"Traffic Block Alert" - A Utility Managed By a Traffic Police to Help Public to Elude From Traffic Block

Benecio Caetan Fernandes[1], Suman Shenoy[2], Hari Prasad S.[3], Raghava Shettigar[4]

V Semester, Dept of MCA, AIMIT, St. Aloysius College (Autonomous), Mangalore, Karnataka, India

ABSTRACT: The increase in the number of vehicles has led to the problem of traffic congestion in most of the cities; as a result vehicles are fully stopped for periods of time. Traffic congestion can lead to drivers becoming frustrated and engaging in road rage. It becomes very difficult for the traffic control department in managing and rerouting the vehicles. This paper presents "e-traffic", a mobile application developed using the Android OS that enables the traffic department to be in touch with the public. Furthermore, it enables the traffic policeman to send the location of the place where the traffic block occurred due to certain reason and notify the users of the app the estimated time to clear the block and the alternative routes which can be taken using GPS tracking system(also nearby hospitals, police stations, fire department).

KEYWORDS: e-traffic, GPS tracking system.

I. INTRODUCTION

Keeping in mind honorable PM Narendra Modi's vision of digital India and the need for the e-governance in our country, we have come up with the application "TRAFFIC BLOCK ALERT" to provide a solution to the increasing number of road block in the cities.

Currently there are no online services to inform the public about the traffic blocks and this cause a lot of inconvenience to the people who would have otherwise taken a different route, or changed plans accordingly. Also, traffic policemen have a tough time when it comes to road blocks and accidents. With a high population and an increase in vehicles, keeping such situations under control becomes a hassle. Our app hopes to change that and ease the burden of the ill-equipped traffic policemen and the public.

This app would help the traffic police in charge to notify people those who are riding/driving on that particular road about the traffic block so that they can chose to reroute themselves to avoid the block. With a user-friendly interface, and many options to different routes in such situations, TRAFFIC BLOCK ALERT will turn out to be a reliable source for safety and peace to all its commuting users.

II. FEATURES OF THE APPLICATION

- Reliable: The authority to post about the traffic block is given only to the traffic police and not the user. The reliability feature avoids fake block notifications
- Portable: The app is mostly portable with all the versions of the android operating system. It can be also saved on the memory card instead of the device memory
- Coverage: You're covered with Block-Alert, with information on 96% of roads in the city, including the secondary roads other apps ignore
- GPS tracking: This app is based on the GPS tracking system which helps to pin point the blocked road accurately
- Statistic Log: the logs about the earlier block are also available for the users , so that they have a clear idea on the most traffic block happening on the particular road

III. ADVANTAGES OF THE APPLICATION

- Ease of Notification: The user gets the latest update about the road block as new notification which can be easily viewed.

- Easy installation and access: The application can be installed on mobile phones having android operating system. The application is easily accessible on the play store.
- User friendly: The interface of this application is built at a simpler level which does not question user understandability. The application doesn't consist of too many layouts and have simple navigations with reduced complexity.
- Shows alternate routes: The route map does not only show the blocked roads, but also shows user the other alternative routes available to reroute.

In case of emergency, the app user can check information about the nearest police station, hospital etc.

- Reduces the burden of the traffic department: The traffic department can save many other vehicles to avoid the blocked road, so that the block could be cleared more easily. The traffic police available on a particular blocked road will be able to manage and clear out the traffic.
- Saves time and fuel: this app saves the user's time in case the user had plans to travel through the blocked road. With prior notification the user can surely reroute, thus save time and fuel.

IV. WORKING OF THE APPLICATION

- We are using Andriod Studio as the developing platform. The application uses Google maps API. The minimum API level used is 17(Android jellybean 4.0) as lower versions do not support Google maps.

- When creating the application we select Google Map Activity.

- Then we have to download the Google map key using the link :
https://console.developers.google.com/flows/enableapi?apiid=maps_android_backend&keyType=CLIENT_SIDE_AN DROID&r=1D:AE:42:A2:16:49:B8:53:AF:1C:AC:6C:F5:E7:F6:48:8E:2B:AA:A7%3Bcom.example.benecio.mini

- Make sure these permissions are set:

```
<uses-permission                          android:name="android.permission.INTERNET"                          />
  <uses-permission                android:name="android.permission.ACCESS_NETWORK_STATE"                />
  <uses-permission                android:name="android.permission.WRITE_EXTERNAL_STORAGE"               />
  <uses-permission          android:name="com.google.android.providers.gsf.permission.READ_GSERVICES"         />
  <uses-permission               android:name="android.permission.ACCESS_COARSE_LOCATION"                />
  <uses-permission android:name="android.permission.ACCESS_FINE_LOCATION" />
```

- To get your current location we use:

```
mMap.setMyLocationEnabled(true);
```

Using the latitude and longitude we can pinpoint the exact location of the block and send the location to all the user.

```
LatLng latlang=new LatLng(address.getLatitude(),address.getLongitude());
```

The application works basically on two ends

The authorized person (traffic police):

- The admin will be able to pinpoint the exact location of the accident and make it known to the user
- He can also estimate the duration of the block time, and how long it would take to clear
- He can send notifications to all the users with access to the app

The app user:

- Will get a notification of the block, along with the estimated time
- He will get the exact location of the block in the form of a map
- He will be shown any alternative routes to avoid the area of the block
- He will also be shown the nearest hospitals, police stations and fire departments
- He will also be shown a log of previous blocks in the same locality
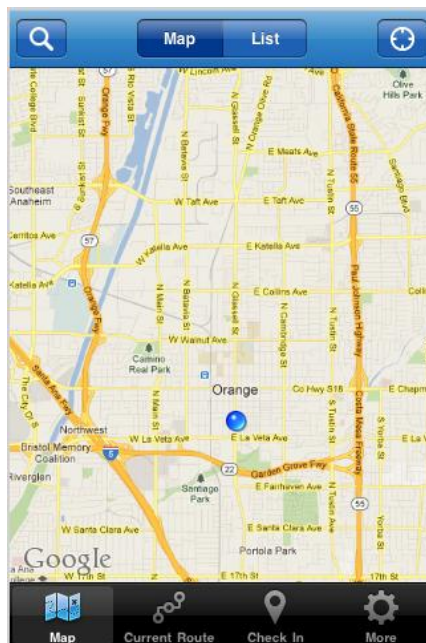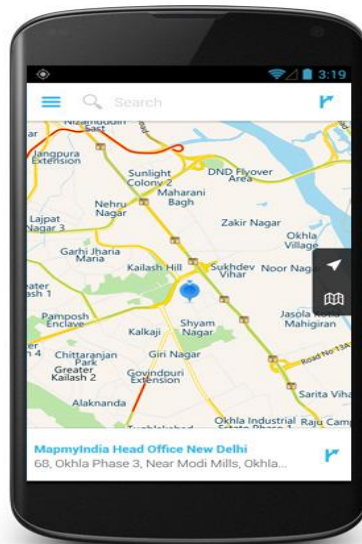
V. DRAWBACKS OF THE SYSTEM

- Internet connection: Internet connection is important without internet connection it is not possible to use this application.
- Drain battery: Another disadvantage of Android is, it drains the battery very fast.
- Language Barrier: The application is developed using only English language.
- Is not available 24hrs: The traffic police is not able to update and block information post his duty time.

VI. CONCLUSION AND FUTURE WORK

With the increasing number of vehicles leading to the growth of traffic, and road accidents, more information is required to regulate traffic flow and guarantee traffic safety. Hence, "Block Alert" can become a revolutionary app for the commuting public, avoiding greater blocks and preventing further delays.

Furthermore, the information gathered from the application can be used by the government to find out where the most number of accident occur and provide better traffic services in that area.

Currently, our work only focuses on one city (Mangalore). In our future work, we hope to include more cities and states, starting with major cities in the country.

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