

Traffic Rule Violation Detection System

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ABSTRACT

The current police system has very few digitalized features. With the increase in crime and corruption, bringing smartness in police workforce has become a necessity. Digitizing these systems will improve the efficiency of the systems. Digitizing can also give various advantages like reducing old file work, detailed description of crimes, ease of communication between common people and police, efficient access of criminal details, ease of police work etc. In the 21st century where mobile and information technology have become an integral part of our lives. A new area where mobile integrated with technology is useful for crime reporting since readily accessible information is not available at any point in investigation this is a key drawback for communication in police department. Thus, using cloud, we will try to make all the information related to the criminals available on the Android Application to the police during their investigation which would speed-up the entire process of tracking down the criminals

Keyword: - *Android Devices, Data Mining.*

1. INTRODUCTION

Now in daily routines mobile and information technology are integral part of our life's. from this technology our life become easily and fast done every work so we are try to develop application that making police department work easily and fast. So we are developing digitization of police system using LBs and data mining application in android which is help to police department to work efficiently and flexibly. From this they not have to take there time to store record files of criminals and managing them at huge amount on data it going to difficult so for helping them. we are designing android application which helping them for storing huge amount of data efficiently and managing it flexibility. overcome communication problem here during verification and collecting and store evidences of crime from this application it going to take less time for investigation.

2. LITERATURE SURVEY

2.1. Data Mining Traffic crime Investigation

Data mining based systems for analyzing traffic crime information and thus automates the crime investigation procedure of the police officers. The usability of these frameworks utilize a mixing of data mining methods such as clustering and classification which is use for effective investigation of the criminal acts.

Drawbacks of the System

The insertion of a new row to the table a complet methodology. for additional, the spatial and statistical analysis tools access an instantiation file, obtained during the record set creation, to query the specific information from the record set. This creates an overhead for the entire working of the framework.

2.2. Mobile Positioning

Mobile positioning refers to the determining of the current position of mobile devices. Generally, the positioning technique is based on the communication between mobile devices and the closest base stations. The base stations may be cell site tower, WiFi or GPS satellite.

The mobile positing used in the mobile devices are as follows.

1. Network-based positioning uses cell site towers to determine the location. It requires at least three cell sites to calculate the position.
2. WiFi Positioning System (WPS) uses hotspots to determine the location. However, WPS is mainly used in indoor positioning.
3. GPS (Global Positioning System) uses the satellites to determine the location. GPS is the best technology for outdoor positioning that tracks the movement of the mobile devices.

3. MATERIALS AND METHOD

1. Technologies to be used

- Internet
- JFreeChart
- jdk 7 ore above
- Eclipse
- Apache tomcat 7
- Android Studio
- Web portal using HTML, CSS, JSP, J Query
- Graph panel for Survey report

The system needs the following specifications:

▪ Software Requirements:

- Internet
- JFreeChart
- jdk 7 ore above
- Eclipse
- Apache tomcat 7
- Android Studio

▪ Hardware Requirements:

- 250 GB HD
- 4 GB RAM

4.SYSTEM MODEL

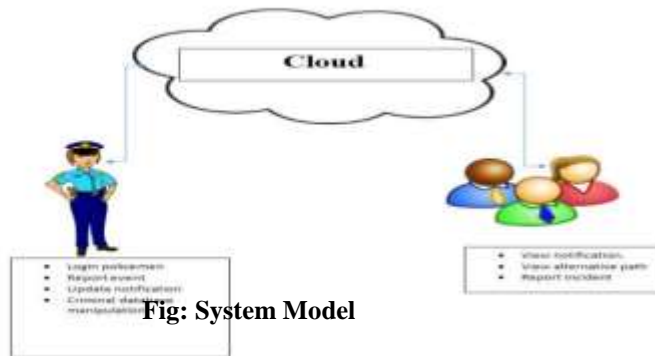


Fig: System Model

It provides an application for the user that would provide an alternate path for the users passing by crime area. It allows user to report incidents and get it verified by the police officials. It will consist of an application for police officials which can perform database operations on criminal record and allows efficient retrieval of required information from the centralized database present on Cloud. The application targets general public and police officials for managing the incidents and crime without consuming much time.

In previous years police used files to maintain all criminal records like words documents but increases in crime and corruption rapidly so maintaining records is going to much difficult for handle and not readable to accessing it maintaining is difficult. From the understanding this problem for handling files and criminals records so we have to solve this problem so we try to develop application which handling record of crime and describe its crime in detailed. In order to create an application that facilitates report crime in a secured and covert way, we digitised the crime reporting System in a University Campus setting. We achieved this by breaking down our solution to two components: front and back end. The system back-end addresses the communication and storage of the application. The front-end focuses on the development of the user interface. The interface allows users to create and effectively fill crime reports resembling the existing paper based crime report in a secured and covert way. The interface also allows for **two types of crime reports. The first, which is tagged “a full crime report” is based on the digitisation of the existing paper based reporting system. The second report type tagged**

“emergency report” will automatically compile relevant user data and allow the user to send a report quickly in adverse conditions.

Flow of the system

Whenever we design a system, the flow of it is important. If the flow is not correct, then there is no use of the system. Figure shows the flow of the proposed system

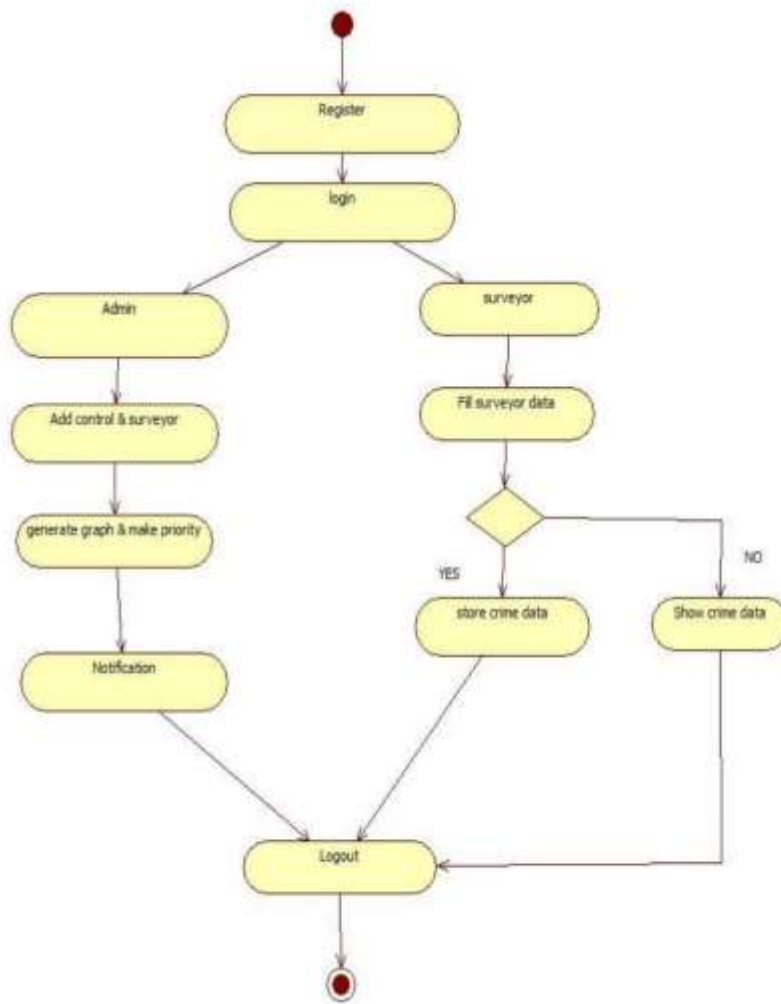


Figure . Flow of the system

The flow of the proposed system is as follows:

1. First the user sign in the system, he is asked to Choice for registration either he register for Admin or surveyor .
2. Admin can add the control of surveyor and generate the graph.
3. In other side surveyor can maintain and store the crime details.
4. Then according to crime details Admin can show the Notification.

5.OUTPUT



Fig.Crime User App



Fig.Crime Report

5.ALGORITHM

5.1K MEAN CLUSTERING:

k-means is one of the simplest unsupervised learning algorithms that solve the well known clustering problem. The procedure follows a simple and easy way to classify a given data set through a certain number of clusters (assume k clusters) fixed apriori. Finally, this algorithm aims at minimizing an objective function know as squared error function given by:

$$J(V) = \sum_{i=1}^c \sum_{j=1}^{c_i} (\|x_i - v_j\|)^2$$

where,

' $\|x_i - v_j\|$ ' is the Euclidean distance between x_i and v_j .

' c_i ' is the number of data points in i^{th} cluster.

' c ' is the number of cluster centers.

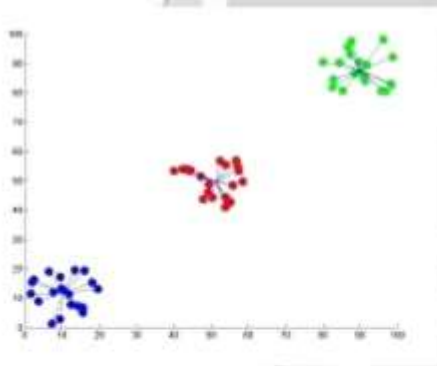


Fig I: Showing the result of k-means for ' N ' = 60

5.2 HEURISTIC ALGORITHM:

The term heuristic is used for algorithms which find solutions among all possible ones. These algorithms, usually find a solution close to the best one and they find it fast and easily. Sometimes these algorithms can be accurate, that is they actually find the best solution, but the algorithm is still called heuristic until this best solution is proven to be the best.

Example:

A well-known example of a heuristic algorithm is used to solve the common Traveling Salesmen Problem. The problem is as follows: given a list of cities and the distances between each city, what is the shortest possible route that visits each city exactly once? A heuristic algorithm used to quickly solve this problem is the nearest neighbor (NN) algorithm (also known as the Greedy Algorithm). Starting from a randomly chosen city, the algorithm finds the closest city. The remaining cities are analyzed again, and the closest city is found.

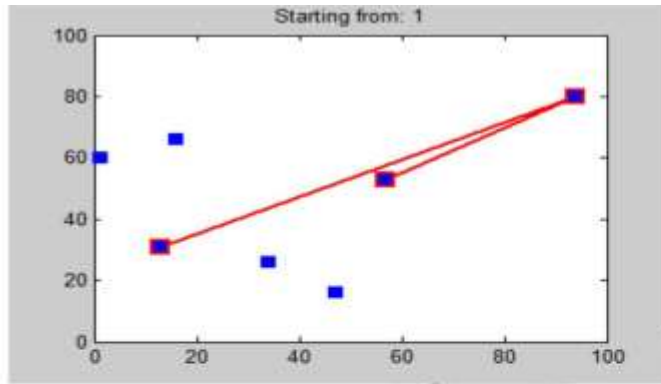


Figure 1: Example of how the nearest neighbor algorithm functions.

These are the steps of the NN algorithm:

1. Start at a random vertex
2. Determine the shortest distance connecting the current vertex and an unvisited vertex V
3. Make the current vertex the unvisited vertex V
4. Make V visited
5. Record the distance traveled
6. Terminate if no other unvisited vertices remain
7. Repeat step 2

5.3 TRILATERATION:

In geometry, trilateration is the process of determining absolute or relative locations of points by measurement of distances, using the geometry of circles, spheres or triangles. In addition to its interest as a geometric problem, trilateration does have practical applications in surveying and navigation, including global positioning system (GPS). In contrast to triangulation, it does not involve the measurement of angles.

5.4 HAVERSINE FORMULA:

This program calculates the distance between two locations (latitude and longitude) using the Haversine formula. The Haversine formula gives the shortest distance between two points over the earth's surface, ignoring elevation, hills, etc...

$$a = \sin^2(\Delta \text{lat}/2) + \cos(\text{lat}_1) \cdot \cos(\text{lat}_2) \cdot \sin^2(\Delta \text{lon}/2)$$

$$c = 2 \cdot \text{atan2}(\sqrt{a}, \sqrt{1-a})$$

$$d = R \cdot c$$

7. APPLICATIONS

1. Reduce crime.
2. To find out location of traffic easily.
3. Reduce use of receipt book.
4. Maintain Traffic Database.

8. CONCLUSION

In this paper we try to overcome the problem of store huge amount information of criminals record during periods of investigation time to retrieve and managing the data on cloud is solve from this android application through .And also overcome the problem of communication of police and user between by digitization police system.

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