1. Project description •
- On the current Winnipeg bus live app map, nearby stops are hard to identify which side of the road they are which leads to human error.
- The "i" symbol on the top right serves as a feedback hyperlink instead of an informational hyperlink
- The application fails to provide its users with current location of the bus if it is being put in a "Late" state.
- Data provided on the app are sometimes inaccurate, making it unreliable and in-efficient for a user
- Not fully utilized: needs additional functions for a day to day use (i.e trip planner, set reminder, add to the calendar, etc..) which brings us to a "settings" option which is missing therefore causing the app to have physical and logical constraints as to what it can and cannot do. The app is also restricting users from having it adjusted to their own specific needs which makes the app less desirable to use.
- For a user who is not familiar with the city or the road names, some data provided may be vague making the app ineffective.
- The app fails to give users an idea of routes used to reach desired destination.
- Poor mapping. Bus locations should be on the same page as maps to give users an overview of their current location and destination.
- The app lacks organization therefore making it less efficient to use. Bus numbers that are put under the same stop route are all listed in one row. This can cause delay and confusion for users. To prevent these buses should be sectioned off according to their names and numbers.

2. who is impacted (in one way or another) by this system
- Students
- Working-class (9am-5pm)
- Users with no access of transportation (e.g Tourists, lost person)
- Winnipeg Transit
- Bus drivers
- Transportation companies (Duffy's, Unicity,TappCar inc,)
- Stakeholders on the receiving end
- Cab drivers(independant and contractors)

list of users and stakeholders

Primary users :
- Students
- Working class (9am-5pm)

● Users with no access of transportation (e.g Tourist, lost person)
Secondary users:
● Bus Drivers
● Taxi drivers
● Technicians.

• Describe the users in terms of how much training/experience they might have, their background knowledge, etc.

Users/stakeholders	Training/Experience
● Students	These are the most frequent users of the application, they have the most experience and need the least training as they are already used to the navigation of the application.
● Working class (9am-5pm)	These set of users use the application at specific times in the day, so they are not used to opening the application at odd hours and as such lack experience and will thus need more training than student users. They have little background knowledge of the application as they
● Users with no personal access of transportation(e.g Tourists)	These set of users are not as dependent on the application on a regular basis as compared to the Students and working class. But when used, the easier navigation and interface will prove very aidful to the user at that moment. They need the most training but cannot be reached easily, so the instruction guides sent out with the applications will do justice to that. They have little to no background knowledge of the application. They usually download them at the same time they need the application.
● Bus Drivers	These users use the application the least as they use it only to check to know when the next bus that they will use to start their driving shift will arrive. In such case they have very little experience with the

	application.

3. Conduct three methods for gathering requirements
- Interview : The interview process was done with 5 different users from diverse fields. We have documented 3 on paper in the interview section below and did the other two on audio which we will not be able to transcrie due to time but will be making reference to their opinions in the conclusion of our requirements. All the interviews were done in person and face to face. Some of the interviews were recorded on tape while the other were summarized and documented in words. During my interview experience with my first user, i realized that i had a few redundant questions and had to minimize the questions as the user was already giving detailed answers to later questions not yet asked. And also the first user made me realize that my question order was important in order to get well detailed and more informative answers. My total number of questions was very comfortable for the users as they did not get bored answering the questions.

- Questionnaire: We have set up easy questions with google form so that people can respond within a matter of seconds for each one. Although they are close ended questions, we are able to get some basic information that we thought could lead to our usability and learnability goal we have stated on our proposal. According to responses we have attained so far, millennials are the top users who have had helpful user experience but yet rating it low by its interface. Yet unanimously 80% of users agree on the addition of features such as visual guide to make it easy to know which side of the bus stops. While questionnaires helped us to gather relevant information for our usability goals, it also prevented us from knowing the population size who uses this app frequently.

- Researching similar products (Transit, Google Maps, Moovit) :
  We have made a high level research on the similar products that are used by the stakeholders. Each app gives an idea of reconsidering the requirements.
  1. Google Maps is a huge help for almost everyone, it is a better way of representing the street names with respect to the current location. It has ways of utilizing it the 0 fit our day to day activity. Nowadays it has become part of our lives by having the features such as street view with 360 degree of the area which many could use to explore places they have never been. This means by looking at the street view, they could understand the area, landmarks and nearby establishments just by learning it visually. Which could be

helpful for an issue for users we have discovered while running our questionnaires and our interviews. The Google maps ability to search current address directly proved to be the favourite method of bus routing for user.

2. Transit is indispensable guide to public transit systems, car and bike share services and more. While our focus is on public transit, We found that this app has many users. According to our experience and others too, the timing is not accurate for the bus. The information it provides is based on real time data and a data provided by its users, which neither of them are not reliable. Yet because of the simple and easy to learn usability and an interface that is clean, users seem to choose it for their bus trips. There are features that our interview and questionnaire guided us to see which they thought was useful. It lead us to see it on Transit app. According to a post by TechCrunch the app will yell at you so that you won't miss the bus. A feature that is usable by almost 90% of users who agreed on the questionnaires we have distributed.

3. Moovit: a public transit tracker app that users found so helpful according to the reviews collected on the app store and play store . It has almost accurate way of telling time and great way of notifying its users not to miss a stop or transfer, which is an important part of the travel. During an informal interview with users, it has an interface that is not compact nor hard to understand what actions to take. However According to reviews and observations, moovit lacks consistency on updating and modifying useful features such as the time, the bus schedule (whether the bus is still working or not), etc,,.

4. Analyze your data • Use analysis method(s) discussed in class to analyze the data collected from the research methods • **Summarize the triangulation** of your methods and findings • List and describe the requirements for your system

A high level of detail we gathered through our questionnaires implicat that no matter how accurate and useful the information that Wpg bus live provides, users from different

age group agrees on the addition of features. Features such as a visual guide to help and see which side the bus stop is and etc..
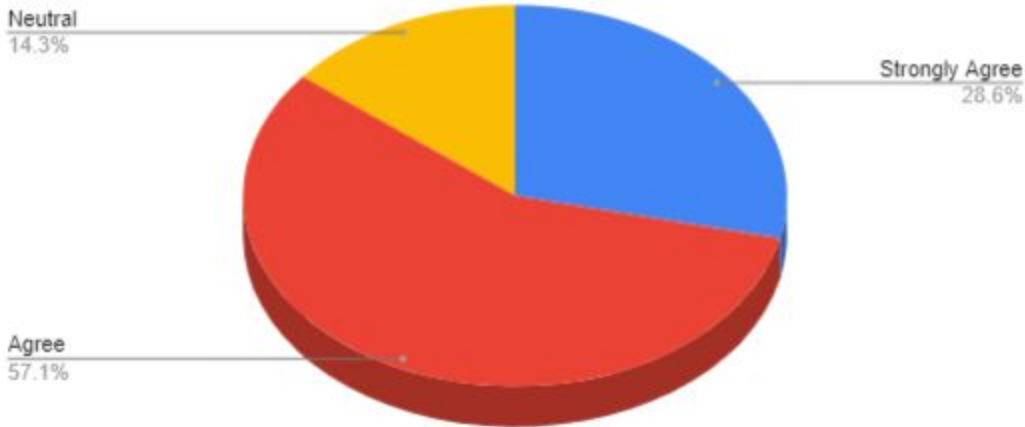
The chart above shows the users who use the app every day and who agreed on feature upgrades. By categorizing these users into 2 different age groups, we were able to observe a couple of things; If we analyze the interview sessions, we conclude that most respondents do not use the bus applications to set reminder as they find it tedious and unnecessary. Our users where diverse and contained but users who use the app regularly and rarely so we trust our data to contain very different level of experience and knowledge. From our interview, we notice users prefer the google map as an alternative application to use mainly because of its ability to allow user to search address directly. We concluded that the ability to search direct address is very user friendly.

1. Interface problem
   During our formal and informal interviews as well as questionnaires, we were able to observe a dissatisfaction on the product's interface. Our categories of 2 different age groups shows different interest within the interface.
   Millennials have intuitive understanding for the technology and therefore they need the feature to have reminders and integration with their calendar where as the others look for the information itself, a different point of view in time management.

2. Content and organization problem
   Some information on the app might provide accurate information but not to everyone who reads it. A different point of view from our interviewees as well as questionnaires verifies the issue drives users from this app to another one. 81% of our users shows their familiarity with the city therefore they did not address the

issue however international students refer to other applications to get more information.

System Requirements
● Search field that allows address and destination input and then displays the closest bus route
● Improve visibility: More clarity in the map so it shows opposite sides of the roads.
● Redesign of some buttons to match their generally know descriptions e.g the "i" button is used for information not feedbacks.
● The inclusion of more animation to improve user friendliness.
● Redesign bus stop page to give full display of bus numbers without interruption from the next bus name's section.
7

Task description
Scenario 1:

Task #	Description
1	Identify where to go ● You are at your workplace. ● You have been working all week, you wanted to refresh yourself and decide to go to the mall.
2	Interacting with the app ● You want to see what time the bus will come as the time should align with the time you'll be off work.
3	Interacting with the controls ● You will enter the mall name on the search bar and you get the bus schedule with the time of arrival.

Scenario 2:

Task #	
1	● You have been registered for a class that starts tomorrow .

	● You make a plan for the next few days so that you'll manage what you will do when the time comes.
2	Interacting with the app ● The first class was critical since you have heard the Prof gives valuable information regarding the school year. ● Knowing what time the class starts You open the app and search for the university bus stops. ● You then will get options to choose from such as different possible arrival times.
3	Interacting with the controls and reminders ● You then want to arrive 20 minutes early just so you are not sure where your class will be. ● You set up an alert that will remind you to notify you not to miss the bus to be there 20 minutes early.

Scenario 3:

Task #	Description
1	Identify where to go ● You are at a mall and you decided to go to a bar to get a special deal you got through your company ● You see there are multiple stations because there is an intersection.
2	Interacting with the app ● You pull up your phone and check to see where you may want to go. ● You search Elite bar and information about the current bus schedule will come. ● You realized there are 4 stops
3	Interacting with the controls ● You click on the bus schedule and time box. ● A map with directions will appear showing you an animated picture of the nearby look

Task #	
4	Interacting with the reminder ● You made it to the bus stop and perfect timing, the bus is 40 seconds away ● You realize you know the place but you're not sure where you should take off. ● You will press a ring button to notify you prior to approaching your destination.

Scenario 4:

Task #	
1	● You are having a tough week. ● You have decided the next won't be like this. And told yourself to do something about it. ● You realized that if you could find an efficient way of traveling to your work and other places ● You have to be at your office at 8
2	Interacting with the app ● You typed on the search bar to the place you want to go. Instead of taking 2 buses that takes you to your work. You might not know the place to transfer. ● You click on the add to calendar button and add it on your calendar for your week when you go to work ● You have now scheduled your entire week for your work route.
3	Interacting with the controls ● After you added to your calendar you are set although you want to know how to transfer. You clicked on the schedule for your recommended route and you were able to see all the information(i.e how long it will take, where to transfer, animated look of the place on the map/street view on your choice) ● Monday came, you got notified prior to the bus arrival. You went out and got on the bus. You might have been reading your newspaper and your app will give you a notification when you are approaching the transferring bus stop. ● The bus you have to get on next will show an arrow of its route direction so you will cross the street and get to the next bus if you have to.

Persona:

Elizabeth May

Friendly   Clever

Go-Getter

Team player

Animal lover

Age: 52
Work: Support Worker
Family: Single
Location: **Winnipeg**, MB

"live life to the fullest."

Motivations

Work

loves her dog and three cats

Family

Goals

- To one day own a home with a basement and a big backyard.
- Make healthy living a habit.
- learn a different language

Frustrations

- Technology (Sometimes)
- Using bus apps
- Her flooded apartment
- lack of communication

Bio

Elizabeth May is a residential support worker. Her job entails looking after clients with disabilities. Besides being a support worker, Elizabeth has a side job as a dog walker. Elizabeth has the bus once due to a bad experience she once had. she has a hard understating how to use bus apps and is afraid of getting lost or not knowing where to stop. she would love to be a frequent bus user only if the experience is made easier.
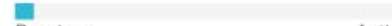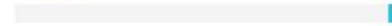
Personality

Introvert	Extrove
Analytical	Creativ
Loyal	Fickl
Passive	Activ
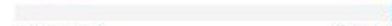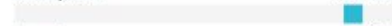
weakness

Disorganized

Self-Critical/Sensitive

Easily distracted

Working too many hours

Interests

- Pet sitting
- Movies
- Cooking

Jenna Good

Friendly • Smart • Disciplined • Patience • Determined • Dedicated • Problem-solving

Age: 23
Education: Bachelors degree in science
Family: Single
Location: Vancouver, BC

"Work hard. One day it will pay off"

Motivations

Success stories

Family

Money

Goals

- Pass Mcat exam
- Become a medical doctor
- To become a researcher
- To one day develop the cure to blue diaper syndrome and other diseases
- Open a hospital someday

Frustrations

- Sitting through boring classes
- Expensive textbooks
- Vague lecture notes
- Studying for exams
- Busing

Bio

Jenna Good is a student at the University of British Columbia. She dreams of one day becoming a medical doctor. Jenna wants to gradually involve her-self in research and eventually help cure to various diseases. She encourages people to practise healthy living in order to avoid life threatening sicknesses. Busing is a part of Jenna's everyday routine to school. she finds it frustrating because the timing as to which the bus arrives can sometimes be inaccurate. She hopes to one day open a hospital but for now school is top priority.

Personality

Introvert — Extrovert
Analytical — Creative
Independent — Dependent
Hard-working — Lazy

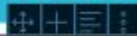## weakness

Perfectionist

Self-Critical/Sensitive

Take on too much responsibility

Not adept at public speaking

Interests

- Online shopping
- Music
- Travelling
- Healthy living

Tim Witherspoon

Leader **Respectful** **Technical skills** **Detail-oriented** **Passionate** **Dedicated** **Problem-solving**

Age: 30
Work: Senior Project Manager
Education: Bsc. Computer Science
Family: Married
Location: New York, USA

"I'm all about technology"

Motivations

Passion for a better world

Family

Money

Goals

- Become an Executive
- To be a better version of him-self each day
- To always finish products on time and ensure clients are happy
- Travel the world
- Focus on leadership

Frustrations

- Unnecessary administrative burden
- increasing demands with insufficient resources
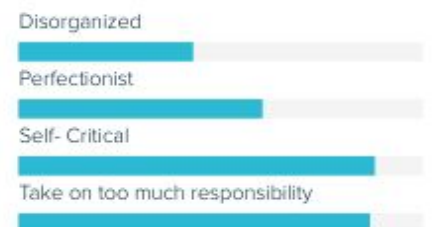- Deadlines
- when my children don't listen
- Bus apps

Bio

Tim Witherspoon is a project manager in New York City. He's married and has 3 children. Tim takes the bus to work 2-3 times a week due to limited parking because of ongoing construction and traffic. He finds using the bus app frustrating because of its poor design. He hopes to one day be given the opportunity where he can redesign the bus app for the city. Tim enjoys teach ing junior project managers and has high hopes of one day becoming an Executive. When you see him in the office don't be shy, say hi.

Personality

Introvert — Extrovert
Analytical — Creative
Thinking — Feeling
Judging — Perceieving

weakness

Disorganized

Perfectionist

Self- Critical

Take on too much responsibility

Interests

- New technology
- Food
- Current Affairs
- Sports

Interview Questions

1. What form of transportation do you use?

   - Respondent 1: "Walking, but I use the bus during the weekend"

   - Respondent 2: "I use the bus and commercial vehicles"

   - Respondent 3: "I use the Winnipeg Transit bus"

2. Do you use an app to catch a bus or track its location?

   - Respondent 1: "Yes"

   - Respondent 2: "Yeah. App and the bus text"

   - Respondent 3: "Yes"

3. How often do you use the Winnipeg Bus Live app?

   - Respondent 1: "Very rarely"

   - Respondent 2: "Lets say twice a week"

   - Respondent 3: "almost everyday"

4. How do you organize your tasks and schedule your bus routes when using the
   bus app?

   - Respondent 1:"I schedule based on the distance to the location and the
     importance to me. "

   - Respondent 2: "Based on of my current location and the bus time."

   - Respondent 3: "by memory and i use the app when its time to go out"

5. Do you find the app easy to learn and use?

   - Respondent 1: "I don't find it easy to use as you cannot find the location,
     you have to search a landmark. It is easy to learn but not as easy since

not everyone is familiar with the use of NEWS cardinal points for direction."

- Respondent 2: "Yeah it is easy to use and quite reliable"

- Respondent 3: "It's very easy, its like 3 clicks and you get the results"

6. Are there any other bus apps you use besides your regular bus app? * (how would you compare them)

- Respondent 1: "Google Map. As compared to the Winnipeg Bus Live, it shows you the waypoint to your location unlike the Winnipeg bus live. "

- Respondent 2: "The Winnipeg Transit and Google Map."

- Respondent 3: "i use other app kind of thing from transit website. What is it called [navigo] yeah navigo.

7. Describe how you use a bus schedule app?

- Respondent 1: "Input my destination -> Search distance from current location -> System displays best route"

- Respondent 2: "Open the app, search for the bus stop, Save bus stop, Check the time the bus is coming."

- Respondent 3: " I go on the website enter my location and my destination select time that i want to like select the time and the bus i want to take

8. Do you use reminders with your schedule app?

- Respondent 1: "No i do not"

- Respondent 2: "No i do not"

- Respondent 3: "No I don't, it sucks I know but no"

9. What would you like to change about the Transit bus app if you could?

- Respondent 1: <mark>"If it can have a database of all unique addresses to search rather than searching landmarks</mark>."

- Respondent 2: "Increase the amount of landmark radius the app covers"

- Respondent 3: "If there could be a calendar reminder feature added to map like when it's approaching with your time and reminds you like an alert so that you won't miss the bus"

10. <mark>What do you intend to see when you open the app?</mark>

- Respondent 1: "The current case were it is being directed by showing bus stops first is very good"

- Respondent 2: "Not really, just expect to see the bus time and that will be fine."

- Respondent 3: "if it could be linked to the calendar so it shows so if it can show schedule its gonna help me plan more, that would be a good thing to see and sorry, also the route information to tell you where you are every stop"

11. Do you make reminders for yourself on your phone/on your app? Describe how you would do this?

- Respondent 1: "No I don't"

- Respondent 2; "None. Just check my time"

- Respondent 3: "No I don't"

12. How can an application help you manage your task and event scheduling more efficiently?

- Respondent 1: "Better and more graphics and animations. Use of colour and shape layout to describe schedule on a calendar."

- Respondent 2: "Daily reminder, Tracking my regular route and save them."

- Respondent 3: "As I told you, it would help me to plan more"

Scenario 1:

Identify where to go
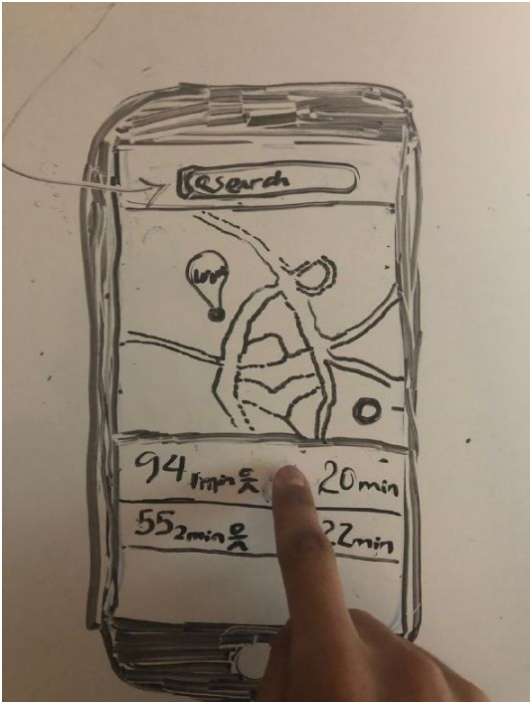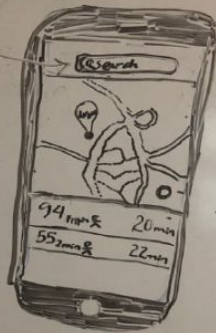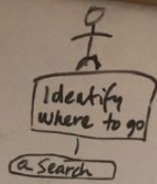
a Search

Identify
where to go

a Search

Search

Drag
down
to see
full map

94
1 min 🚶

1 min

i