

## Location Based E-Crime File Using Android

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### Abstract

*The i-Phone of the Apple company have redefined the term "Smartphone" during its first two years of its release, Google's Android platform for mobile devices has quickly developed into a serious open source alternative in a short period of time. We explored the Android Operating System (OS) and software development environment and evaluated several of its capabilities by constructing a working application. This application collected speed and location information from the Global Positioning System (GPS) [1] receiver, used the Google Maps Application Programming Interface (API) to determine the location of the handset, and sounded an alert if the handset is in a "Crime/Accident - Prone Area". The application allows the user to report a crime on incident as well as locate nearby police stations. The platform proved capable of supporting a melding of different services, and we believe such Smartphone's have broad applicability to public safety problems.*

### 1. Introduction

A number of studies been done on location-based services (LBS) due to its wide range of potential applications. LBS can be used to provide useful information such as tourism guide and roadside assistance to users according to the current locations of them. It is consisted of mobile devices, communication networks, service provider and data provider [2].

Location Based Service (LBS) is a platform that provides information services based on the current or a known location, supported by the electronic map platform. The location information (latitude and longitude coordinates) of mobile end user can be obtained through the mobile communication network or the Global Navigation Satellite Systems (GNSS) [3]. The research focusing on LBS is vast

and a number of these services have been implemented and tested. Tourist information systems are ideal examples for such applications, for example, Tourist Guide project [4], CyberGuide project [5] and Pinpoint Tourist Guide [6]. These systems offer information to tourists taking into account their current locations.

Location Based Services (LBSs) provide personalized services to the subscribers based on their current position using Global Navigation Satellite System (GNSS), Geographic Information System (GIS) and Wireless Communication (WC) technologies. LBS offers modern world the tool for efficient management and continuous control. More and more people involve LBS in their industry and day to day life to better achieve their goals. The increasing demand for commercial LBS has driven scientists to focus on more accurate positioning solutions. It employs accurate, real-time positioning to connect users to points of interest and advises them of the current conditions such as traffic and weather conditions, or provides routing and tracking information using wireless devices. It is important to integrate the mobile computing technology and the GIS technology in order to meet the needs of LBS, which is considered one of the most promising applications of GIS[1].

E-crime file is an application which requires the user to first register with the help of the UID (Aadhar no) which will be first verified and then the user will be registered accordingly, after being registered user will be able to use the services of the application, the application allows the user to lodge FIR (First Information Report). However the user should be aware of the consequences if the FIR is found to be ill-legitimate. A heavy fine can be imposed on the user or he/she may have to face legal proceedings. The app allows the user to search nearby police stations, easily accessible emergency numbers and guidelines given by the

police. The app also contains the details about the wanted criminals as well as missing persons. The user can report any crime to the police by just clicking a photograph of the crime, after reporting a crime the user will get a status number, using which the user can check the status of the report lodged by him/her. The app has a unique feature which tracks the location of the user through movement of his/her Smartphone and the changed location will be parsed and checked whether the current location of the user is crime prone or accident prone area, if the location is a crime/accident prone area the user will automatically get an appropriate alert. This will make the user alert and help the police department as well as the government to create awareness among the citizens. The app will have a column which will contain the all the safety precautions and guidelines given by the police department to its citizen. The main aim of this application is to increase communication among the police and citizen. The application will help the police to send Red-Alerts as well as blackout warnings in the case of some emergency.

## 2. Background

### 2.1. GPS Technology

The Global Positioning System (GPS) is a global navigation satellite system deployed by the US Department of Defence and maintained by the US Air Force. GPS is a space based radio navigation system that provides accurate location and timing services to anyone with a GPS receiver. This service, made available to civilians in 1996 for navigation purposes, is free of charge, can support an unlimited number of users, and functions anywhere in the world [7]. Starting in 2004, the mobile phone industry began successful tests to incorporate GPS receivers into mobile phone devices to support 911 emergency locations [8]. Most of today's Smartphone are equipped with fully functional GPS receivers and supporting applications.

### 2.2. Android Operating System

The Global Positioning System (GPS) is a global navigation satellite system deployed by the US Department of Defence and maintained by the US Air Force. GPS is a space based radio navigation system that provides accurate location and timing services to anyone with a GPS receiver.

This service, made available to civilians in 1996 for navigation purposes, is free of charge, can support an unlimited number of users, and functions anywhere in the world [9]. Starting in 2004, the mobile phone industry began successful tests to incorporate GPS receivers into mobile phone devices to support 911 emergency locations [10]. Most of today's Smartphone are equipped with fully functional GPS receivers and supporting applications.

### 2.3. PHP and MySQL

PHP [11] (recursive acronym for *PHP: Hypertext Preprocessor*) is a widely-used open source general-purpose scripting language that is especially suited for web development and can be embedded into HTML. Instead of lots of commands to output HTML (as seen in C or Perl), PHP pages contain HTML with embedded code that does "something". The PHP code is enclosed in special start and end processing instructions `<?php` and `?>` that allow you to jump into and out of "PHP mode." PHP is a free software released under the PHP license. PHP can be deployed on most of the web servers and also as a standalone shell on almost every operating system and platform free of cost. MySQL is a relational database management system that runs as a server providing multi-user access to a number of databases. It is named after developer Michael Widenius' daughter, My. The SQL phrase stands for Structured Query Language. MySQL is a key part of LAMP (Linux, Apache, MySQL, PHP / Perl / Python), the fast-growing open source enterprise software stack.

### 3. Design of the System

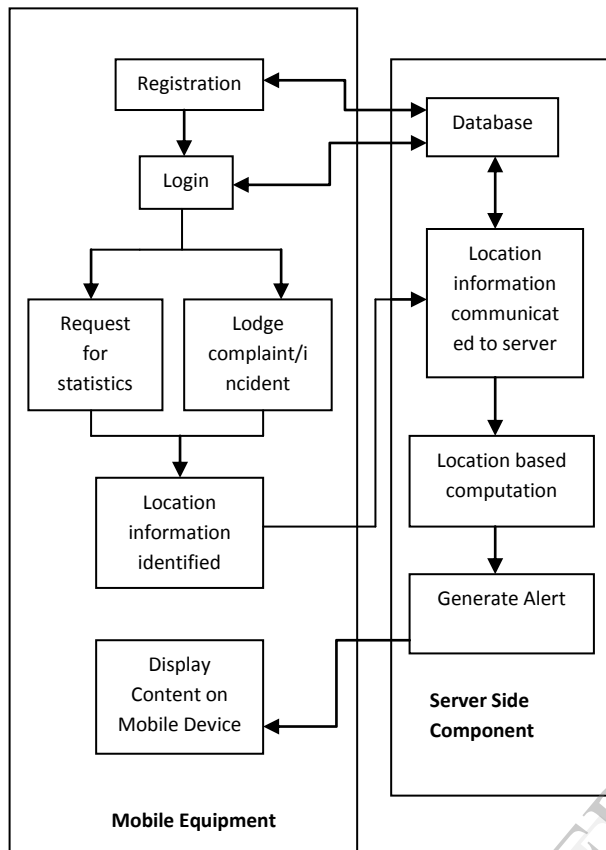


Figure 1. Block Diagram of the System

#### 3.1. Mobile Equipment

The user first needs to register with UID (Adhaar card no.). UID will be authenticated from the server and user will be registered successfully (see Fig. 1). After login the user can either report a crime scene/FIR (First Information Report) or request for statistics. While registering complaint the user needs to upload the image of the crime scene which is mandatory. Location information of the user will be send to the server for accuracy of the crime scene. When the user requests for statistics then the current latitude and longitude of the user will be send to the server and crime statistics will be performed. The user can also check for traffic and police rules on the application itself. Missing and wanted people information will be available in the application. On the basis of the user's current location he will be able to search for the nearby police stations. Emergency numbers viz police, ambulance, fire brigade will be available in the application in case of emergency.

#### 3.2. Server Side Component

Information of the user will be stored in the database. The server side has a database of criminals, users, missing persons, crime reports.

The application communicates with the server component when the user registers itself and also when he/she signs in (see Fig 1.). When the user requests for crime statistics or registers a complaint, the location information of the user will be send to the user. The server side does the computation when he/she requests for statistics of crime. On the basis of the complaint and location of the user, crime statistics will be performed. The location, where maximum number of crimes takes place will be registered as the crime prone area. When the location of the user and the crime prone area will be same, an alert will be generated.

### 4. Conclusion

The Android platform proved to be capable of supporting a melding of different services. Our sample application showed how GPS data and Google search services could be combined to keep citizens of India safe. Many more applications are possible when taking into account Android's Location based services

### 5. Future Works

Future development is planned to integrate additional communication capabilities to give the Smartphone the ability to allow it to communicate with the police control room to gain more information about crime scenes and incidents. This system would use current road conditions and real-time traffic information from the Internet to assist in the determination of the crime scene. Such a system would in turn be useful to alert nearby police stations about the crime scene so that immediate effect can take place citizens of India feel safer.

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