tourist destinations



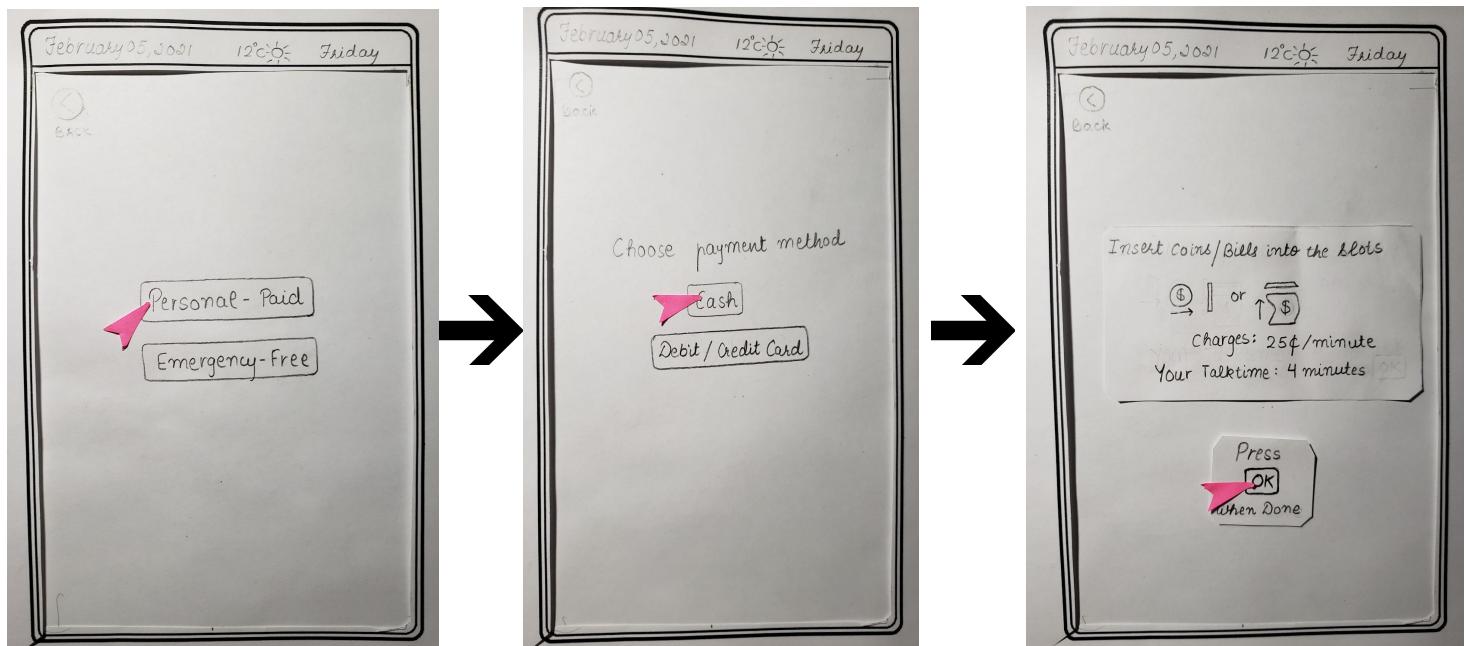
Step #	Description	Knowledge/Believable/ Motivation?	Comments
1	User chooses "Tourism" from the main menu.	<p>Knowledge: This step does not require any prior knowledge</p> <p>Believable: Yes, the user will click on this application since they are interested in finding local tourist destinations</p> <p>Motivation: Application is easy to find since it is located on the main menu.</p>	<p>Successful: None</p> <p>Problems: None</p>
2	User is interested in going to the ongoing festivals in Calgary and clicks on "Festivals"	<p>Knowledge: This step does not require any prior knowledge</p> <p>Believable: Yes, the user will click on what interests them.</p> <p>Motivation: By clicking on what the user is interested in, the user will gain some knowledge and information about the event.</p>	<p>Successful: None</p> <p>Problems: None</p>
3	User reads the	Knowledge: This step does not require any prior knowledge	Successful: None

	<p>details and hours of the festival of their choice and tap on “Get directions”.</p> <p>Believable: The user may not know where their choice of destination is located, therefore, clicking on the option to get directions is realistic.</p> <p>Motivation: High - users will want to know where their choice of destination is located.</p>	<p>Problems: None</p>
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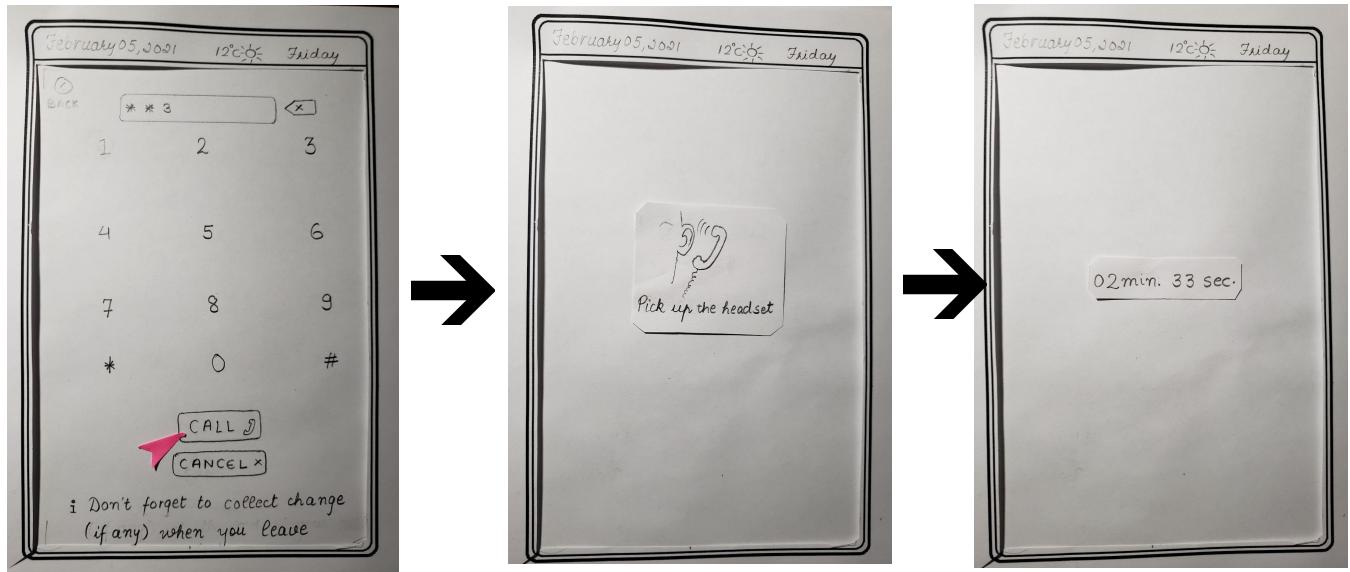


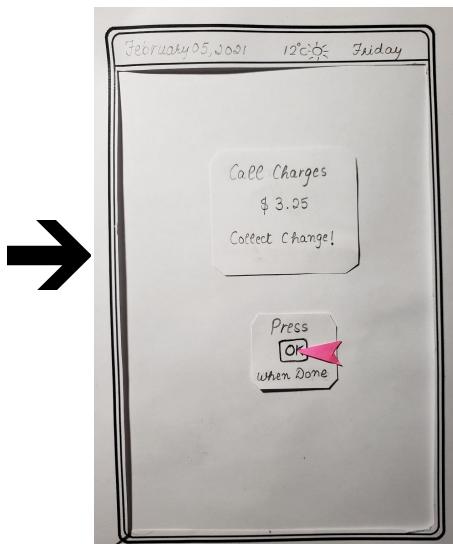
4	<p>User chooses “Walk” to get the walking directions to the festival.</p> <p>Knowledge: This step will require the user to know which mode of transportation they will be using to reach the destination.</p> <p>Believable: If the event is close by, users will want to save money and time by walking there.</p> <p>Motivation: High - If the user does not know how to get to the event location then they will want to know how to get there.</p>	<p>Successful: None</p> <p>Problems: None</p>
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Walkthrough #2: Raymond Task 2 - Using the call function



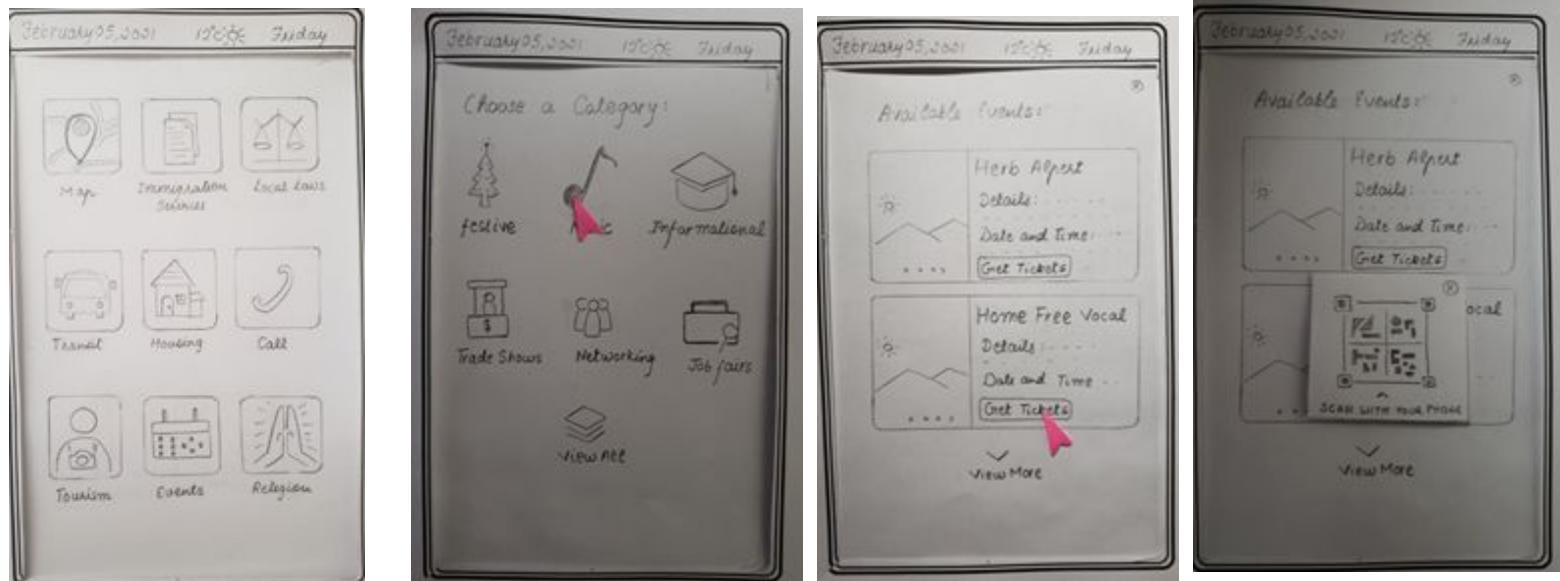
Step #	Description	Knowledge/Believable/ Motivation?	Comments
1	Since, it is a call to his daughter, the user chooses "Personal-Paid" option	Knowledge: This step does not require any prior knowledge Believable: If the user is unable to use their cellphone or other communication device, then this step is realistic. Motivation: Low - User is required to pay to use this service.	Successful: None Problems: None
2-3	User decides to pay by cash and inserts the coins into the slot on the kiosk.	Knowledge: This step does not require any prior knowledge Believable: Yes, in order to use the calling service, the user must pay. Motivation: Low - This step requires the user to perform extra work, as well as pay to use the service	Successful: None Problems: <ul style="list-style-type: none"> - User finds out he has no cash Solution: <ul style="list-style-type: none"> - Use the back button to select a different method of payment
4	The user dials the number and hits "Call".	Knowledge: This step requires the user to know the phone number of the person they want to reach. Believable: Yes, the user must enter the correct phone number for the call to reach the person. Motivation: Medium - Requires the user to take some time to input the phone number	Successful: None Problems: <ul style="list-style-type: none"> - User may have entered the wrong digit Solution: <ul style="list-style-type: none"> - Use the back button to delete the digit





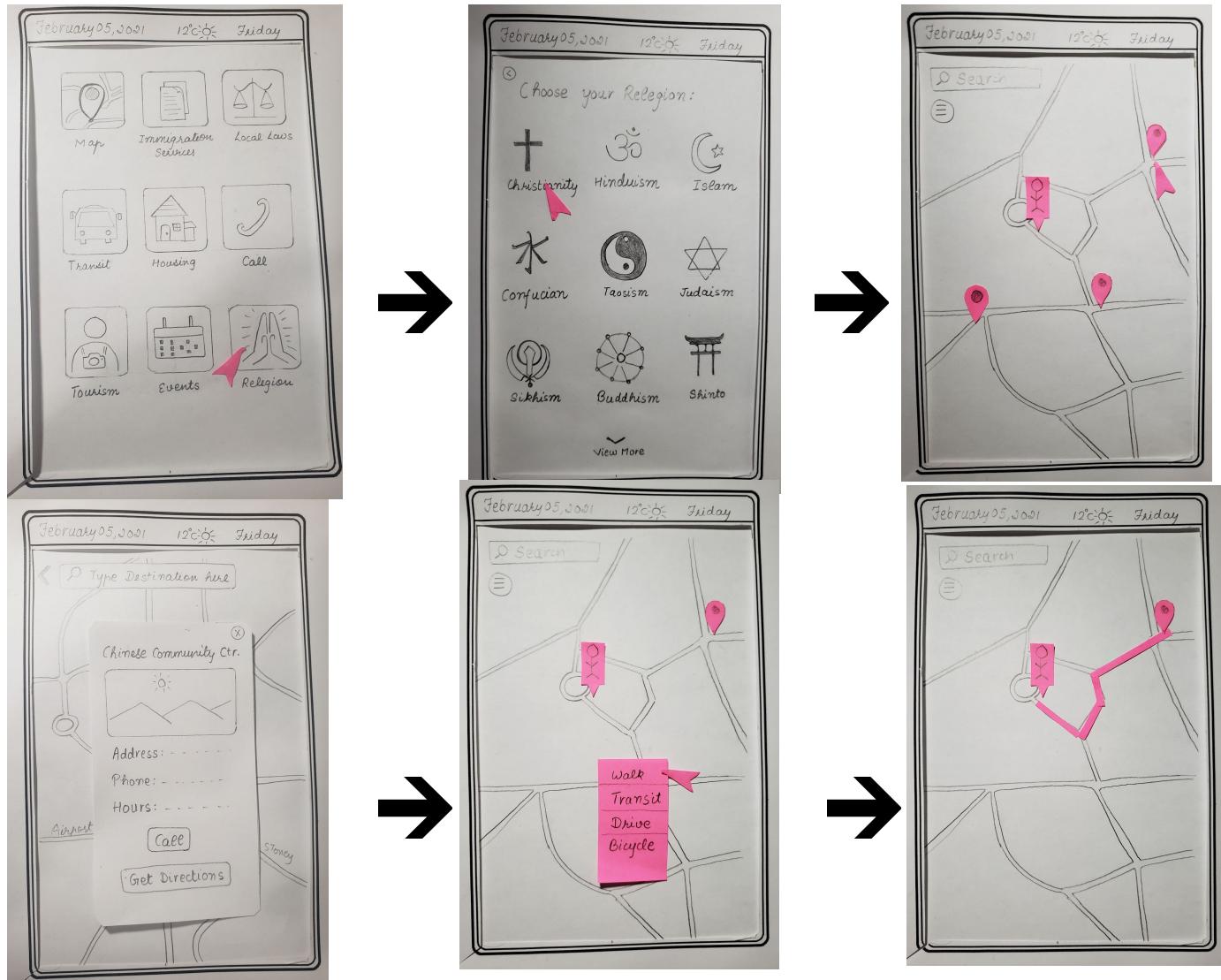
5-7	<p>The user picks up the receiver, as illustrated, and starts talking to his daughter. Once he puts the headset back at its position, he is informed to collect the change, he presses “Ok”, collects the change and leaves.</p>	<p>Knowledge: This step does not require any prior knowledge.</p> <p>Believable: Yes, in order to talk to and hear the person, the user must pick up the hand held receiver.</p> <p>Motivation: Medium - By picking up the receiver, he can proceed with his call and by clicking “Ok”, the user will be able to end the call once finished and collect any change that may be left over.</p>	<p>Successful: None</p> <p>Problems:</p> <ul style="list-style-type: none"> - User may forget to collect change
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Walkthrough #2: Raymond Task 3 - Finding nearby events



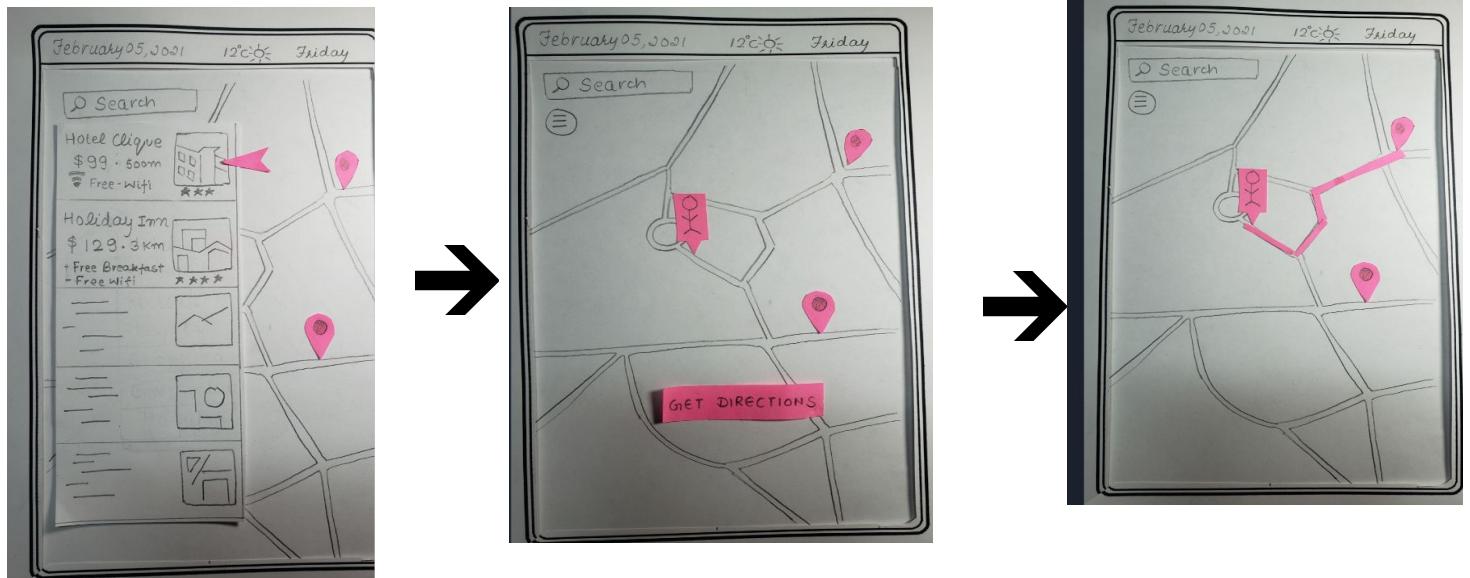
Step #	Description	Knowledge/Believable/Motivation?	Comments
1-2	Raymond chooses the “events” icon to explore any events nearby and chooses “music” from the next screen.	Knowledge: No knowledge required. Believable: Yes as he needs to explore any nearby events. Motivation: Medium as he feels reluctant to explore all events.	Successful: None Problems: -There may not be any events of choice
3	He selects his choice of events and presses the “get tickets” button to buy the tickets for the event	Knowledge: No knowledge. Believable: Yes as he needs to buy tickets to attend the events. Motivation: Low as he may not want to pay	Successful: None Problems: -Tickets may not be available
4	Finally the kiosk asks for payment by scanning a code.	Knowledge: No knowledge Believable: Yes he needs to pay for tickets Motivation: Low as he may not want to pay for events	Successful: None Problems: - He may not have scanning option to pay for tickets

Walkthrough #3: Zilin Task 1 - Looking for a religious center



Step #	Description	Knowledge/Believable/ Motivation?	Comments
1	Zilin chooses the “English” option	<p>Knowledge: No prior knowledge is required.</p> <p>Believable: A simple interaction between the user and the kiosk, so it is believable</p> <p>Motivation: Zilin is motivated to use English as he is familiar with the language.</p>	<p>Successful:</p> <ul style="list-style-type: none"> - Language options appeal to users who do not understand English <p>Problems:</p> <ul style="list-style-type: none"> - Cannot provide language
2-3	The main menu pops up. Zilin first chooses the “religion” icon and then the “Christianity” icon to find people with the same religious background.	<p>Knowledge: No prior knowledge is required.</p> <p>Believable: Yes, as Zilin is looking to integrate with people of the same religious background.</p> <p>Motivation: High - Zilin can see what religious and community services are taking places nearby. He is also struggling to adapt to the new environment.</p>	<p>Successful: None</p> <p>Problems:</p> <ul style="list-style-type: none"> - Not all ethnic services might be available
4	He decides to select “Chinese community centre” from a range of options.	<p>Knowledge: Needs to know his ethnicity in English.</p> <p>Believable: Yes, Zilin is from China and he is looking for people of the same ethnicity.</p> <p>Motivation: Medium - Zilin may skip details</p>	<p>Successful: None</p> <p>Problems: None</p>
5-6	The map displays his current location and also methods of reaching the destination. He decides to walk	<p>Knowledge: No prior knowledge is required.</p> <p>Believable: Yes - Zilin wants to attend the services offered by the community centre.</p> <p>Motivation: High - Zilin needs to know the location in order to get there.</p>	<p>Successful: None</p> <p>Problems: None</p>
7	The map shows the walking route.	<p>Knowledge: No prior knowledge is required.</p> <p>Believable: Yes - Zilin needs to follow the path to reach the centre.</p> <p>Motivation: Medium - Zilin will be able to reach his destination but may get tired of walking.</p>	<p>Successful: None</p> <p>Problems:</p> <ul style="list-style-type: none"> - He may forget the route on the way <p>Solution:</p> <ul style="list-style-type: none"> - Take a picture of the directions

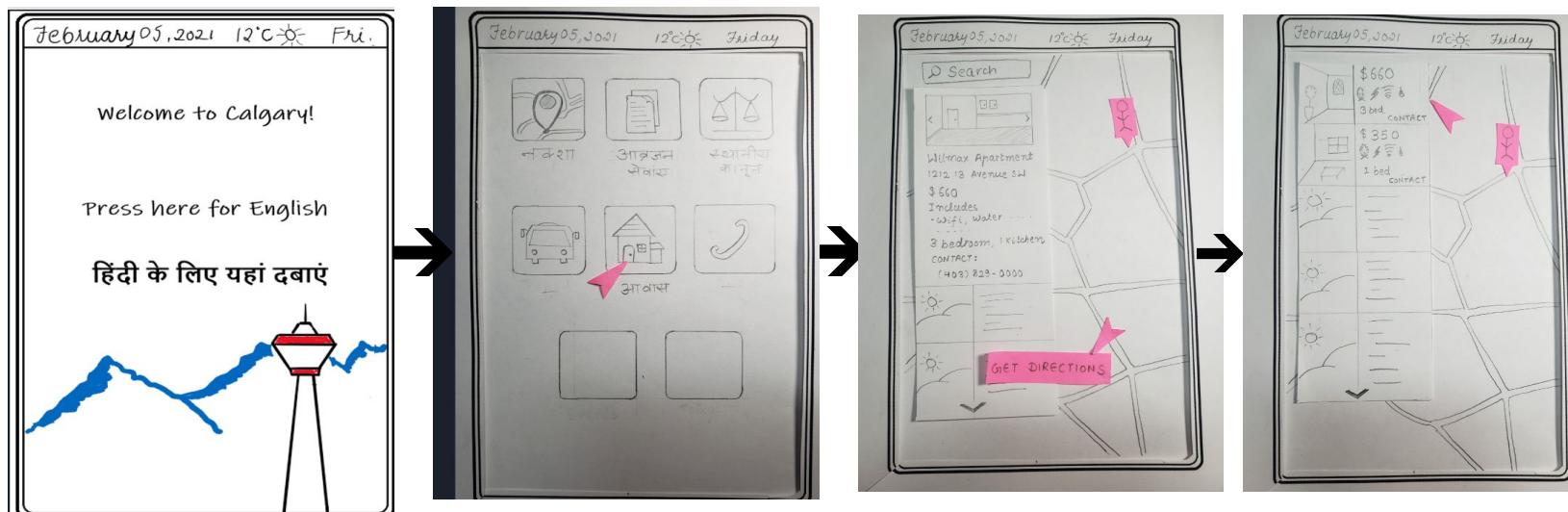
Walkthrough #4: Navjot Task 1 - Finding a suitable restaurant



Step #	Step Description	Knowledge/Believable/Motivation?	Comments
1	Navjot chooses the Hindi option.	Knowledge: This step does not require any prior knowledge. Believable: Yes - The user would like to interact with the kiosk in a language he is familiar with. Motivation: The user is motivated to use the kiosk in his preferred language.	Successful: -Language options appeal to users who do not understand English Problems: -Cannot provide every language
2	Within the main menu, he sees the	Knowledge: This step does not require any prior knowledge.	Successful: None Problems: None

	map option and selects it.	Believable: The user must use the map option to find restaurants. Motivation: User needs to know about his nearby surroundings and his current location, therefore, he should use the map.	
3	Navjots gets the current location within the map, selects the “click here to Explore” option and a menu drops down.	Knowledge: User needs to know how much he wants to spend. Believable: User is new and therefore, would use the map option to find what is available nearby. Motivation: The user is motivated to use the kiosk to find a suitable restaurant.	Successful: None Problems: None
4	Navjot selects the restaurants option.	Knowledge: No prior knowledge is required. Believable: User has found what he was searching for. Motivation: The user is motivated to use the kiosk to find a suitable restaurant.	Successful: None Problems: None

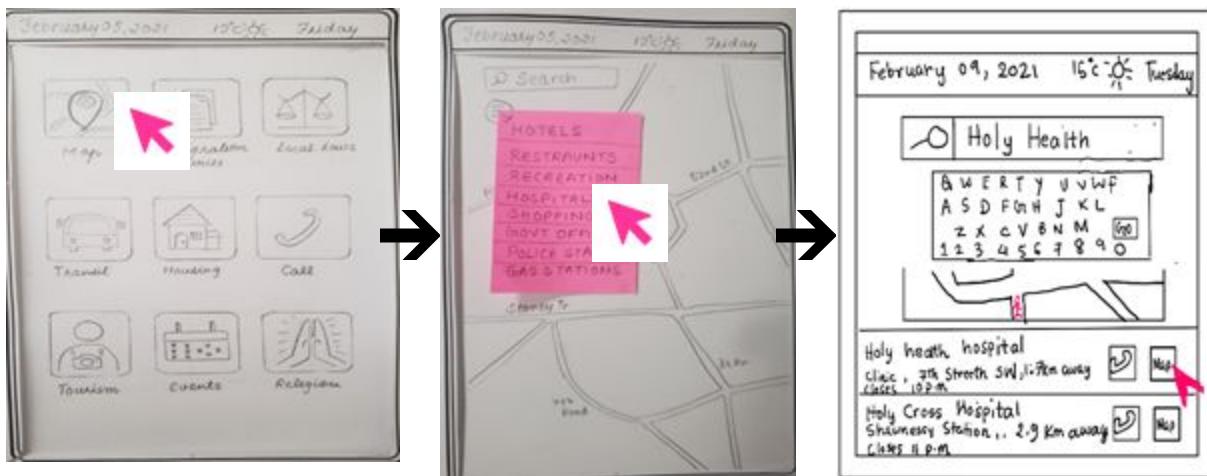
Walkthrough #4: Navjot Task 2 - Finding a suitable accommodation

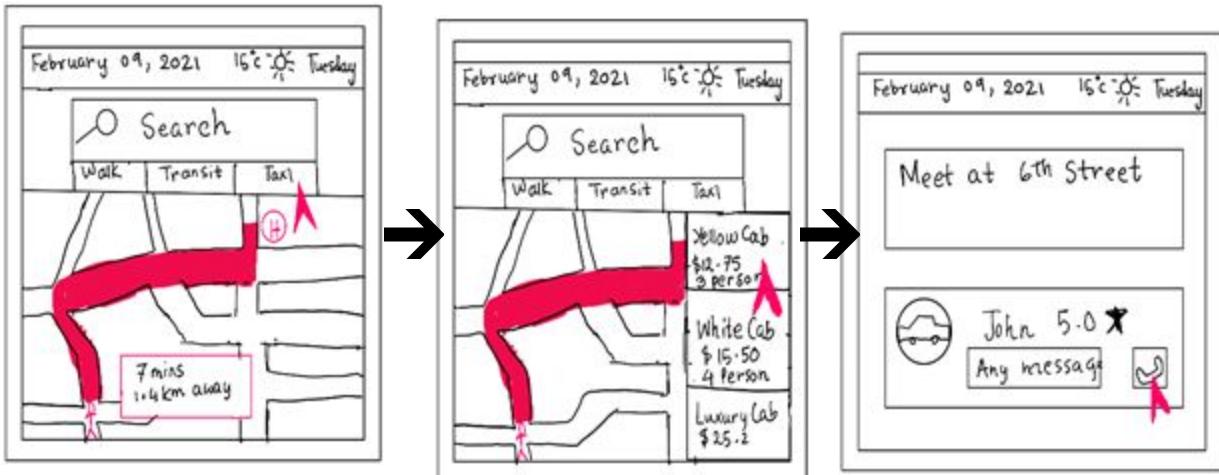


Step #	Step Description	Knowledge/Believable/Motivation?	Comments
1	Navjot chooses the Hindi option.	Knowledge: This step does not require any prior knowledge. Believable: Yes - The user would like to interact with the kiosk in a language he is familiar with.	Successful: -Language options appeal to users who do not understand English Problems: -Cannot provide every language

		Motivation: The user is motivated to use the kiosk in his preferred language.	
2	Navjot clicks on “housing” from the main menu.	Knowledge: This step does not require any prior knowledge. Believable: Yes - The user would like to interact with the kiosk in a language he is familiar with. Motivation: The user is motivated to use the kiosk in his preferred language.	Successful: None Problems: None
3	A map and a small window with a list of houses appears Navjot scrolls through the housing options and manages to find a house in his budget. He then clicks on the house from the list	Knowledge- knowledge of preferred location for housing Believable- yes as he needs to find a new house to stay with his family Motivation- high as he can choose from several options to choose a house	Successful: None Problems: no houses within budget is available
4	The window of the selected house expands to show a brief description of the property , its address and the landlord's contacts He selects the “get direction” option and proceeds with	Knowledge- no prior knowledge Believable- yes as he needs to know the directions of the house to reach there Motivation- high as he needs to know the location of the house	Successful: None Problems: none

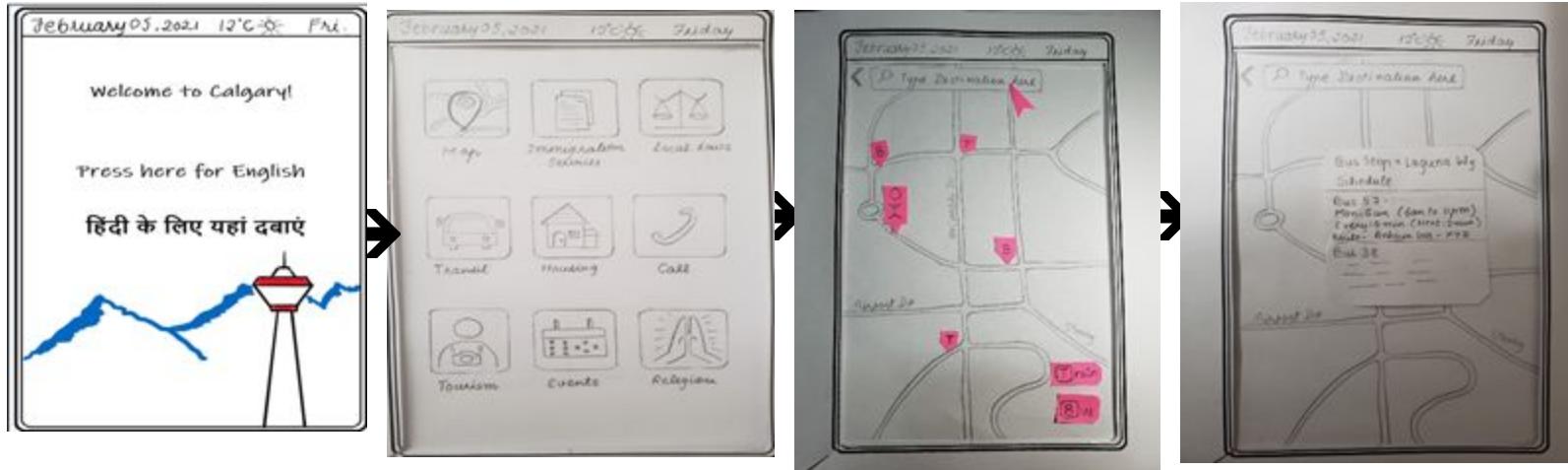
Walkthrough #5: Ahmed Task 1: Finding nearby medication attention





Step #	Step Description	Knowledge/Believable/ Motivation	Comments
1	Ahmed chooses “Map” to find any hospitals nearby.	Knowledge: No prior knowledge is needed but if he searches for a specific medical he must know the name of it. Believable: Yes, as is feeling unwell and needs medical aid. Motivation: High - He needs to see a doctor.	Successful: None Problems: None
2-3	He chooses “hospitals” from the map and a list of hospitals show up. He chooses his choice of hospital.	Knowledge: User needs to know the name of the hospital if he is looking for a specific one otherwise no knowledge. Believable: Yes - he needs medical assistance. Motivation: High - Since he needs medical attention.	Successful: None Problems: None
4	The Map shows the route and also the options for transportation. He chooses Taxi.	Knowledge: No prior knowledge is needed. Believable: Yes - as a way to reach the hospital. Motivation: Medium - he might choose other transportation.	Successful: None Problems: None
5	He selects his choice of “taxi”.	Knowledge: No prior knowledge is needed. Believable: He has no other way to get there besides walking which is not realistic when feeling unwell. Motivation: Low - User is required to spend extra money.	Successful: None Problems: None
6	Finally he calls the driver.	Knowledge: User needs to know the contact number. Believable: Yes - He needs to let the driver know where he is. Motivation: Low - May feel well enough to talk to others.	Successful: None Problems: None

Walkthrough #6: Harry Task 1 - Exploring the city

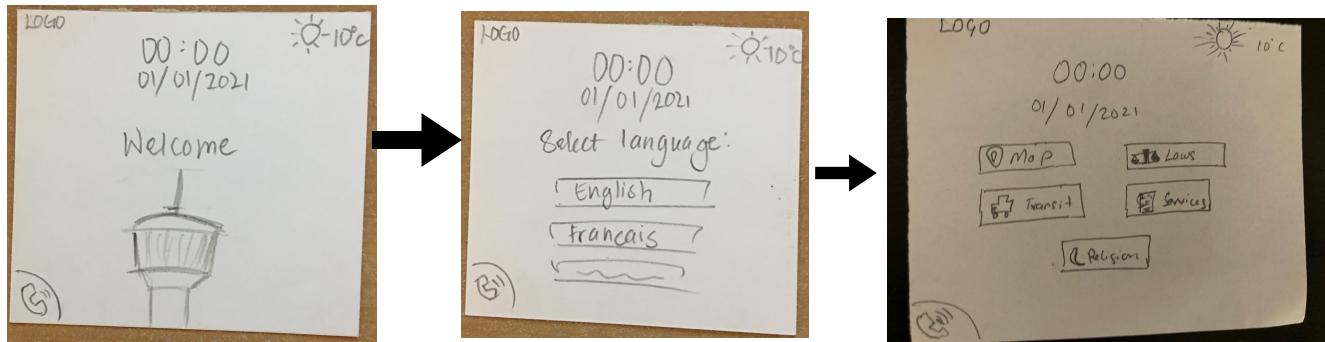


Step #	Step Description	Knowledge/Believable/ Motivation	Comments
1	Harry chooses English as the preferred language	Knowledge: No prior knowledge is required. Believable: A simple interaction between the user and the kiosk, so it is believable. Motivation: Harry is motivated to use English as he is familiar with the language.	Successful: - Language options appeal to users who do not understand English Problems: - Cannot provide language
2	He then selects the transit icon from the main menu to see the bus times to the theatre.	Knowledge: No knowledge is required. Believable: Yes as he needs to know the available bus and schedule to reach theatre. Motivation: High as he needs to know bus information.	Successful: None Problems: - Bus may not be available
3	He types the destination name	Knowledge: Knowledge of theatre name. Believable: Yes as he needs to go to a theatre. Motivation: Medium as he may feel reluctant to type.	Successful: None Problem: - He may not know the theatre name
4	The Map shows all the available bus routes and schedules.	Knowledge: Knowledge of current time. Believable: Yes as he needs to board a bus Motivation: Medium as all bus routes may not be available.	Successful: None Problems: - Bus may not be available
5	Repeat steps 1-4 again to return	Knowledge: knowledge of returning destination. Believable: Yes as he needs to go back or return home. Motivation: High as he needs to return home.	Successful: None Problems: None

Appendix 1: Iterations of our prototype

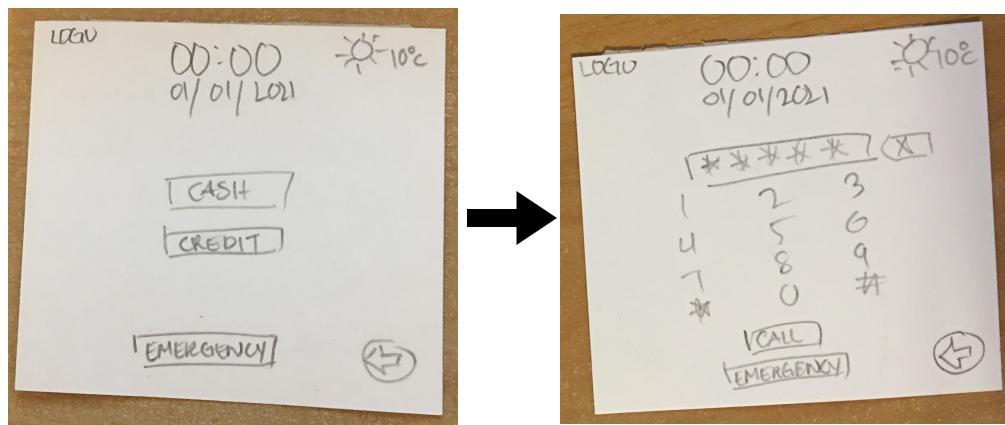
First prototype

Main Screens:



The first prototype included the our logo in the top left corner, the time and date on the top middle, and the weather information on the top right corner in which this information is always shown throughout the various screens. It also featured a call button on the bottom left of each screen for quick access in case of emergencies. Within the final prototype, we condensed the date, time, and weather information into a smaller bar located on the top of the screen to accommodate for more room to display more information on the rest of the screen. Although the call button on the bottom left was a good idea, we found that it needlessly took up screen space especially when the screen was displaying the map.

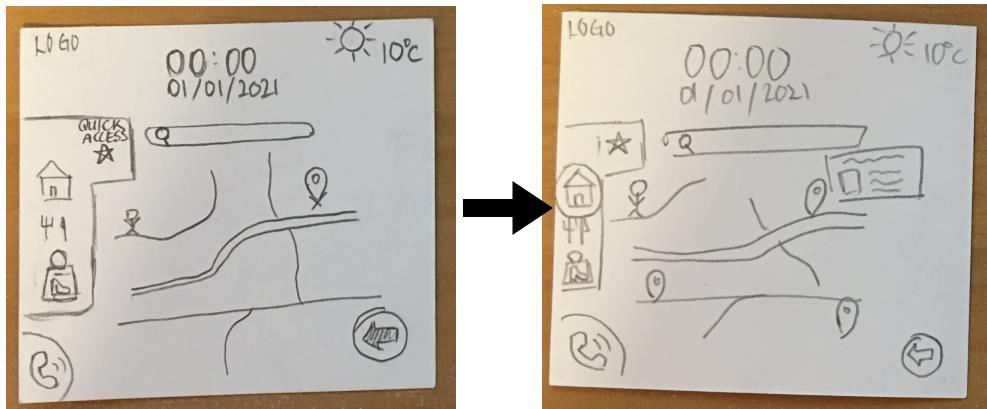
Call Application:



The calling service can be accessed anytime at any screen by tapping the little call icon on the bottom left of any screen. This was to ensure that users had quick access to the calling feature in case of emergencies. To make a regular call, users will have to provide payment while calling the emergency helpline is free of charge. Once payment was accepted, the user was taken to a dial pad so that they were able to enter their number and proceed to call and at this point, the user was still able to access the emergency helpline and if they clicked on that, their payment would

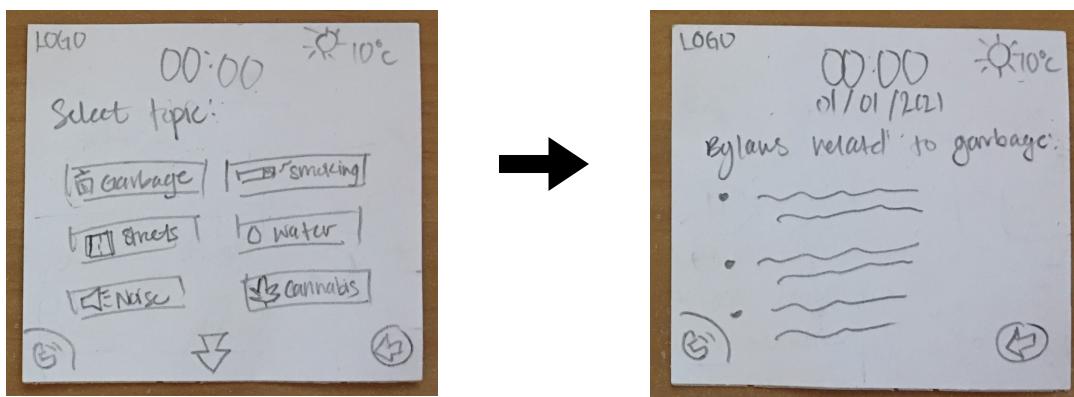
be returned/cancelled. The user is also able to move back to previous screens using the back button on the bottom right.

Map Application:



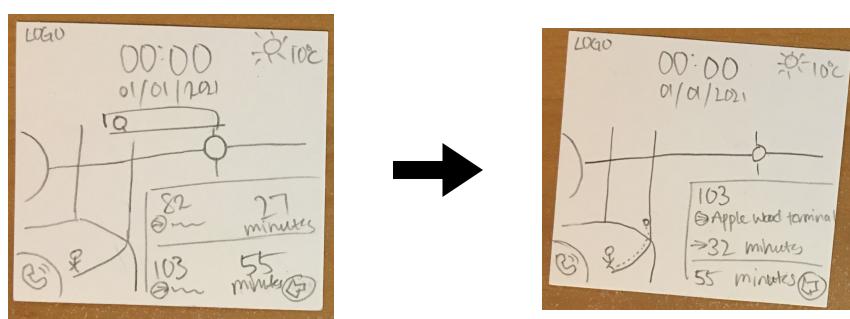
The map service in the first prototype displayed the nearby area around the user. There is a search bar on the top so that users are able to search for any location they would like and a quick access tab that includes options to quickly track locations such as accommodations, restaurants, and shopping centers. Once the user selects one of the options, the map will pin all the nearby locations of interest and tapping on the pins will bring up a small window with information on the building such as address and times of operation.

Laws Application:



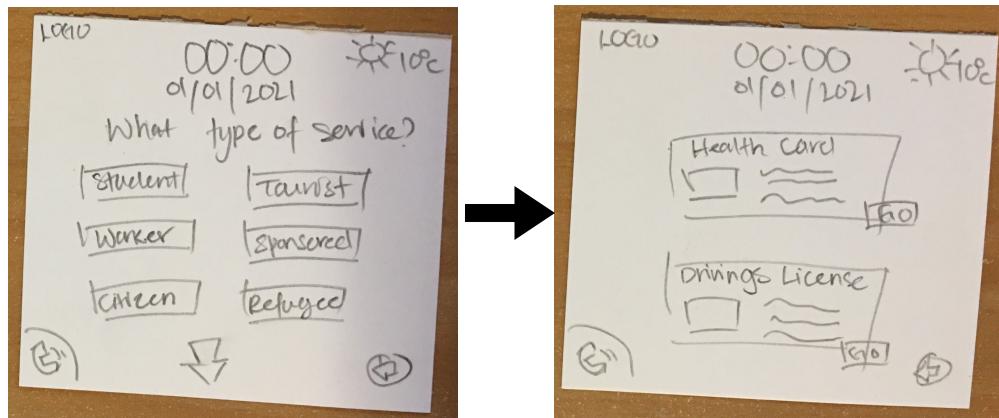
In the Laws application, bylaws are sorted by topic and clicking on a topic brings up a list of all important related bylaws. This list format proved to be too text intensive and is improved upon within the final prototype.

Transit Application:



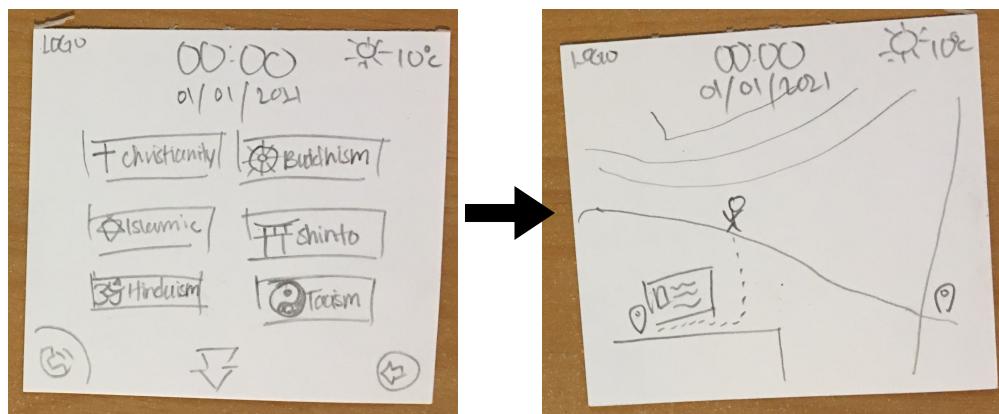
The transit application lists all nearby public transit stops including buses and CTrains along with their final route destination and the time each bus or CTrain arrives. Selecting a bus or CTrain will reveal more details of that specific option which includes directions to get to the stop and additional times. This screen illustrates a problem that was encountered with placing the back button on the bottom left. The placement of the button covered some information displayed on the screen. The back button was moved to the top left within the final prototype.

Services Application:



In the immigration services application, the services are sorted by representative groups. Once a user selects their required service, the screen displays all related identifications and documents along with their details and a “GO” button that brings up the map and locates the nearest registry building.

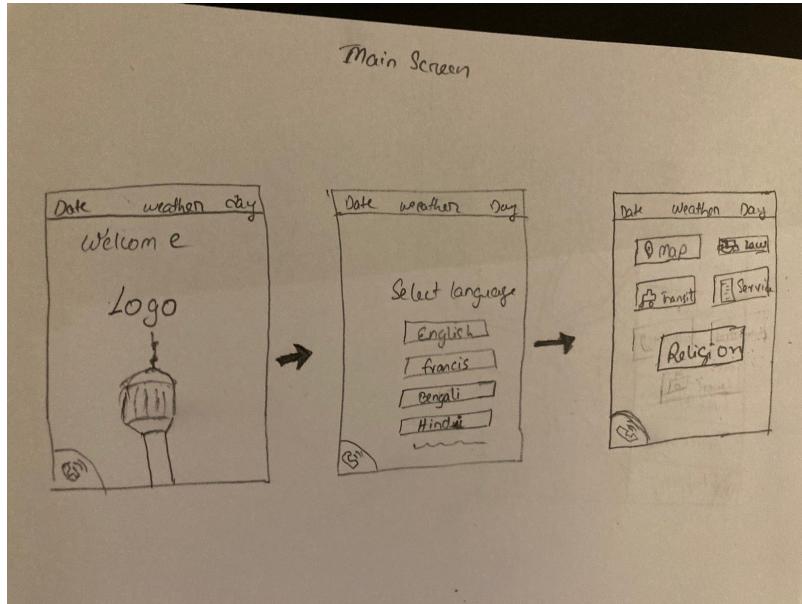
Religion Application:



The religion application lists all religions. Once the user selects their corresponding religion, the screen brings up the map and pinpoints the nearest related religious center(s). Clicking on the pins will bring up a small window that displays the details of the center.

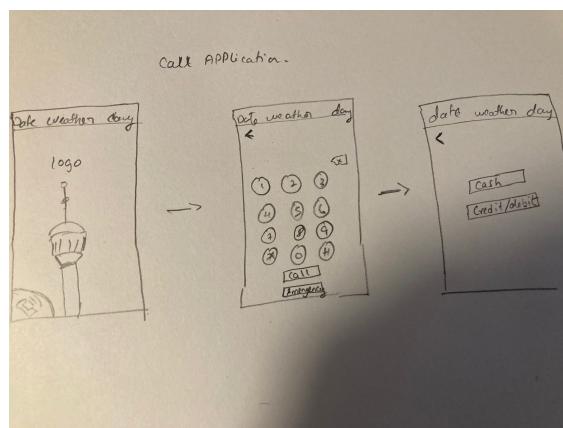
Iteration 2 Second Prototype

Main Screen:



In our second iteration we brought some changes to the prototype. We slightly changed the interface of the UI. Date, weather and day is now aligned in the same line. This is because we decided to have the top bar by default on each page of the KIOSK.

Call Application :



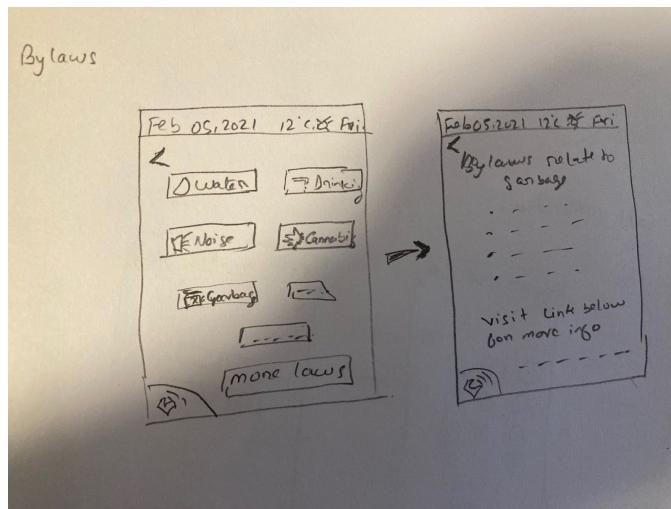
Nothing much was changed in the calling application except for outlining the buttons, and moving the "GO back" option on the top left. The outline was designed for visually impaired users. Our designers thought the users will be more aware of the dial pad if it is outlined.

Map Application:



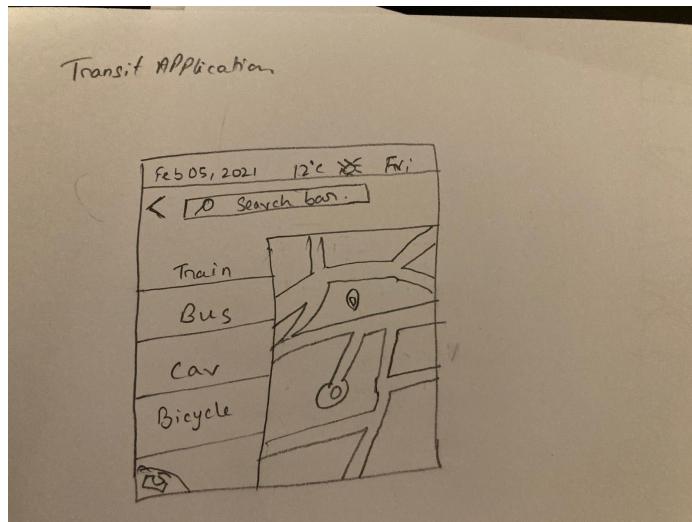
Map application was improved visually by organising the all nearest places. The map was put on one side of the screen, and also moved the go back button on the top left. The page also has a default bar for weather and date information.

Bylaws Application:



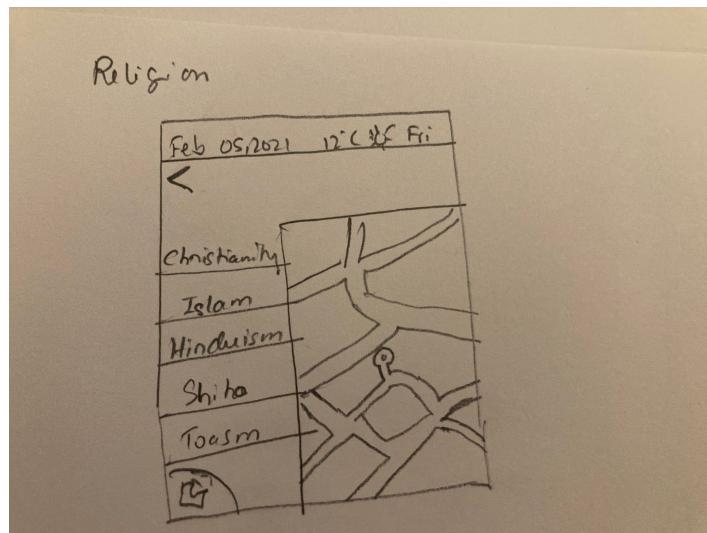
Nothing much is changed in the **Bylaws Application**. It was only organised according to the new addition of the top bar to the design. Also added an option which says “more laws”. This was added after a short survey from a handful of users.

Transit Application :



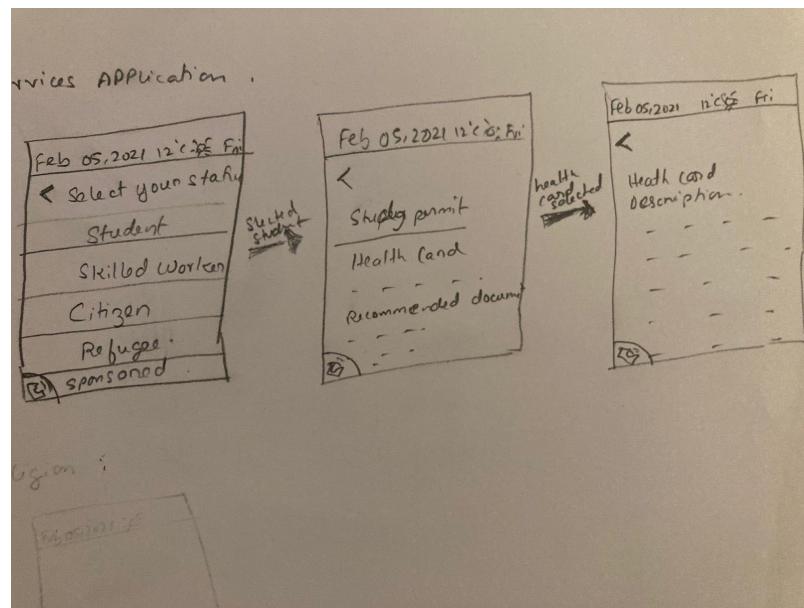
Transit applications got an added feature for choosing the type of transportation. And also organised according to the new addition in UI.

Religion Application :



Religion application is minimised to only one page . The map is integrated with all the types of religions. On clicking the religion type all the nearest religious centers would pop up on the map.

Service Application:

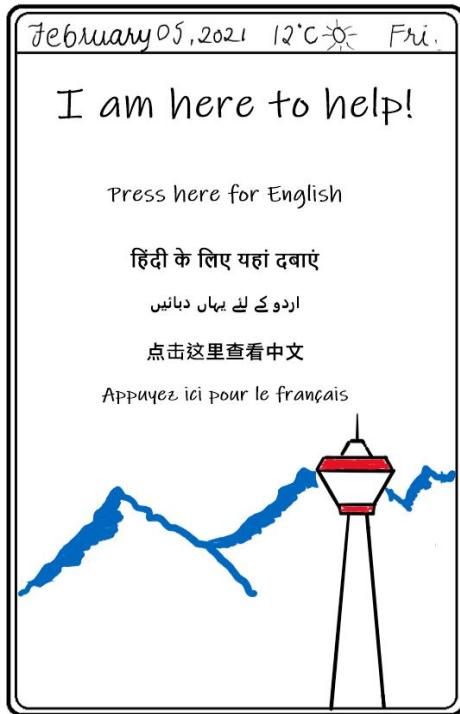


Service application got some UI design updates. The list of status type is organised in list view. And more information is provided for each type of user. In the second iteration we added the third page which gives the document descriptions.

Iteration 3

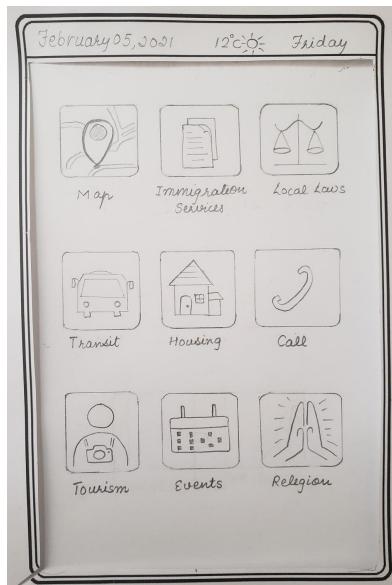
Final Prototype - Redefined Prototype

The Welcome Screen:



The welcome screen displays the current date, time, day and weather information all along the top of the screen. This information is visible on all screens and at all times. A friendly message encourages the users to make use of the kiosk. The message "I am here to help" will switch between several different languages about every 5 seconds. Underneath is the various language options that are available in which the user is free to select their choice depending on their preferred language. The design of the final welcome screen allows the user to reach the main menu without having to go through a separate language options screen.

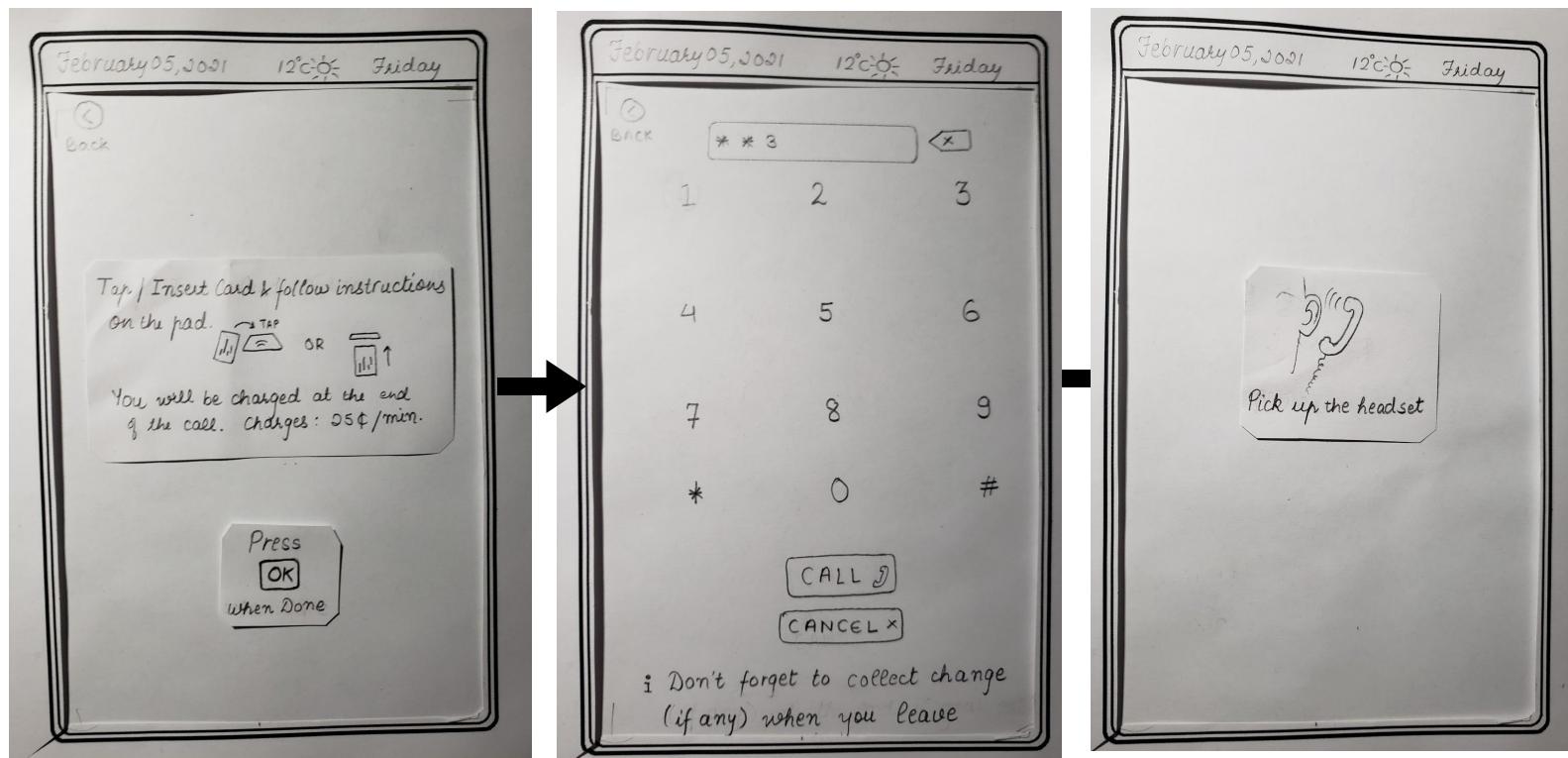
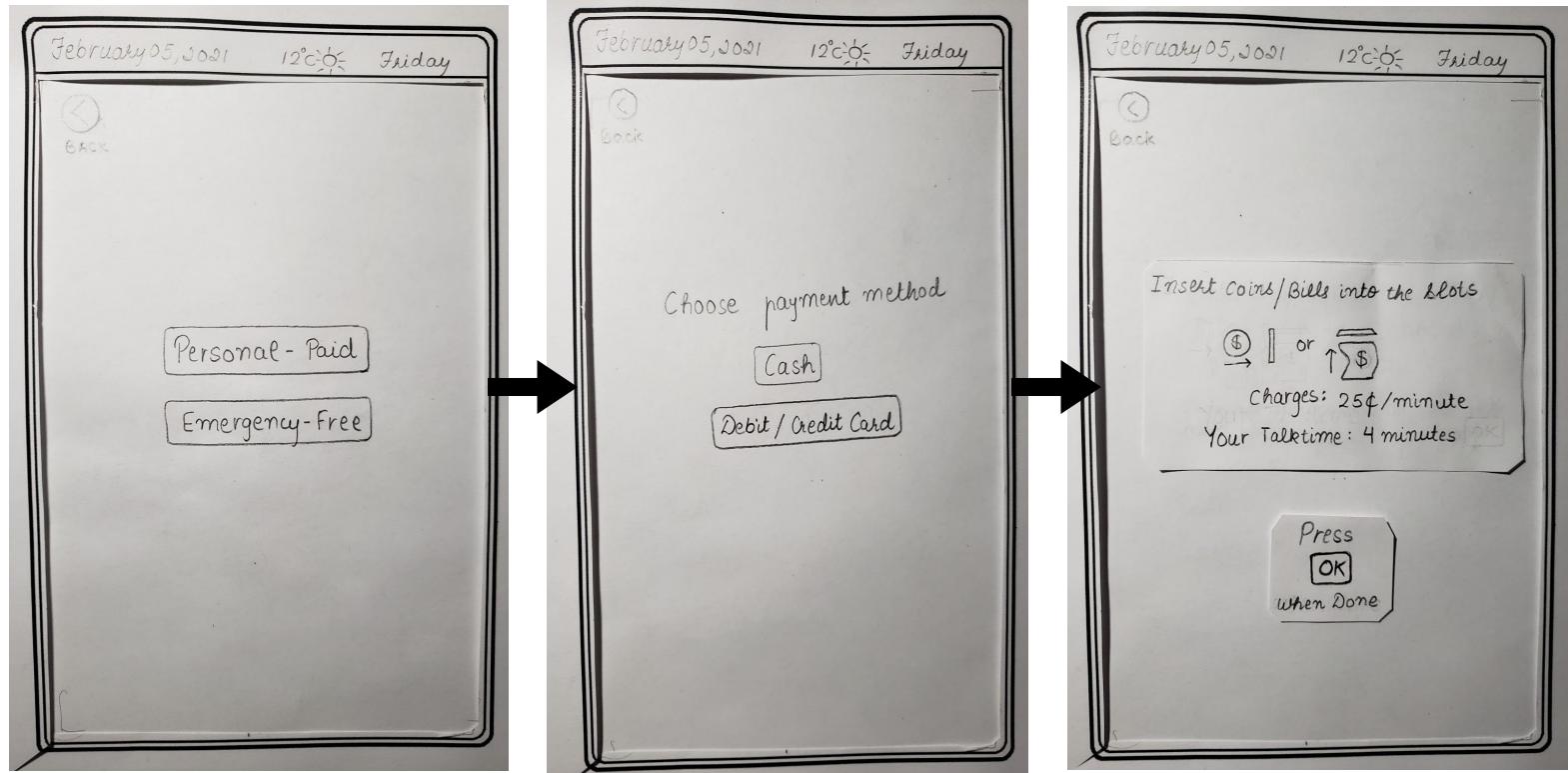
The Main Menu:

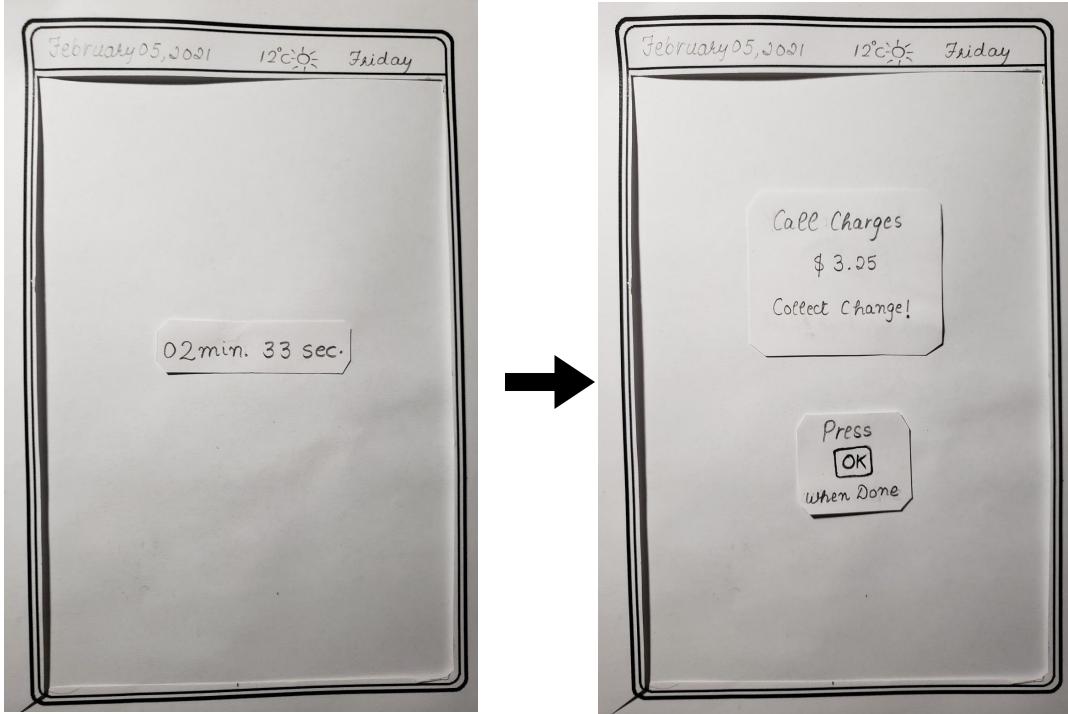


The main menu displays all the applications that the kiosk provides. There are also some major added features to the kiosk. This includes the following applications:

- The map
- Immigration services
- Local laws
- Transit
- Housing (New)
- Call (Redefined)
- Tourism (New)
- Events (New)
- Religion

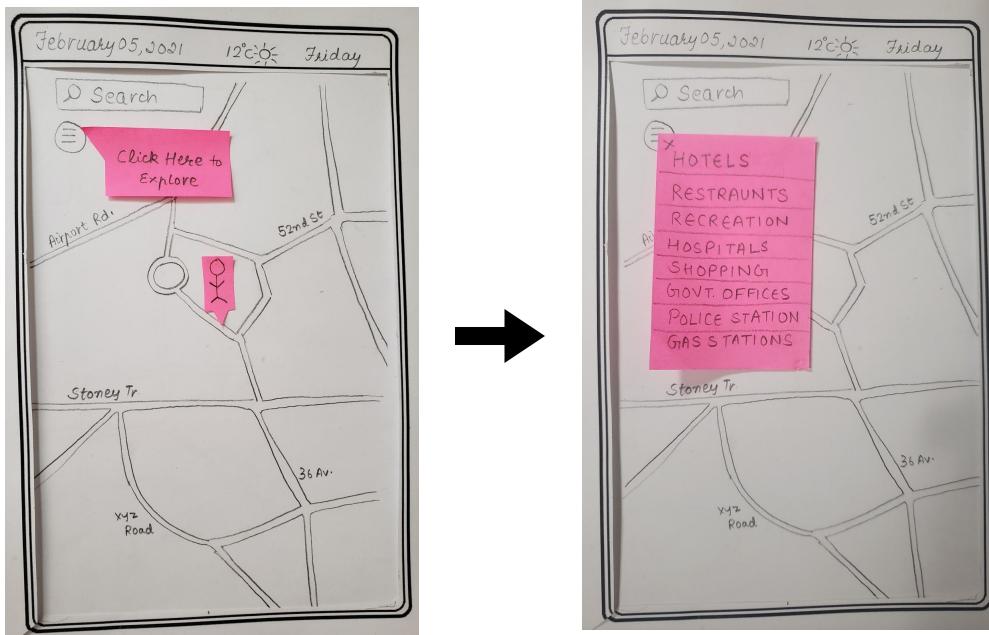
Call Application:

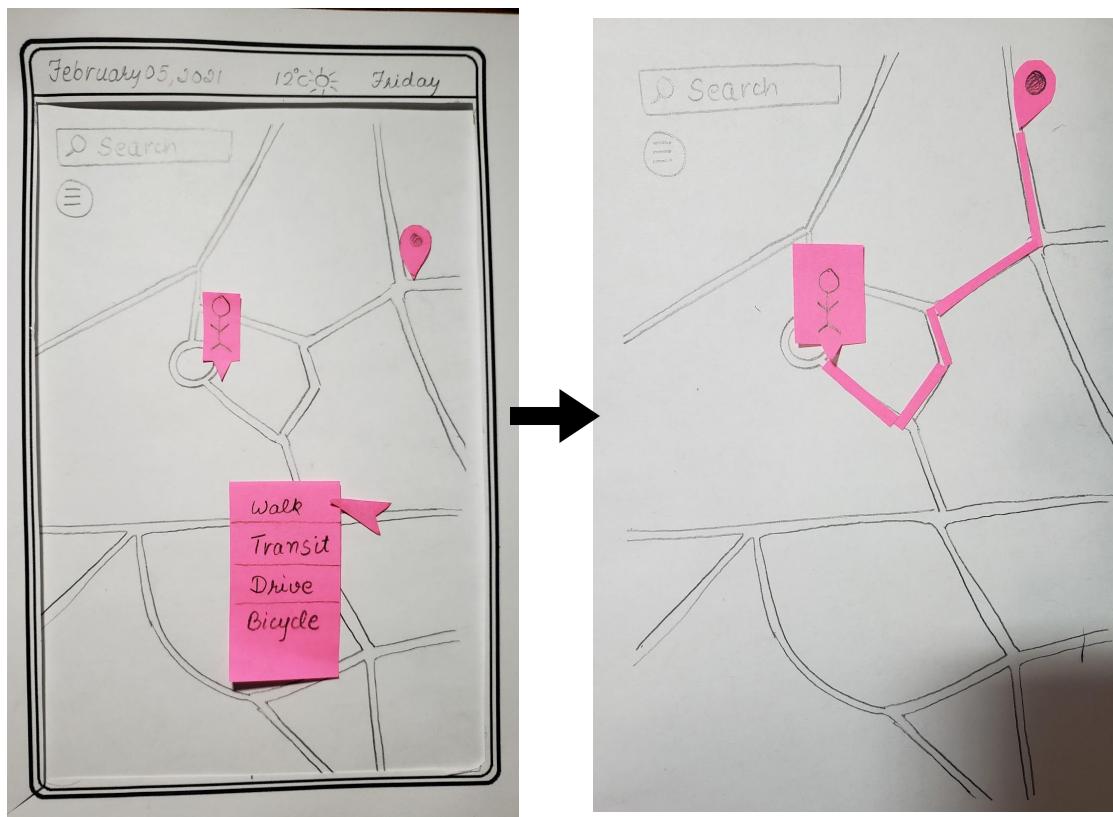
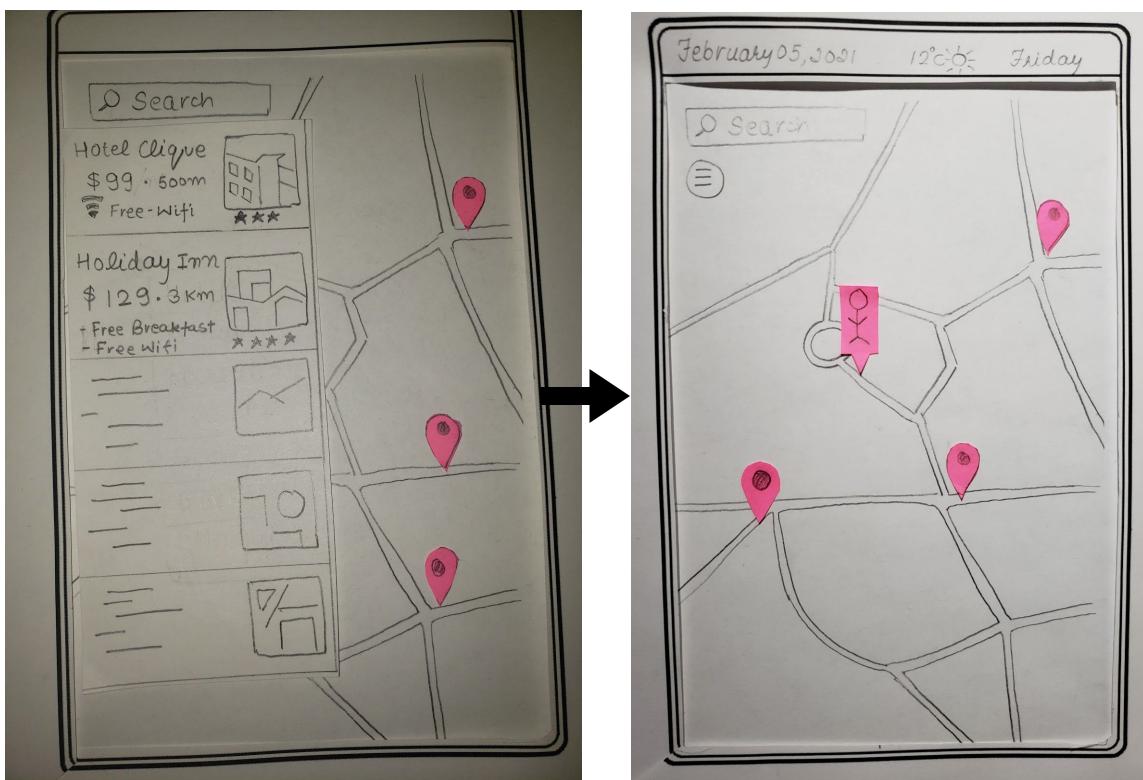




The calling feature can be used to make calls within Canada and to report any emergencies. The user chooses the type of call they want to make, and are asked to choose their payment method. If the user tapped on “Emergency” in the previous step, this step is skipped. Depending on which option they choose, instructions on how to pay are displayed on a new screen. Once the user has made the payment, they may now continue to dial the number and call or they may also choose to cancel and leave. If they decide to call, they are instructed to pick up the headset, after doing so, the number of minutes left in their talk time is displayed. Once they put the headset back, they are reminded to collect their change, if any. If the user made a payment through their card, money is deducted directly depending on how long they talked and the card is then released.

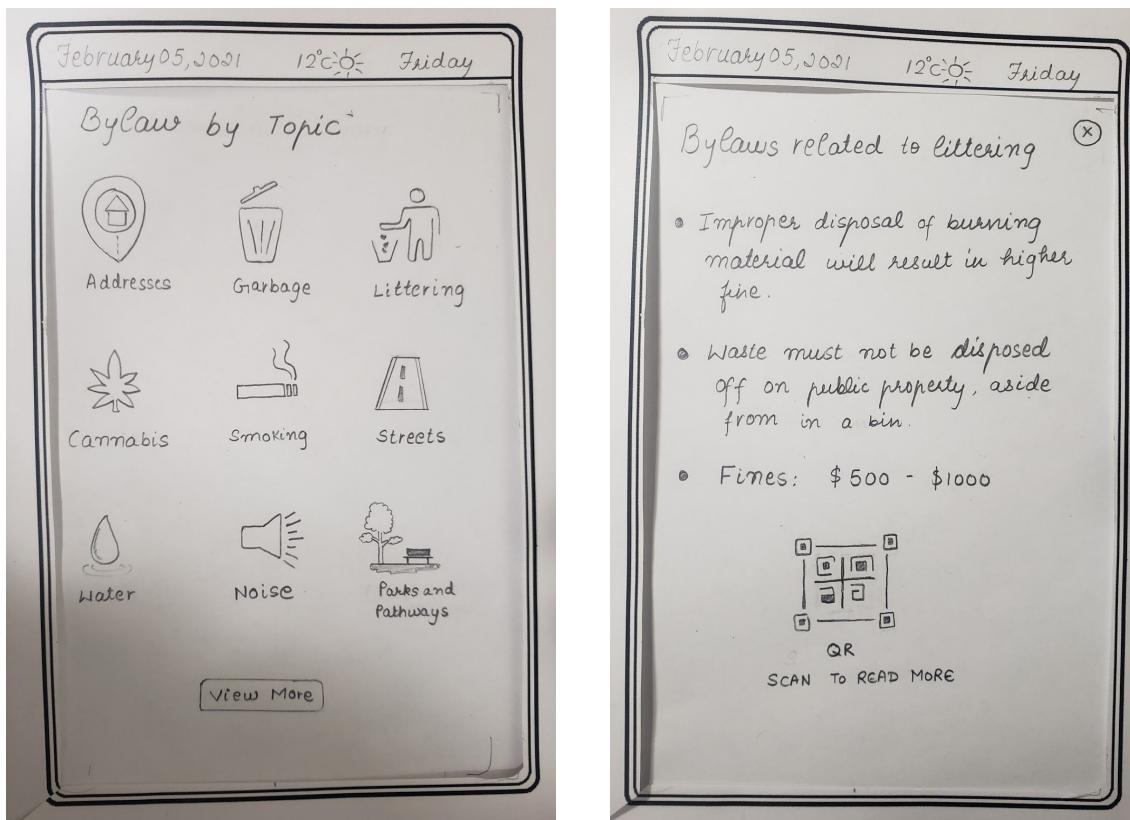
Map Application:





The map displays the current location of the user and the names of the roads. A search bar is available at the top left if the user wants to search for a specific place. An icon saying “Click here to explore” is available. Upon clicking the icon, it expands and the user can choose a category based on what they are looking for. Once the user chooses a category, all places that fall under it are displayed as pins on the map. Tapping on one allows the user to choose whether they want directions for walking, transit, etc., and a route is displayed accordingly.

Laws Application:



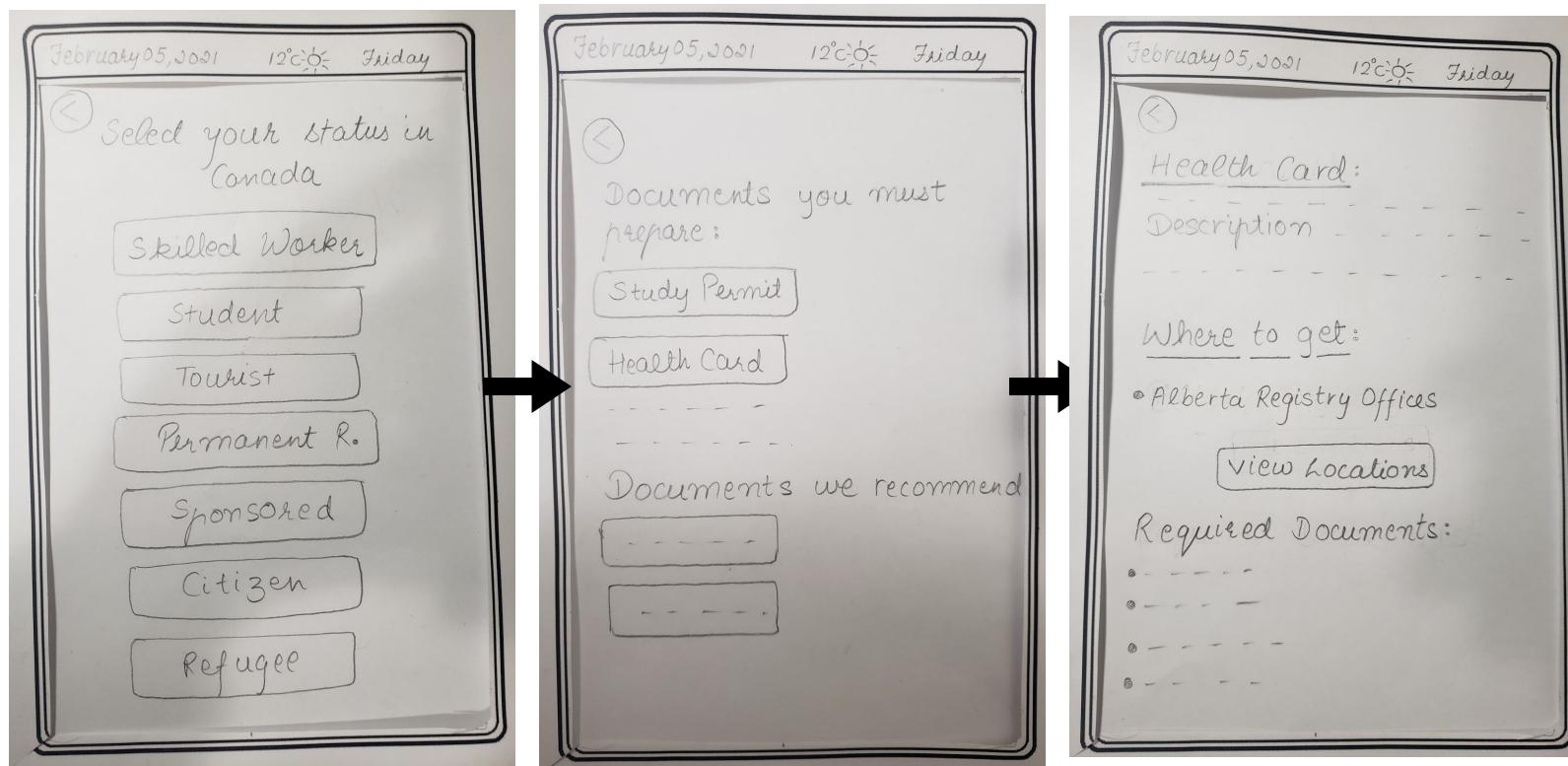
The local laws application displays the city bylaws by topic. The user chooses a category and a general set of related laws are displayed. If the user wishes to read more, they can scan the QR code with their smartphone and they will be redirected to the City of Calgary's official website which provides users with a more detailed set of laws.

Transit Application:



The transit application is meant to be used by users who want to travel with the use of public transportation such as buses and c-trains. Clicking on the application will bring up a map where the current location of the user, the bus stops (represented by 'B') and C-Train stations (represented by 'T') are displayed. A search bar is also available at the top which allows the user to type in the address of their destination and a route is displayed. On the other hand if the user clicks on a bus stop or C-Train station, the corresponding schedule is displayed.

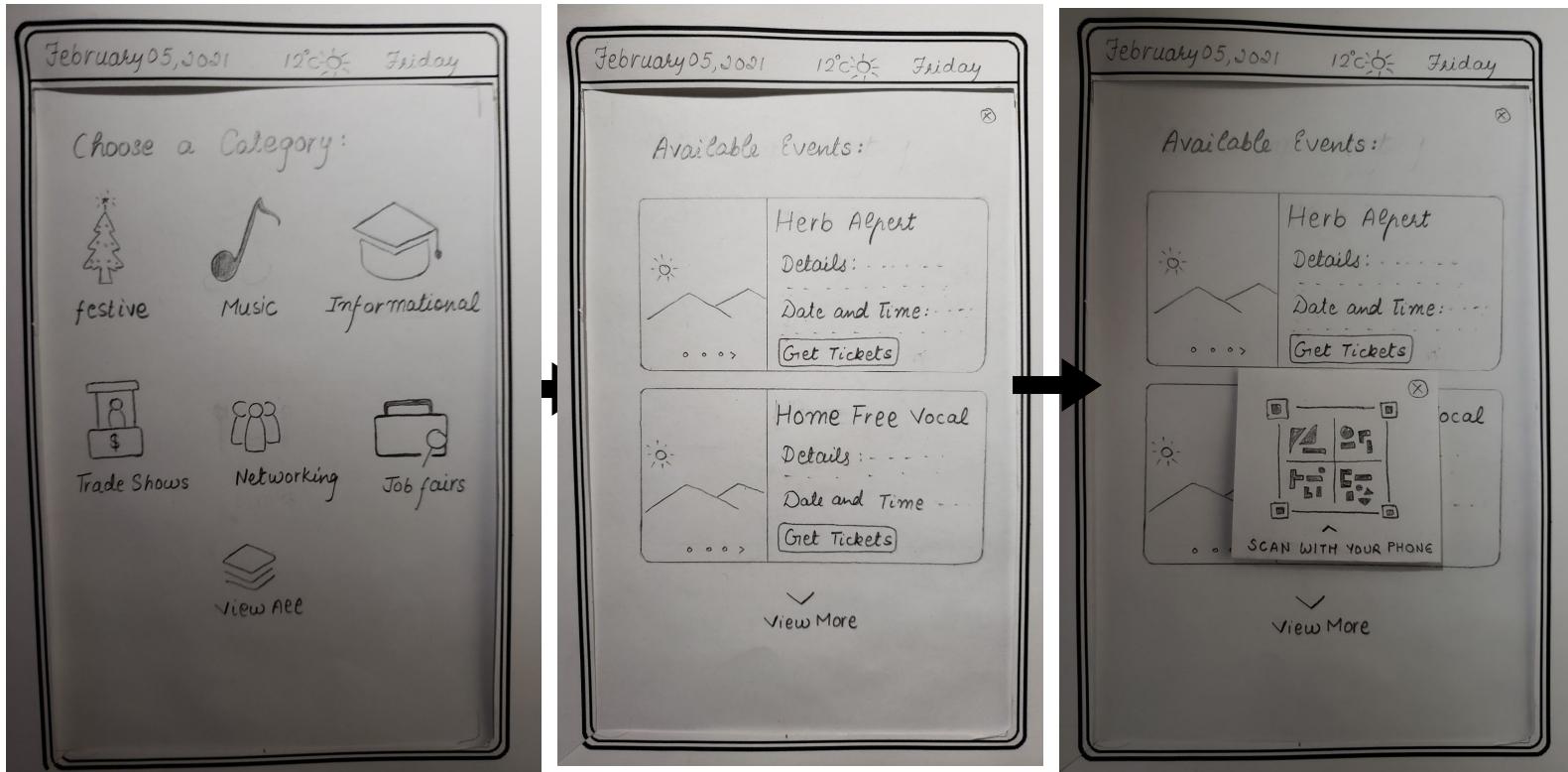
Services Application:



The immigration services application is mainly focused on providing aid for users who need help with figuring out what documents they must prepare and obtain after landing in Canada. This also allows the user to find what services are offered to them, how and where to get these documents prepared and what supporting paperwork they would need to get these documents.

The user first selects their status in Canada and is shown a list of documents they must prepare such as a health card, PR card, etc., and documents the government recommends them to prepare such as a low income pass to help support them. The user then chooses a document and further related information is displayed, which includes a description, locations where they can get the document and the documents they must carry with them in order to get the document prepared.

Events Application:



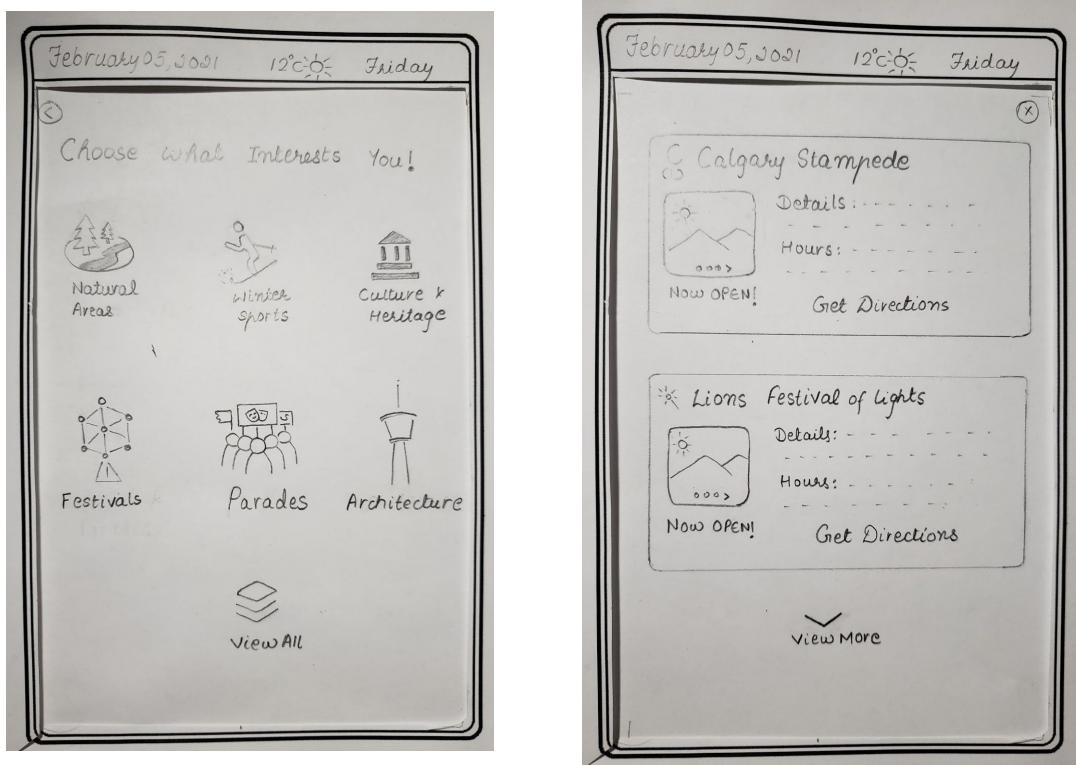
The events application allows the users to browse through any ongoing and future events in Calgary. They begin with choosing a category, a list of events then appears which displays the details of the event with an option to buy tickets. Tapping the “Get Tickets” button will bring up a QR code which the user can scan with their smartphone and they will be redirected to a page where they can buy tickets for the corresponding events.

Religion Application:



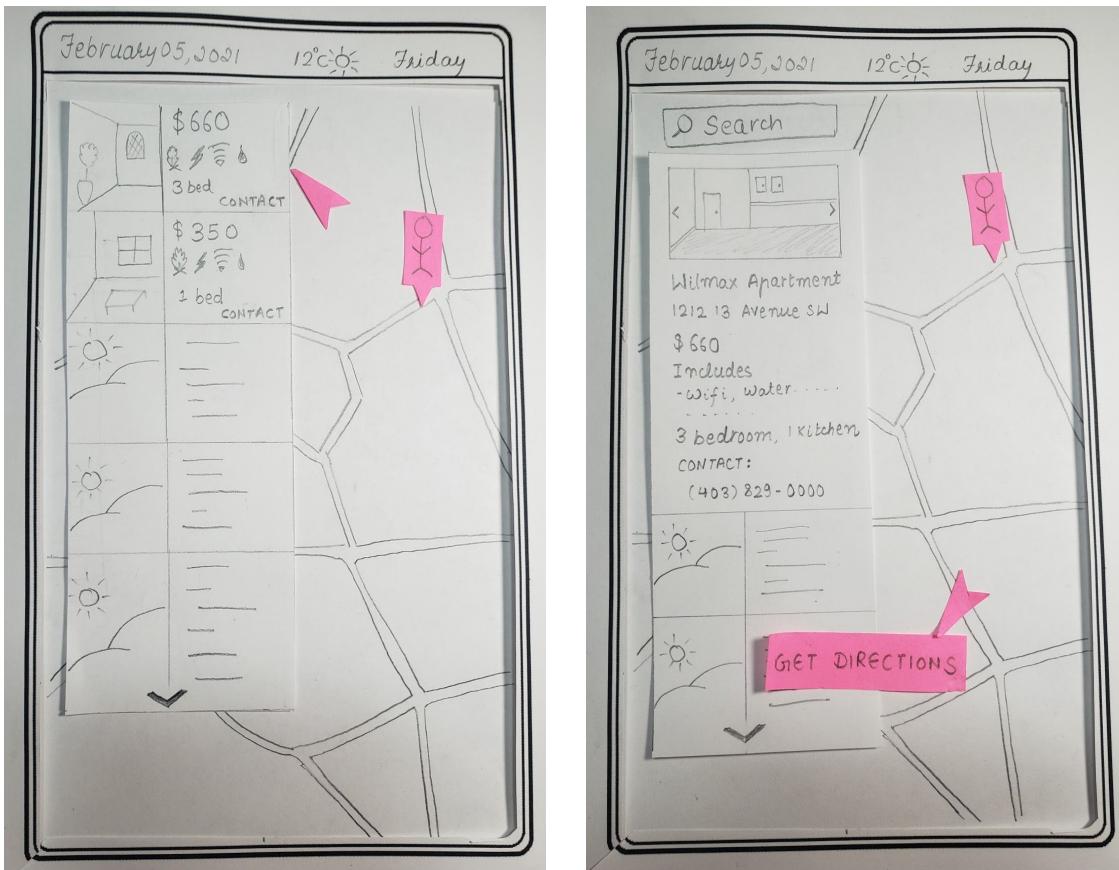
Clicking on the religion application will bring up a list of religions. The user clicks on their corresponding religion and all nearby related religious centers are pinned on the map. Clicking on one of the pins will bring up a window that contains the center details, such as the name, address, phone, and operation house. The user has the option to call the center using the kiosk and to get the directions to the selected center.

Tourism Application:



If the user taps on the tourism application (formally known as travel), a new menu appears in which the user can choose among different types of tourist destinations to visit. Upon choosing one, a new screen displays all the tourist places that fall into that category. The pictures, details and hours are displayed for each location.

Housing Application:



The housing application is a new feature we added to the final prototype. It is designed for users who are looking for houses, rooms, or apartments for rent. A floating scroll down menu appears that lists all the nearby properties available for rent. When the user clicks on one of them, further details about the property appear which includes the amenities provided, the price, the contact number of the owner and the address. The option to get directions is also displayed. Upon the “Get Directions” button, a route to the property is displayed.

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