BusBuzz

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Introduction

It is really hard to keep a track of bus arrivals in this busy schedule. Due to heavy traffic the bus arrivals at the stop can always be mistaken. On the other hand nobody likes to wait at the bus stop for hours for the bus. To handle this issue WMATA provides real time tracking system that gives the exact arrival time of the bus at a particular stop. Given that there is always a chance of missing the bus because there is nobody to remind that the wait time is over and the bus is about to come to the stop.

BusBuzz is the system that addresses this issue. It is an android application made specifically for the Gingerbread platform that reminds minutes before the arrival of the bus in the form of an alarm. Along with that it also give route details of the bus and map it on Google maps.

Description

BusBuzz has a tab navigation interface that enables a user to search for a particular route based on bus route number, or search for bus predictions arrivals based on the stop number. On searching for route this application communicates with WMATA server with the help of API, and based on search route term it gives possible routes with respect to direction. A user can select any of the direction and the bus route will be shown on the Google maps. The multiple markers on the map denote the bus stops on the way of that bus. All markers are clickable and on selecting any one of them will reveal the stop location along with stop number.

A user aware of his stop number can directly go to the prediction tab and search for the predications by providing stop number. The response includes a list of all possible directions, the bus route number and remaining minutes to arrive at that stop. A user can select any of the items from the list and an alarm will be scheduled based on the arrival time of the bus in the list.

Problems Encountered

When I started working on this project – before I started with Android Labs – everything was an unknown for me. Right from creating HTTP connection, parsing the response, integrating Google maps, and setting up Alarm. This was due to mediocre knowledge and little to no experience of programming in JAVA. The labs turned out to be pretty helpful and most of my problems were answered but there was still issue with Google maps. Integrating maps and displaying multiple markers with given latitude and longitude values was little difficult. There is an error in the documentation in the ItemizedOverlay class that explains the onTap event on markers on the map. It displayed an error and did not work as described in the documentation. I thought it was the way I was passing the context information but after googling a lot I figured out that I had to add a single line of code to make it work, which was missing in the documentation. After that, creating a broadcast service for alarm was not an issue but playing the music certainly was. I was under the impression that AlarmManager would have an integrated method that would invoke the default Android alarm sound, but that did not work for me. Then I figured out that I could use MediaPlayer class to play sound, so I again tried to invoke the default alarm ringtone but failed miserably. I think here the issue was that I was using the emulator, and if I were using the real device it would have work. Finally, I decided to use my own sound for alarm and it worked the way I wanted.

Screenshots

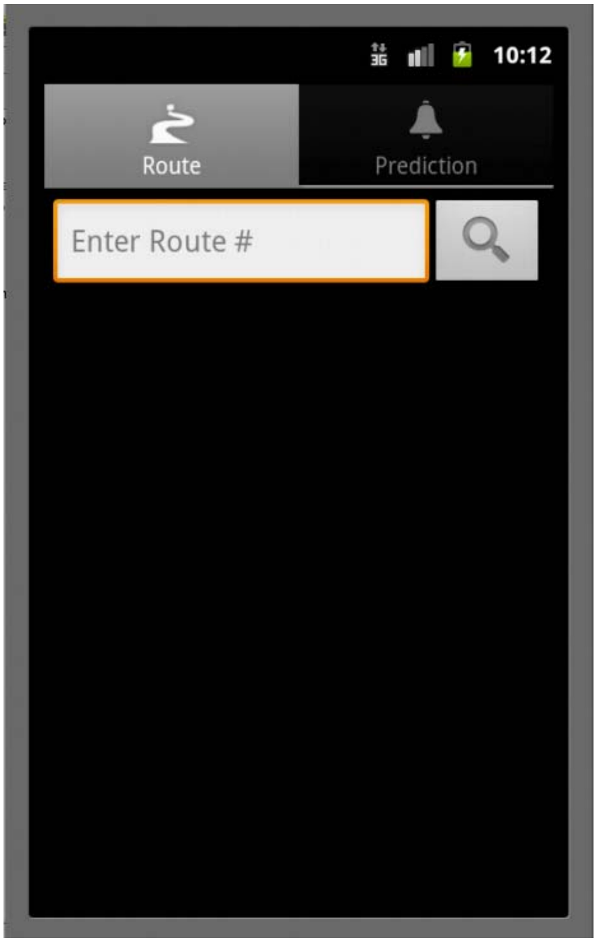
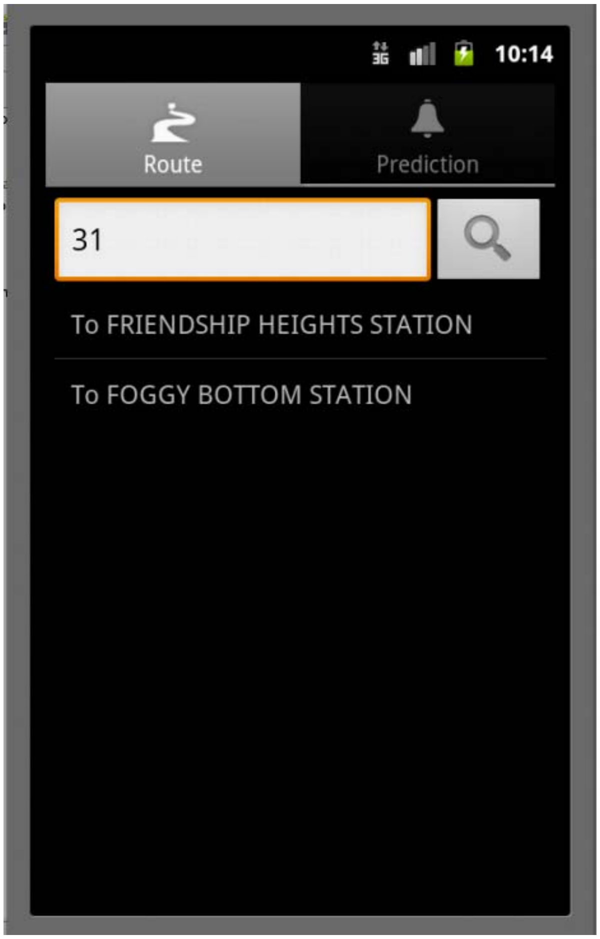


Fig. 1. Application Launch

This is the start screen when application is launched. It conveys tabbed interface of the application.



31

To FRIENDSHIP HEIGHTS STATION

To FOGGY BOTTOM STATION

Fig. 2. Route Search

This screen demonstrates the route search perform on route tab. In the above example 31 is searched that displays two routes in the list format. This conveys that this bus goes towards Friendship Heights station and Foggy Bottom station. A user can select any direction from the above list.

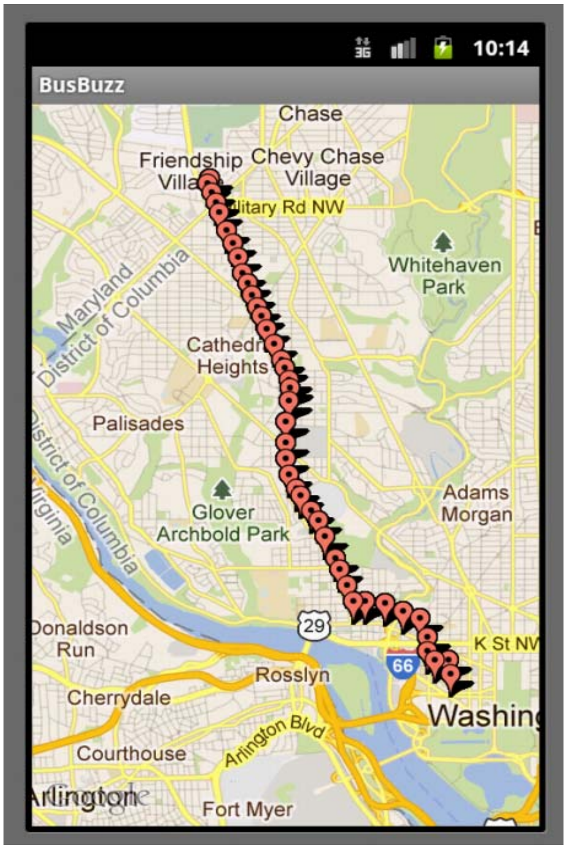
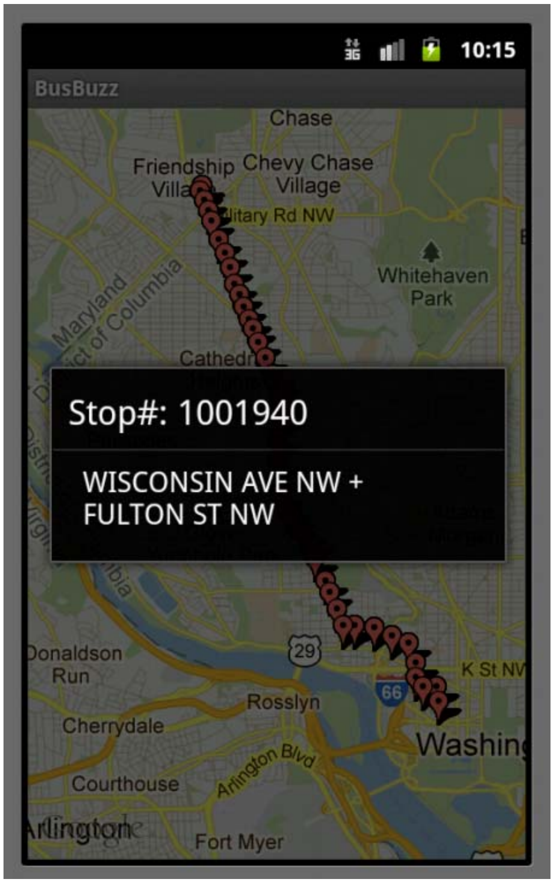


Fig. 3. Route on Map

On selecting any of the routes, markers will be pointed on the map that shows the bus route. The basic aim here is to enable user to identify his location and figure out nearest feasible stop.

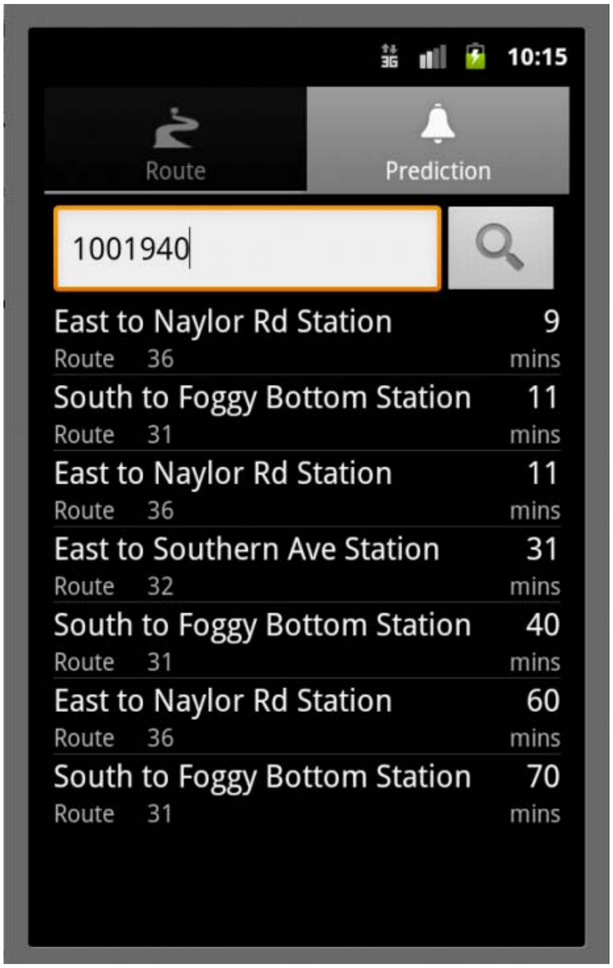


Stop#: 1001940

WISCONSIN AVE NW +
FULTON ST NW

Fig. 4. Stop Details

After identifying the location and selecting any of the markers, it would generate an alert box as shown above. This shows the bus stop related information, viz. bus stop number and location.



1001940

East to Naylor Rd Station 9
Route 36 mins

South to Foggy Bottom Station 11
Route 31 mins

East to Naylor Rd Station 11
Route 36 mins

East to Southern Ave Station 31
Route 32 mins

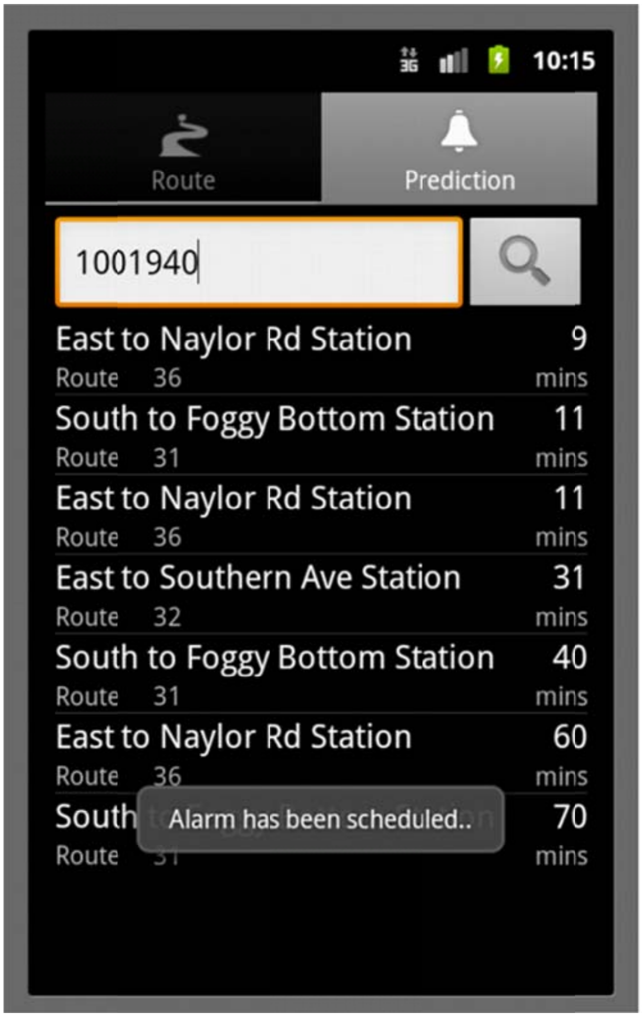
South to Foggy Bottom Station 40
Route 31 mins

East to Naylor Rd Station 60
Route 36 mins

South to Foggy Bottom Station 70
Route 31 mins

Fig. 5. Predictions for stop

In the prediction tab a user can search for current arrivals prediction by providing the stop number. Above shows a list predicted arrivals at stop number 1001940. This list shows the direction of the bus, route number and number of minutes remaining for the bus to arrive at the stop.



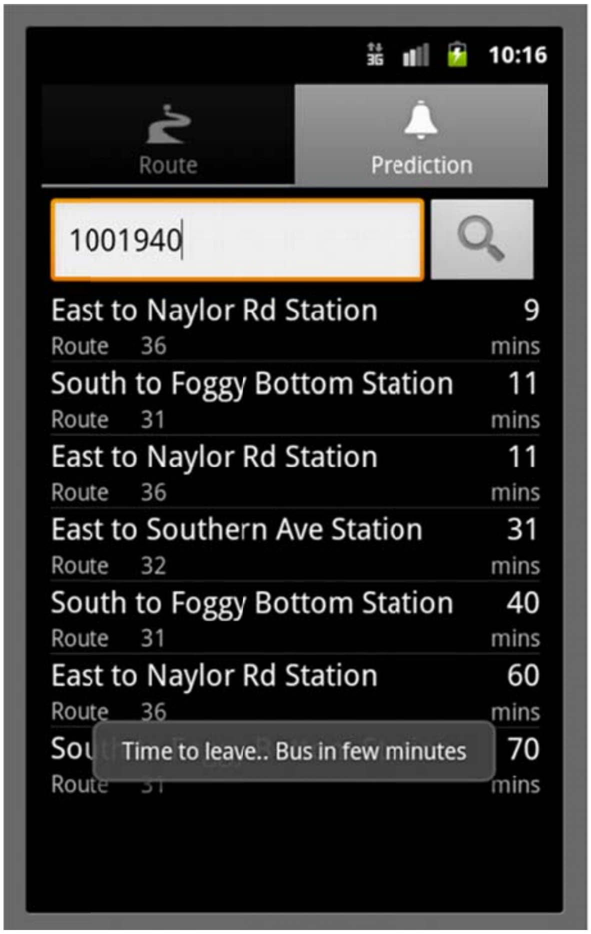
1001940

East to Naylor Rd Station Route 36		9 mins
South to Foggy Bottom Station Route 31		11 mins
East to Naylor Rd Station Route 36		11 mins
East to Southern Ave Station Route 32		31 mins
South to Foggy Bottom Station Route 31		40 mins
East to Naylor Rd Station Route 36		60 mins
South Route		70 mins

Alarm has been scheduled..

Fig. 6. Alarm Scheduled

On selecting any of the predictions from the list, an alarm will be scheduled based on the arrival minutes. The toast displayed above conveys the same.



1001940

East to Naylor Rd Station 9
Route 36 mins

South to Foggy Bottom Station 11
Route 31 mins

East to Naylor Rd Station 11
Route 36 mins

East to Southern Ave Station 31
Route 32 mins

South to Foggy Bottom Station 40
Route 31 mins

East to Naylor Rd Station 60
Route 36 mins

Sou 70
Route mins

Time to leave.. Bus in few minutes

Fig. 7. Time to leave

A one-shot alarm rings with a toast that conveys that the wait time is over and bus is about to come at the desired stop. This acts as a reminder and aims to notify user so that he does not miss his bus.