

## ANDROID BASED TRAFFIC UPDATES

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### ABSTRACT

Road traffic congestions are one of the major problems in highly populated cities. In the recent years, GPS based solutions have become popular since people are able to see the traffic flow on streets instantaneously. However such systems are lack of intelligent reasoning regarding the traffic problem. In this system people can get intimation about traffic updates and can see incidents or roadblocks in road using gmap and the admin traffic police department can post their comment and users can see it.

### Keywords

Traffic Congestion

### I. INTRODUCTION

Social traffic application using android is an application used to detect the status of the traffic in the particular area, these status are posted by the current user bypassed already as the same rider can get the status of another area which was bypassed by another user hence it becomes a large chain. These posts have various statuses like accident, road block and traffic jam. The highlight of this application is that the web server sync automatically for an every hour, there is another highlight that the post can be reverted as true or false by the users to avoid the fake post.

Government try to strengthen their transport infrastructure and increase road capacity to minimize the traffic congestion problem. However, the problem is growing faster than the transport infrastructure strengthened by the governments. In order to avoid that situation an android based web services can be developed that share traffic updates.

### RELATED APPLICATIONS

There has been existing systems, which can give updates on traffic updates, First is the application which uses sensors installed on vehicles which

receive GPS signals to locate vehicles, and the other is the system which uses

satellites that monitor the traffic on certain region which shows speed ranges at different positions on road, such as red line for congestion, yellow line for slow movement of vehicle and green line for fast movement. But using satellites and sensors will cost higher and to share a traffic update it is very difficult. In order to avoid that an android application can be used to share updates. Since 81% of the people use android smartphones it is easy to distribute. This application will use in build GPS in the smartphone.

### II. METHODS AND MATERIAL

#### 2.1 ANDROID BASED TRAFFIC UPDATES

Our android based system takes advantage of the web service technologies in its implementation. It has a friendly user interface to view updates on maps and includes functionalities that are developed to mitigate time spent in the traffic. Our proposed system uses the Google API 1.3 for marking the locations on the map. At first, the system requires user registration and then login procedures. Then, users are able to enter traffic related incidents, follow traffic incidents instantly

and post messages and suggestions for the existing incidents. After the user logs in, the system forwards him/her to the main page as shown in Figure 1. In the main page existing road works are listed which are retrieved from Turkish Directorate of Highways. On the right hand side there is a field indicating the weather status in the local area and this is also retrieved from the Google Weather service.

### A. User Registration

The module is designed and developed for user registration and login. The register in this app and can view the updates on the map and can know in advance the roadblocks and traffic in that area. The application also consist the admin login in which traffic department can use this to post the status of the traffic.



Figure 1: Login Module

### B. Displaying Incidents

The incidents or traffic details are updated in the map based on the vehicle location if the vehicles are at the same location for some minutes then that location will be marked as congested with red circle or line. The user can set the home location so that the application will ignore. The application will be started only when there is a change in location for a continuous amount of time (i.e) when the vehicle is moving.



Figure 2: User Interface

### C. Status Update By The Admin

The comments and the details about the roadblock or the traffic can be posted by the admin and the status of the incident can be changed by the admin.

## 2.2 IMPLEMENTATION ON ANDROID

The System is implemented using Android API 1.5 that supports from froyo version as the base version. The application is build in eclipse mars which comes with Android SDK (ADT Bundle).The minimum requirement to run android sdk is java JDK 7 or JDK 8.The data storage is done on the server with the help of XAMPP server tool,which is the product of apache tomcat.

At first user login is made and user can get update through intimations and can view incidents in the map which uses google API 1.3.The vehicles locations are collected through HTTP request with the help of GPS. f there is no change in the location. Then that location details (i.e)latitude and longitude will be sent to the server and will be updated in the map. For example if vehicles stand on the road for long time ,say for 20 minutes then that area's location is obtained as latitude=13.465 N and longitude =79.234 E. And then all users can view the updates or get intimations if their data connection is ON.

The status updates can only be given by the admin (Traffic police department).And can clear incident marks on the map if the traffic is clear.

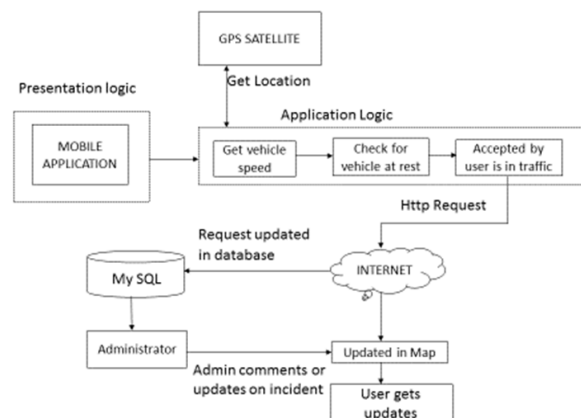


Figure 3: Architecture Diagram

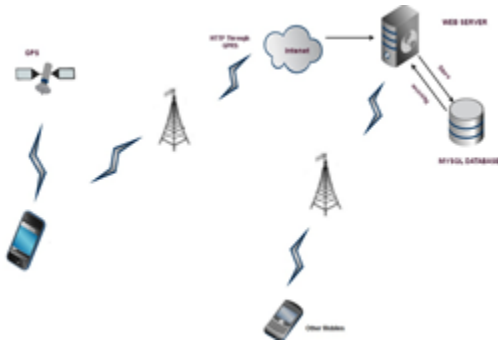


Figure 4: Architectural Diagram Pictorial Representation

### III. RESULTS AND DISCUSSION

In order to evaluate our solution in terms of user acceptance, a survey was conducted among the potential users who have smart phones. The questionnaire used in the survey consists of two main parts. The first part of the survey contains the questions about demographic information of the participants (including age, gender, and occupation), daily time spent on the traffic, the tools they used for traffic and their satisfaction with the general traffic at their residence.

182 participants attended the evaluation study and completed the survey. Most of the participants (64.28%) were males and about one third (35.72%) were females. The age distribution was from 22 to 50 years old with an average of 28.84 and a standard deviation of 4.52. More than 90% of respondents were below 35 years of age.

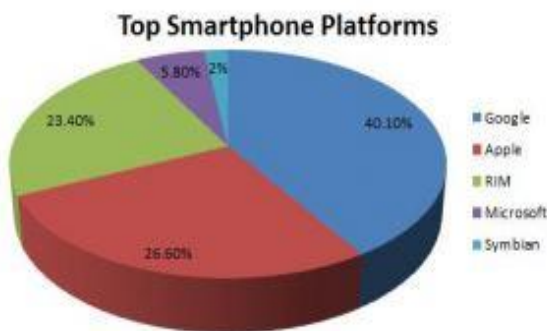


Figure 5: Smartphone Users

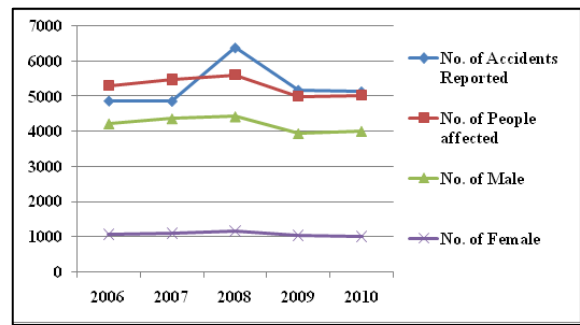


Figure 6: Traffic Reports in Chennai City By Traffic Police Department:

### PROCESS IN THE APPLICATION

Our application uses GPS location as the main feature to extract location details. The following code explains how to get GPS location details.

```
public class GpsBasicsAndroidDemo extends
Activity implements LocationListener
{
private LocationManager locationManager; @Override
protected void
onCreate(Bundle savedInstanceState)
{
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_gps_basics_
android_example);
locationManager = (LocationManager)
getSystemService(Context.LOCATION_SERVICE);
{#link LocationListener} whose
onLocationChanged(Location)
locationManager.requestLocationUpdates(
LocationManager.GPS_PROVIDER, 3000,
10, this);
}
@Override

public void onLocationChanged(Location loc)
{
String strng = "Latitude:
"+loc.getLatitude()+"
Longitude: "+loc.getLongitude();

Toast.makeText(getBaseContext(), strng,
Toast.LENGTH_LONG).show();
}
@Override
public void onProviderDisabled(String
provider) {
Toast.makeText(getBaseContext(), "Gps turned
off ", Toast.LENGTH_LONG).show();
}

@Override
public void onProviderEnabled(String provider)
{
Toast.makeText(getBaseContext(), "Gps turned
on ", Toast.LENGTH_LONG).show();
}

@Override
public void onStatusChanged(String provider,
int status, Bundle extras)
{
}
}
```



Figure 7: View Module of Application

## VIEW MODEL OF THE APPLICATION

The view model consists of the MapView in which the user can see the incidents on the road.

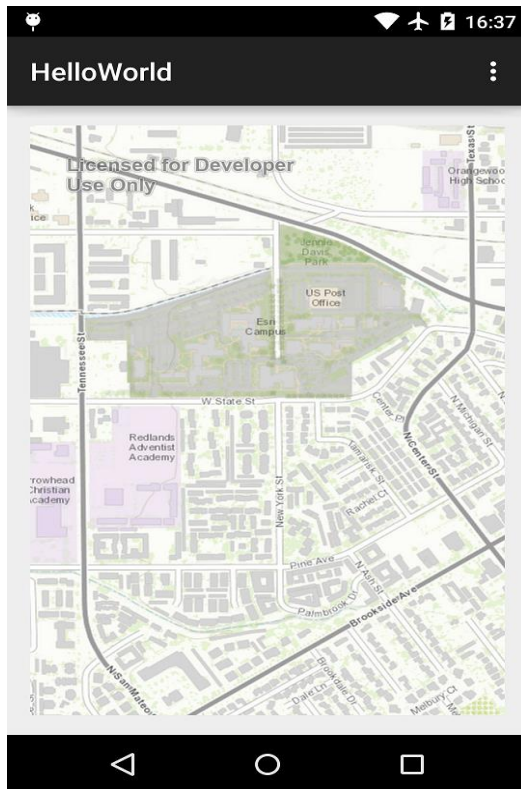


Figure 8: Map View of Application

## IV. CONCLUSION

Urbanization and the number of vehicles are rapidly increasing in the largest cities and as a result of this, traffic congestion problems are still one of the most significant problems. Transportation infrastructure is mostly not enough to keep pace with this growth. In this study, a social traffic network system is implemented by integrating the social networking

and web-service technology in order to overcome the traffic problem.

This Android Application helps user to get real time updates about traffic in their nearest location. This Application can be enhanced by monitoring vehicle speed and can get real time updates more effectively and with high efficiency.

## V. REFERENCES

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