Velocity Raptors Project Outline

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1 Functionality

1.1 App Vision

Currently, the community of Guelph lacks a consistent, accurate and functional Public Transit phone application. The applications which are currently on the market either lack Global Position Satellite accuracy (RideGuelph, GryphPhone) or necessary community attention (Nextbus). Nextbus is currently the go-to in terms of public transit feedback, as they guarantee times accurate to 1 minute. But in Guelph, Ontario we often see busses off route by over an hour. This is due to the lack of GPSs on some of the busses and to unscheduled route changes by Guelph Transit. The Cannon outlined some of the systems flaws in this article - `http://www.thecannon.ca/page.php?id=24&n=13970`

We intend on building an Android Application that provides Nextbuss GPS information in a functional interface (which includes an actual map). However, unlike Nextbus we intend on tracing each bus route in Guelph, so we can easily remove busses that are too far off-route or off-schedule. We may then either inform Guelph Transit administration of the error or fall-back to the scheduled times and notify the user of the changes.

1.2 Users

Transit Riders will use the application to get feedback on the current position of the bus. They can view bus locations, view their location, check the current state of the bus (GPS or schedule), check the bus schedule, favourite bus routes, change location settings, will be able to leave and view comments for each bus.

Transit Drivers will be able to use their phones GPS for routes if the bus is unable to be reached.

Transit Administration will be able to change a busses state from GPS to scheduled, and update the current location of each bus.

1.3 Requirements Table

#	Type	Requirement	MuSCoW
1	System	Build and organize MySQL tables for transit schedule	Must
2	System	Create excel parser, to pull transit times	Must
3	System	Fill MySQL tables with transit times	Must
4	System	The system provides a Home-Button, to navigate back to the home menu	Must
5	User	Users are able to view Schedules in a Graphic User Interface	Must
6	System	The system pulls GPS locations or Nextbus times	Must
7	System	The system calculates the busses current location and estimated times to next stops	Must
8	User	The user is able to select stops and busses to view estimated times (No map is available)	Must
9	System	The system has integrated the Google Maps API	Must
10	System	A map interface is built using the location of stops and busses	Must
11	System	The pins on the map are linked to their respective bus and stop pages	Must
12	User	The user is able to view a map of their community	Must
13	User	The user is able ot view their current location	Must
14	User	The user is able to select stops and busses on the map	Must
15	System	The system recognizes invalid NextBus times or times that could have an error. The user is notified and the scheduled time is listed	Must

16	User	The user recognizes GPS times vs Scheduled times	Must
17	System	A 'Settings' page is available from the menu	Must
18	System	An 'About' page is availabe from the menu	Must
19	User	The user is able to change settings and learn about the app using the menu	Must
20	System	The system is able to locate the user and find the nearest stops	Should
21	System	The user is able to toggle 'Location'. The viewpoint zooms into the users current location and the nearest stops are shown.	Should
22	System	The system is able to update instances of the database if requested	Should
23	System	The system is able to auto-update the database if requested	Should
24	User	The user is able to update their bus schedule from the 'Settings' menu	Should
25	User	The user is able to toggle 'Auto-Updates' from the 'Settings' menu	Should
26	System	The system is able to save a users favorite between sessions. The system orders these icons.	Should
27	System	The system is able to add and clear favorites from a users list	Should

28	User	The user is able to save favorites by holding down an icon	Should
29	User	The user is able to to 'Favorites' to view all of their favorited busses and stops	Should
30	User	The user is able to clear favorites through the 'Settings' menu	Should
31	System	The system creates a 'Help' page in the menu, to help the user navigate the application	Should
32	User	The user is able to navigate to the 'Help' page using the main menu.	Should
33	System	The system builds a database for Administrator accounts and Transit-Driver tickets	Should
34	System	The system allows users to sign in as a Driver or Administrator	Should
35	System	System updates bus routes based on location of activated tickets (Transit-Drivers phone GPS)	Should
36	System	System is able to deactivate invalid tickets, or tickets too far away from bus route.	Should
37	System	The system is able to create tickets, designated to certain bus routes	Should
38	System	The system deletes tickets after a designated amount of time	Should

39	User	Administrators are able to sign in to create and delete tickets. Tickets decay over time	Should
40	User	Transit-Drivers are able to log-in using ticket numbers and accept using their phone as the routes current location	Should
41	System	The system is able to store user comments and user's average delay in a database	Could
42	User	The user is able to submit what the average delay of a bus is at a certain stop	Could
43	User	The user is able to comment on specific busses and stops and view others comments	Could
44	System	The system provides a search functionality to search for, busses, stops and addresses	Could
45	System	The user is able to search for busses, stops and addresses using the search function	Could

1.4 Features

Numbers in brackets are the rated score of the feature by each team member (10-50 increments of 10)

Must haves

Complete list (database) of all city buses and schedules. (200)

Ability to track bus location via GPS to give users a more accurate GUI allowing users to interact with the database to attain the transit information they need (200)

A map interface showing the physical location of stops / busses. (180)

Should Haves

Location based Services, to quickly find nearby buses / stops / you. (140)

Ability for users to select frequently used or favourite busses for easy access. (130)

Ability for app to update the busses/schedules. (120)

Ability for transit drivers to use their phones as a GPS locator for the bus if the bus doesnt have a GPS onboard. (110)

Would Be Nice

Ability for transit admins to confirm whether or not buses have a GPS onboard. (90)

Ability to crowdsource bus arrival information from users (This is done by users submitting reports on the time of bus arrivals, independent of posted times) (70)

Ability to comment leave / review comments for buses / routes (60)

2 Stuff

2.1 Platform

The target platform this project is a mobile app which can be used whenever someone needs to catch a bus. More specifically, it will be developed on Android.

2.2 Development Platform

The development platform is Android Studio and the app will be done in Java and XML.

2.3 Source code Storage

The team will be using git to cooperatively develop the project. The source code as well as the documentation for this project will be hosted on Bit Bucket. The repo is located at :

https://yourbitbucketusername@bitbucket.org/JacksonKeenan/3760transit.git

SSH : git@bitbucket.org:JacksonKeenan/3760transit.git

2.4 Third Party API's and SDK's

For APIs, the plan is to use the Google Maps API and possibly NextBus'. The original plan was to contact Guelph Transit to use the GPS on their buses. Unfortunately, they have not yet responded which means the next step in the plan is the NextBus API.

2.5 Artwork

The group will be paying a graphic artist from Toronto to make a logo for the company. It will cost $20 which the team will cover. She works for ExperiencePoint, a company selling leadership training and development process training, "Working with most Fortune 100's top companies and the world's leading business schools." - http://www.experiencepoint.com/

The artwork will be submitted with the submission of the design document on Feb 1.

2.6 Data Storage for App

A database will be used to store the Guelph Transt bus schedule. Guelph Transit has posted their schedule online in a Google Doc, but it would be wise to save that information in our own database just incase they decide to remove that information. The database will be set up using mySQL and PHP will be used to connect it to Java (the app).

2.7 Starting Point

Android/Google has recently released in the past two years more and more documentation, Devkits, and Documentation how to make Android apps. There are thousands of coding tutorials on Android made by third party users and people who make tutorials. We have begun studying and watching videos on how Android folders are set up in the app, we have found tutorials on connecting mySQL to PHP to Java for database access on Android applications.

3 Plan

4 Architecture