JAGAR For Traffic Police
(Tracking System For Police)

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Abstract : The motivation for GPS Tracking System is the desire for advanced features in an inexpensive receiver. Currently, all GPS receivers i.e., the single GPS receiver boards with no case, display, etc., proprietary firmware which makes certain assumptions on the system dynamics or application which may not be appropriate. Currently there is no single system that integrates all tracking and tracing of any movable objects, there are applications but all of them are separate so to integrating all of them was the source of motivation for our team. The project describe a practical model for tracking of mobile vehicles in a large area outdoor environment based on the Global positioning system (GPS) and Global system for mobile communication (GSM). The supporting device GPS continuously move with the car and will calculate the co-ordinates of each position and when required by the owner it can be communicated with the help of GSM modem which is installed in both Transmitter and receiver section. GSM modem is controlled by a Arduino Board. This tracking system is composed of a GPS receiver, Arduino Board , a GSM Modem and camera for capturing continuous images . GPS Receiver gets the location information from satellites in the form of latitude and longitude. The Arduino Board processes this information and this processed information is sent to the user/owner using GSM modem. The presented application is a low cost solution for automobile position and status, very useful for monitoring adolescent drivers and the driver who don't follow rules like helmet , seat belts. The proposed solution can be used in other types of application , where the information needed is requested rarely and at irregular period of time.

Keywords:- Android system, Web server, Authentication Arduino Board, Electronic components, Tracking comp.(GPS).

I. INTRODUCTION

JAGAR is Nothing but the Tracking System . In French Pronouncetion the Tracking sytem is JAGAR .Now a day, police department working strictly on Traffic rules like (Helmet wearing, seat Belt, Alcohol Consumption, Pollution Control). They Working On Roads(Geographical Areas) and Trapped to Illegal Peoples to punish them like collecting fine etc. In this Situation Police Department have taking more efforts. and they are working on any seasons so we have decide to Reduce the efforts of Police Department and Becoming Automatic system for Police Department. This System works very Smartly. We proposing the new smart system ,so we using or taking help of new technology like Geofencing. We taking help of geofencing we are trapped to peoples. Using some sensors like (Gas sensor, seat belt sensor, pollution detector sensor etc.) in vehicle. or GPS(Global Positioning System) . In this Scenario, our system ensures live tracking vehicles to help of police department. Our system works on IOT and GSM service to transfer the signals on cloud. And cloud which is reside on Police head quarter. Firstly we have to place sensors in Vehicle, then our system actually start. In our propose system we creating a geo fence via android mobile phone. In android app we specifying current location , creation of geo fence distance in meters. When vehicle enters in geo fence in car's sensors active and sensors sends signal to VTS(Arduino Board) then VTS transmits Signal to cloud. The Server which is resides on Police head quarters then server sends signal to Android app and then taken action.

Our propose system describes a practical model for tracking of mobile vehicles in a large area outdoor environment based on the Global positioning system (GPS) and Global system for mobile communication (GSM). The supporting device GPS continuously move with the car and will calculate the co-ordinates of each position and when required by the owner it can be communicated with the help of GSM modem which is installed in both Transmitter and receiver section. GSM modem is controlled by a Arduino Board. This tracking system is composed of a GPS receiver, Arduino Board , a GSM Modem and camera

for capturing continuous images . GPS Receiver gets the location information from satellites in the form of latitude and longitude. The Arduino Board processes this information and this processed information is sent to the user/owner using GSM modem. The presented application is a low cost solution for automobile position and status, very useful for monitoring adolescent drivers and the driver who don't follow rules like helmet , seat belts. Geo-fencing allow an administrator to set up triggers so when a device enters (or exits) the boundaries defined by the administrator, an alert is issued. Many geo-fencing applications incorporate Google Earth, allowing administrators to define boundaries on top of a satellite view of a specific geographical area. Other applications define boundaries by longitude and latitude or through user-created and Web-based maps.

2. Technologies Used:-

A. Geo Fencing

   You can have multiple active geofences, with a limit of 100 per device user. For each geofence, you can ask Location Services to send you entrance and exit events, or you can specify a duration within the geofence area to wait, or *dwell*, before triggering an event. You can limit the duration of any geofence by specifying an expiration duration in milliseconds. After the geofence expires, Location Services automatically removes it. Geo-fencing allow an administrator to set up triggers so when a device enters (or exits) the boundaries defined by the administrator, an alert is issued. Many geo-fencing applications incorporate Google Earth, allowing administrators to define boundaries on top of a satellite view of a specific geographical area. Other applications define boundaries by longitude and latitude or through user-created and Web-based maps.

B. Arduino Board

   The solution that we have come across consists of the exploitation of the Arduino Board card. It is a single nano computer card or we can say series of single board computers which looks very similar to credit card when compare d on the basis of size.

### C. Vehicle Tracking System

   The GPS based vehicle tracking/navigation system is fetching the information of the vehicle like location, distance, etc. by using GPS and GSM. The information can be transformed with the following features: The information of the vehicle like location, etc. is obtained after every specified time interval defined by the user. Then this periodic information of location is transmitted to monitoring or tracking server. This transmitted information is displayed on the display unit by using the Google earth to display vehicle location in the electronic Google maps

D. Android Software Development Kit (SDK)

   SDK tool consist of Android SCK Manager, Android virtual device (AVD) Manager and the emulator. AVD Manager provide graphical user interface that can manage Android Virtual Device, which is emulator. Android emulator imitates the feature of the real mobile device. However, it can only run application and cannot be use for video and capturing pictures. It is use only to test and application. It is a virtual mobile device that runs on computer.

E. Eclipse

   Eclipse is open source for java development. It use a Google's Android development tool (ADT) plug in for developed android application to make the development more easy and quickly. When eclipse first start, it will ask to creat the workspace. The workspace is where all the folder of the application created in the eclipse will store in it.
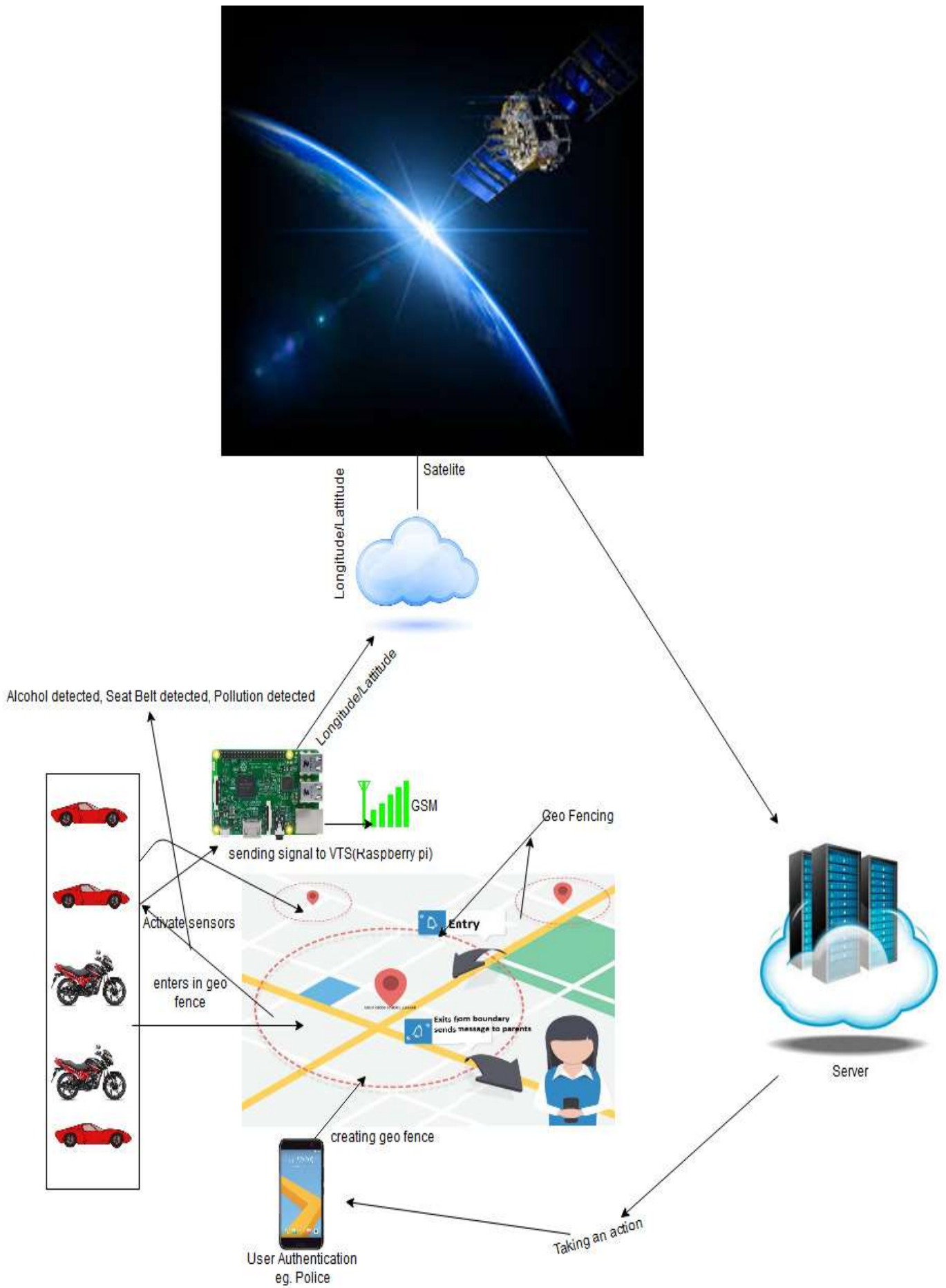
3. Theoretical framework

System architecture
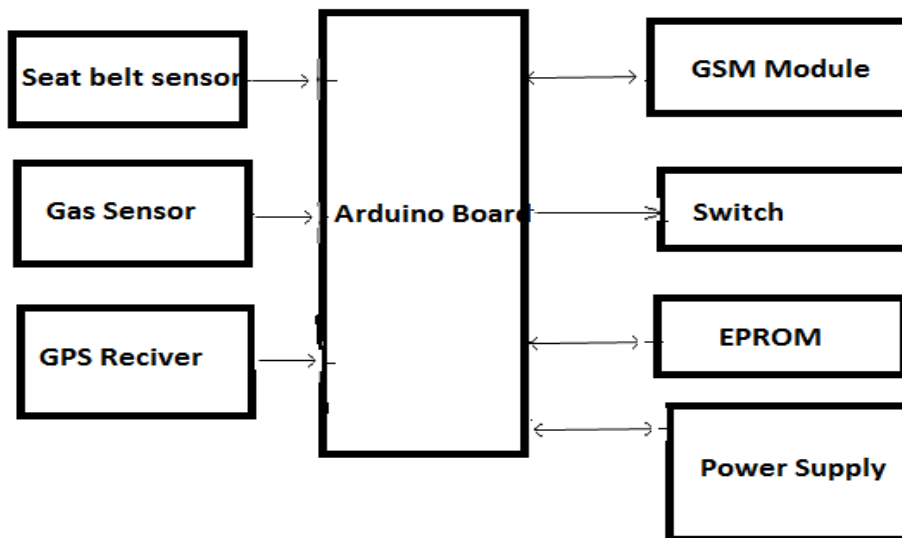
A) THE HARDWARE SYSTEM

Micro controller:This section forms the control unit of the whole project. This section basically consists of a Microcontroller with its associated circuitry like Crystal with capacitors, Reset circuitry, Pull up resistors (if needed) and so on. The Microcontroller forms the heart of the project because it controls the devices being interfaced and communicates with the devices according to the program being written.

Arduino Microcontroller-

The Atmega328 based Arduino mega microcontroller is used as the brain to control the vehicle tracking system. Arduino Shields are used for the GPS and the GSM/GPRS modules. A software program to control them is written in the C programming language, compiled and then saved into the microcontroller's flash memory.

GSM MODEM SECTION: This section consists of a GSM modem. The modem will communicate with microcontroller using serial communication. The modem is interfaced to microcontroller using MAX 232, a serial driver.

EEPROM: This section acts as a backend database for the project. This section is realized using an EEPROM integrated circuit chip.

GPS MODEM:A GPS modem is used to get the signals and receive the signals from the satellites. In this project, GPS modem get the signals from the satellites and those are given to the microcontroller. The signals may be in the form of the coordinates; these are represented in form of the latitudes, longitudes and altitudes. Position (longitude, latitude). The GPS based vehicle tracking/navigation system is fetching the information of the vehicle like location, distance, etc. by using GPS and GSM. The information can be transformed with the following features: The information of the vehicle like location, etc. is obtained after every specified time interval defined by the

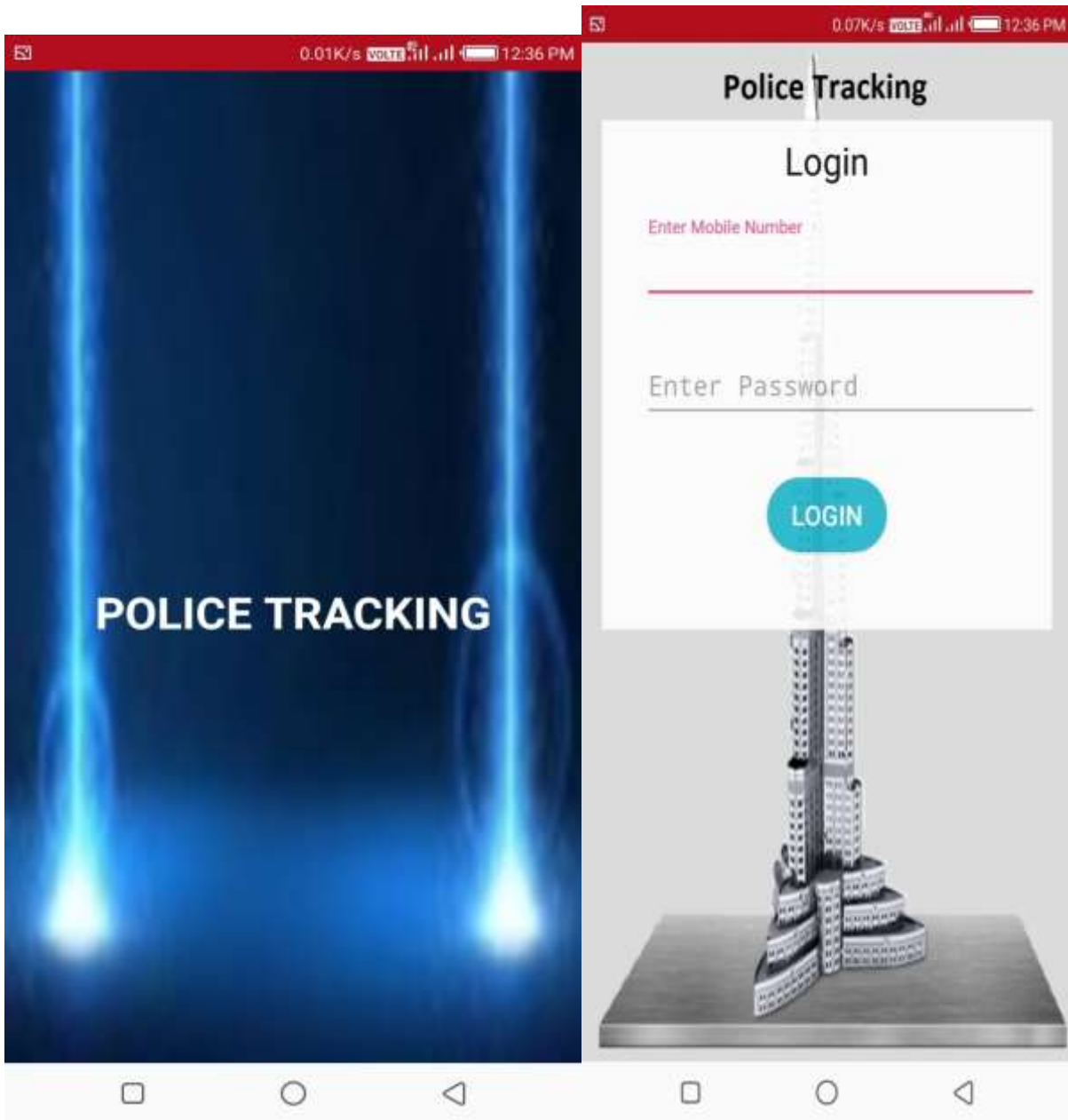Arduino Board

GSM

GPS

B)SOFTWARE SYSTEM
ARDUINO 1.8.5-
We are using Arduno 1.8.5 IDE(Integrated Development Environment) to Interfacing Arduno Board to other hardwares like sensors etc. These software are used to implement the code and Arduino consists of both a physical programmable circuit board (often referred to as a microcontroller) and a piece of software, or IDE (Integrated Development Environment) that runs on your computer, used to write and upload computer code to the physical board.Arduino is an open-source platform used for building electronics projects. Arduino consists of both a physical programmable circuit board (often referred to as a microcontroller) and a piece of software, or IDE (Integrated Development Environment) that runs on your computer, used to write and upload computer code to the physical board.The Arduino platform has become quite popular with people just starting out with electronics, and for good reason. Unlike most previous programmable circuit boards, the Arduino does not need a separate piece of hardware (called a programmer) in order to load new code onto the board – you can simply use a USB cable. Additionally, the Arduino IDE uses a simplified version of C++, making it easier to learn to program. Finally, Arduino provides a standard form factor that breaks out the functions of the micro-controller into a more accessible package
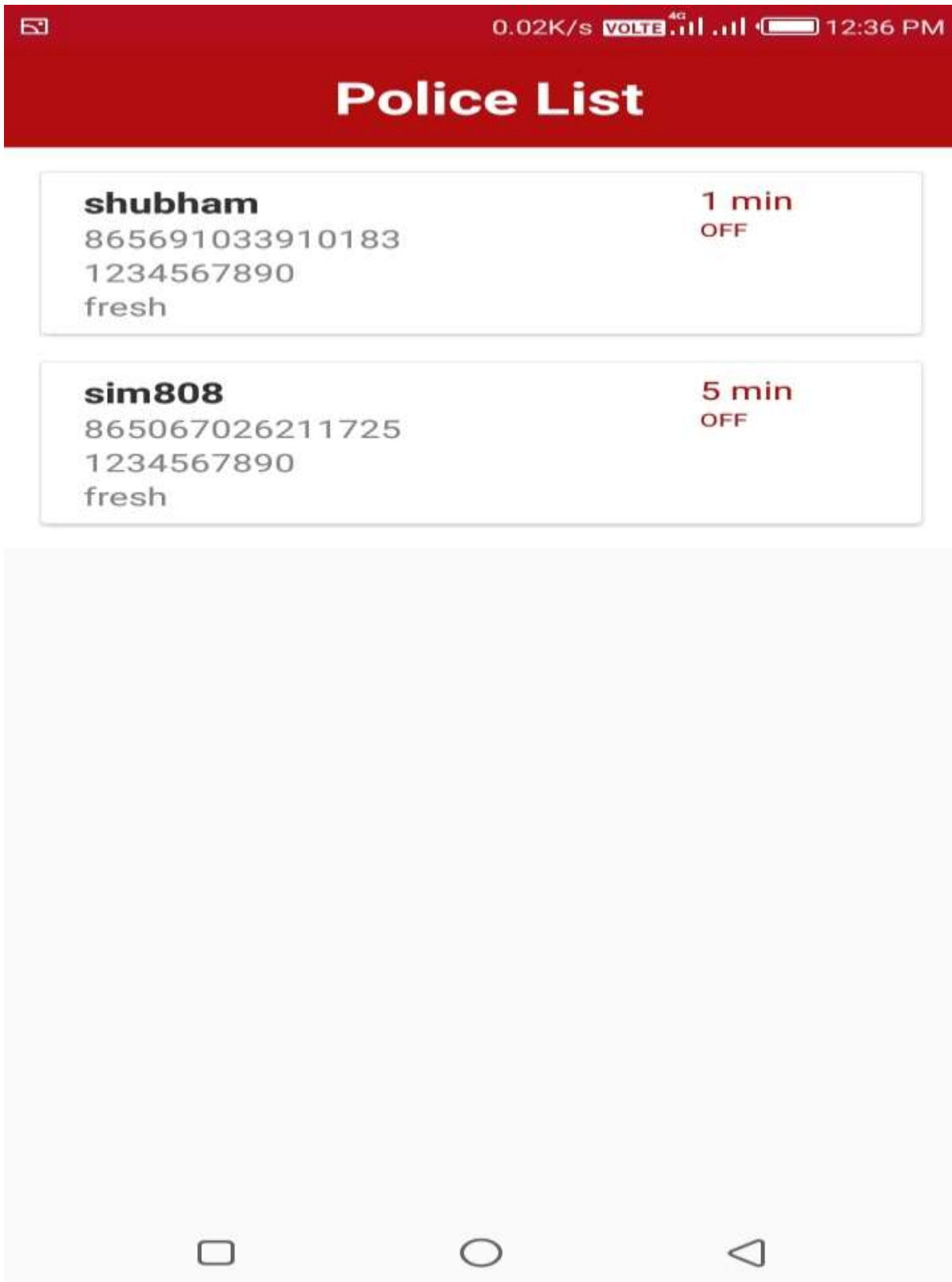
Android Studio 3.0 -
Using Android studio to developing and implementing the android app for the project. The Android studio is nothing but the Android Studio The official IDE for Android. Android Studio provides the fastest tools for building apps on every type of Android device. World-class code editing, debugging, performance tooling, a flexible build system, and an instant build/deploy system all allow you to focus on building unique and high quality apps.There are multiple ways to approach Android Development but by far the most official and powerful is to use Android Studio. This is the official IDE (Integrated Development Environment) for the Android platform, developed by Google and used to make the majority of the apps that you probably use.
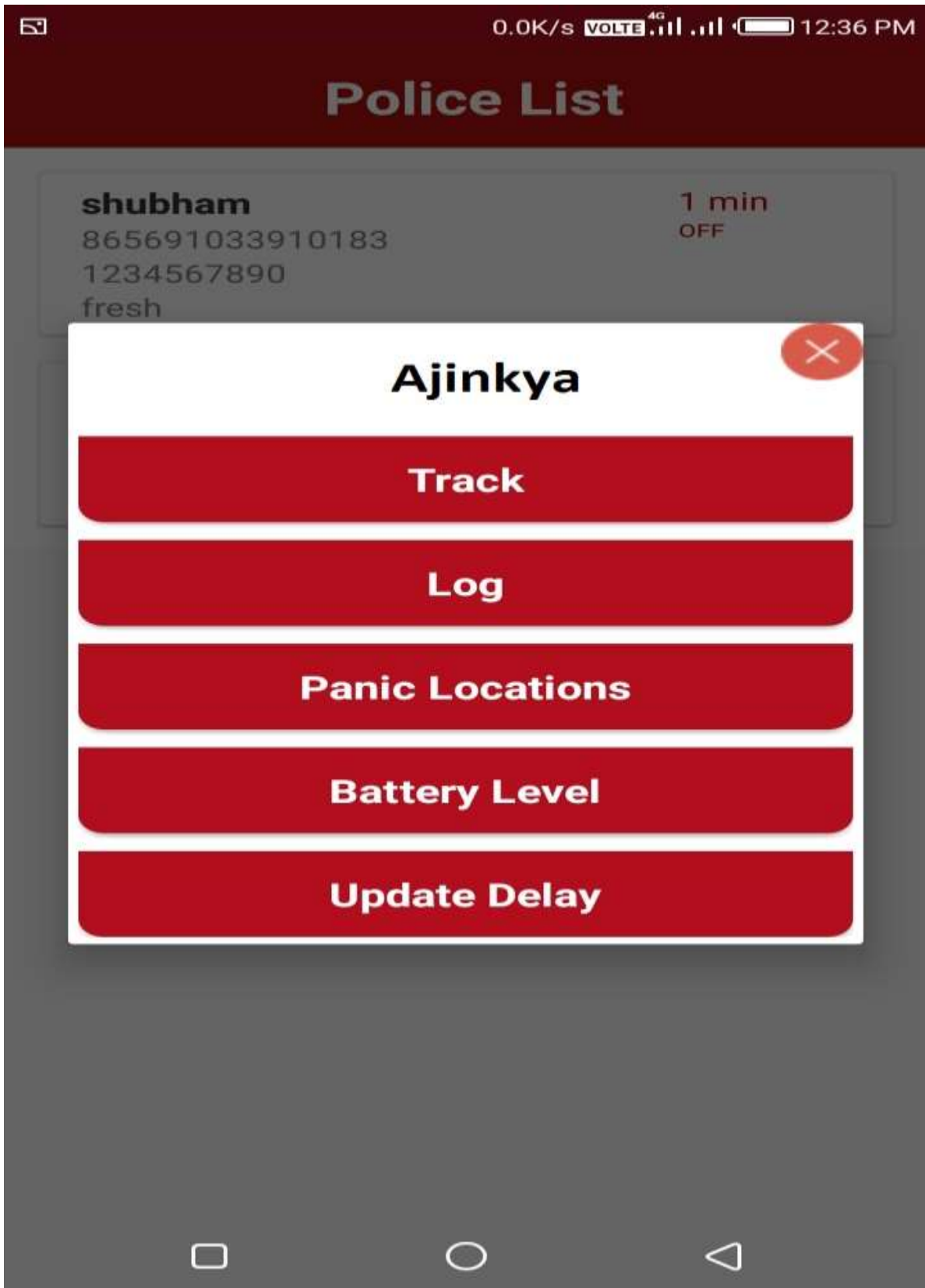
4. RESULTS AND DISCUSSION
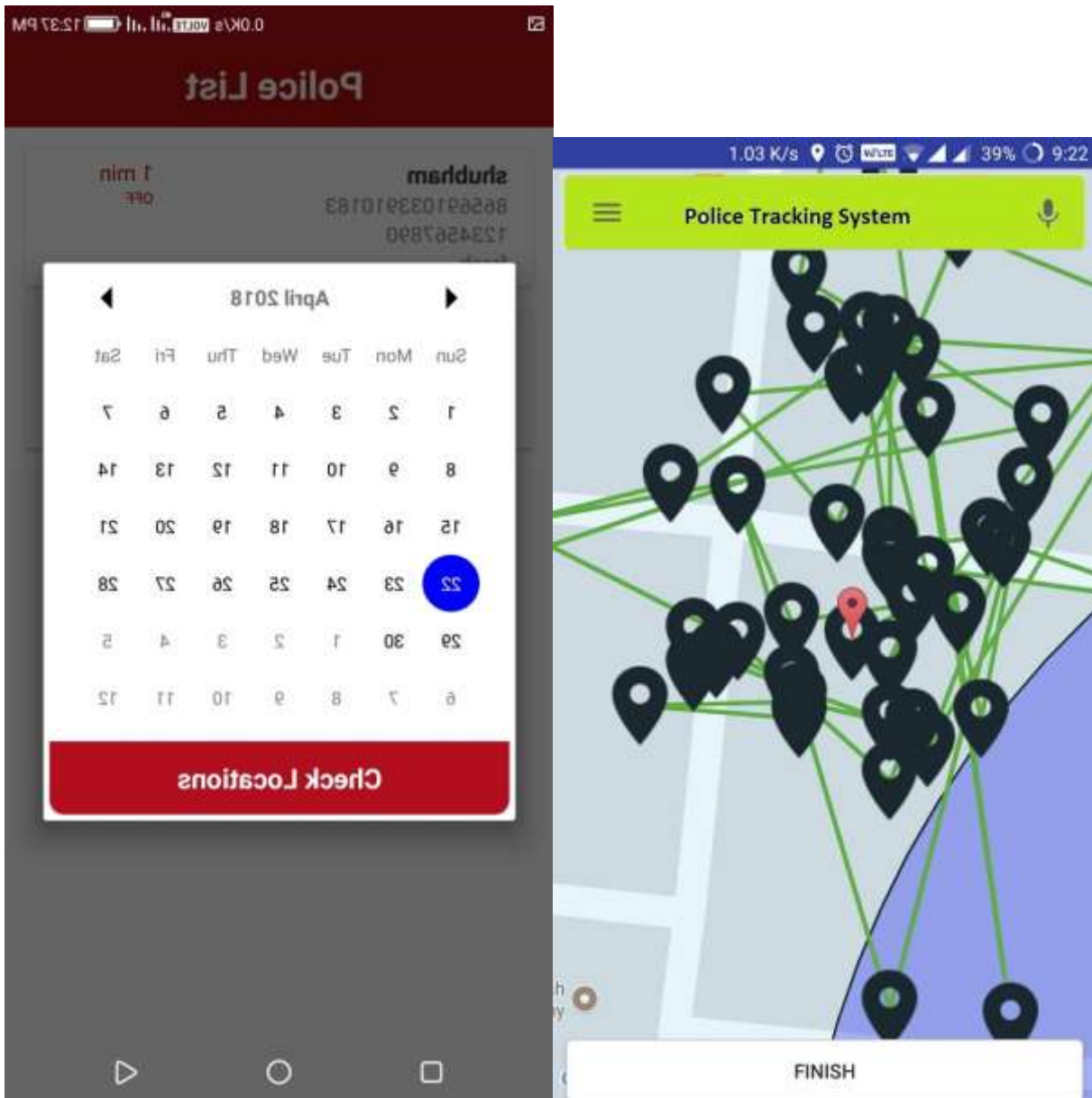**4.1APPLICATION SCREENSHOTS**

Police can login to the application through police login after the registration is done.

0.02K/s VOLTE 4G ▂▃▄▅ ▂▃▄▅ ◁▭▭▭ 12:36 PM

Police List

shubham
865691033910183
1234567890
fresh

1 min
OFF

sim808
865067026211725
1234567890
fresh

5 min
OFF

Displays list of Authorised Users

Funcions Of App

Checking logs

ACKNOWLEDGEMENT

Conclusion

In conclusion, this application is designed for locating And Trapping a Illegal peoples who's disobey the rule. The solution represented in this paper takes the advantages of smart phones which offers rich features like Google maps, GPS, SMS etc. Some of the best works implemented in past relies on SMS based tracking which is not helpful to get an accurate location in our proposed system we have provided real time tracking. We have added Geo-fencing and Emergency messaging services to enhance the system.

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