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Implementation of Digitized Police System Using LBS and Clustering Technique

#1Amir Shaikh, #2Tamboli Aarif, #3Faizaan Sayyed,
#4Randale Saiprasad

1amirvalencia02@gmail.com
2aarifat24@yahoo.com
3akhan6220@gmail.com
4randalesai@gmail.com

#1234Department of Computer Engineering,
KJCOEMR Pune,
Savitribai Phule Pune University.

ABSTRACT

There is not any digitization in the current Traffic police system. With the help of our system we intend to bring smartness in the current Traffic Police system. Digitizing these systems will improve the efficiency of the systems. Digitizing can also give various advantages like reducing old paperwork, a detailed description of rules violated, ease of communication between common people and police, ease of police work etc. In today's world mobile and information technology have become an integral part of our lives. A new area where mobile integrated with technology is useful for reporting the violated rules since readily accessible information is not available at any point in the investigation. This is a major disadvantage for communication in police department. Thus, using Web Server we will try to make all the information related to the violated rules available on the Android Application to the police during the investigation which would speed up the entire process of tracking down the individual violating the traffic rules.

Keywords: Mobile Positioning, GPS, Geo-location, Server, Mobile Computing, clustering technique, Heuristic search, Client-Server, LBS-Technique.

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I. INTRODUCTION

Mobile devices such as mobiles/tablets are rapidly becoming an important part of human life. The mobile positioning capability, the service that identifies the location of mobile devices has become a captivating feature used in various applications such as check-in function on the social network. The record of traffic rules violation is also quite important to reveal the distribution area of the rules violated. Moreover, Police can identify the violated rule and update it on the app. The different traffic rules violated can be recorded.

[1].Mobile Positioning: It refers to determine the correct position of mobile devices. Mobile devices must be connected to the network in order to connect to google maps. With the help of Trilateration algorithm, the exact location of the mobile device can be traced. K-means clustering algorithm: k-means

follows a simple and easy way to classify a given data set through a certain number of clusters (assume k clusters).

Define k centers, one for each cluster. Centers should be placed in a cunning way because of different location causes a different result.
The next step is to take each point belonging to a given data set and associate it to the nearest center. When no point is spending, the first step is completed and an early group age is done. Re-calculate k new centroids as barycenter of the clusters resulting from the previous step.
A new binding has to be done between the same data set points and the nearest new center.
As a result of the generated loop, the k centers change their location step by step until no more changes are done.

Heuristic Search:
The heuristic search method is a technique designed for solving a problem more quickly when classic methods are too slow. It is useful in finding the best solution in reasonable time. In simple terms, heuristic function is a way to inform the search about the direction to the goal.

Global Positioning System (GPS):
The Global Positioning System (GPS), also known as Navistar GPS[or simply Navistar, is a global navigation satellite system (GNSS) that provides geolocation and time information to a GPS receiver in all weather conditions, anywhere on or near the Earth where there is an unobstructed line of sight to four or more GPS satellites. The GPS system operates independently of any telephonic or internet reception, though these technologies can enhance the usefulness of the GPS positioning information. The GPS system provides critical positioning capabilities to military, civil, and commercial users around the world. The United States government created the system, maintains it, and makes it freely accessible to anyone with a GPS receiver.

Client Server:
The client–server model is particularly a distributed application structure that partitions tasks or workloads between the providers of a resource or service, called servers, and service requesters, called clients. Often clients and servers communicate over a computer network on separate hardware, but both client and server may reside in the same system. A server host runs one or more server programs which share their resources with clients. A client does not share any of its resources but requests a server's content or service function. Clients, therefore, initiate communication sessions with servers which await incoming requests. Examples of computer applications that use the client–server model are Email, network printing, and the World Wide Web.

II. LITERATURE SURVEY

1. Crime Area detection and criminal record[2015]
Authors: Aanchal Dabhere, Aniruddha Kulkarni, Ketaki Kumbharkar
Description:
Using cloud, the Author tried to make all the information related to the criminals available on the Android App to the police during their investigation which would speed-up the entire process of tracking down the criminals. The Author made this App available to the common people in order to track down the safest path to reach their destination by giving noti_cations when chosen a
crime a_ected area and also providing an alternate route. In future, some other security algorithms can be used to provide better security measures for the criminal database.

2. A web based criminal record using Mobile device[2015]
Authors: Salam Ismail Rasheed Khanji, Asad Masood Khattak
Description:
The proposed system facilitates the police to record the location of crime using location-based services embedded in the mobile device. The crime record can be submitted to the data center through a secure network. the performance of CRYHELP can be enhanced by structuring crime reporting hierarchically according to user privacy preference settings. Furthermore, the interface can be enhanced to support video and audio or even perhaps more than a single image.

3. Data Mining based crime investigation System. [2015].
Authors: Aderonke Busayo Sakpere, Anne V.D.M. Kayem
This paper deals with the study of data mining based systems for analyzing crime information and thus automates the crime investigation procedure of the police officers. The majority of these frameworks utilize a blend of mining methods such as clustering and classification for effective investigation of criminal acts.

III. EXISTING SYSTEM

The present system is full of hassles and everything has to be done manually on paper.
It becomes quite difficult to fetch data records. The distribution area of the violated traffic rules cannot be known.
In the existing system, the surveyor used to make receipts manually.
Sometimes the surveyor used to not charge and didn't give a receipt. Many fraudulent activities were done like the receipt were not as per the penalty charges and only some part of the money was given to the government. Fetching of records was quite a tedious task. Thus we have proposed a system which will be fully digitized.

IV. IMPLEMENTED SYSTEM

Description:
This paper deals with the study of data mining based systems for analyzing crime information and thus automates the crime investigation procedure of the police officers. The majority of these frameworks utilize a blend of mining methods such as clustering and classification for effective investigation of criminal acts.
We will be developing an Android app for the surveyor(police) connected to the Central server in the Headquarter.
The aim of this application is to show the report from map and surveyor fills the details of the violated rules and store in the database and give priority to records to provide help to policemen in verification which will solve the problem in the investigation.
From this android, application flexibility is given to policemen in investigation and surveyor to manage them and its records.

Police department saves time for investigation.
The proposed system facilitates the police to record the location of crime using location-based services embedded in the mobile device. The crime record can be submitted to the data center through a secure network. the performance of CRYHELP can be enhanced by structuring crime reporting hierarchically according to user privacy preference settings. Furthermore, the interface can be enhanced to support video and audio or even perhaps more than a single image.The proposed system will consists of: Police Application, Web Portal.

GOALS AND OBJECTIVES

Using android app the surveyor (policeman) can easily update the record through his mobile.

The location of Police can be easily tracked with the help of GPS positioning using a geofencing technique. The Web Portal consists of all the database records fed into it by the policeman through the android app.
The database can be built with MySql technology.
The data can be analyzed and filtered with the help of Data Mining

Architecture Design:

The purpose of the system is to analyze report work of traffic policemen and store all the record of the violated traffic rules in the database. And show the report from map and surveyor can call the details of the crime and store it in the database and make a priority to records to give help policemen in verification and try to solve the problem faster. From this android application, we give flexibility to policemen in investigation and surveyor to manage them and its records. So police department saves time in the investigation process and gives fast result to the user.

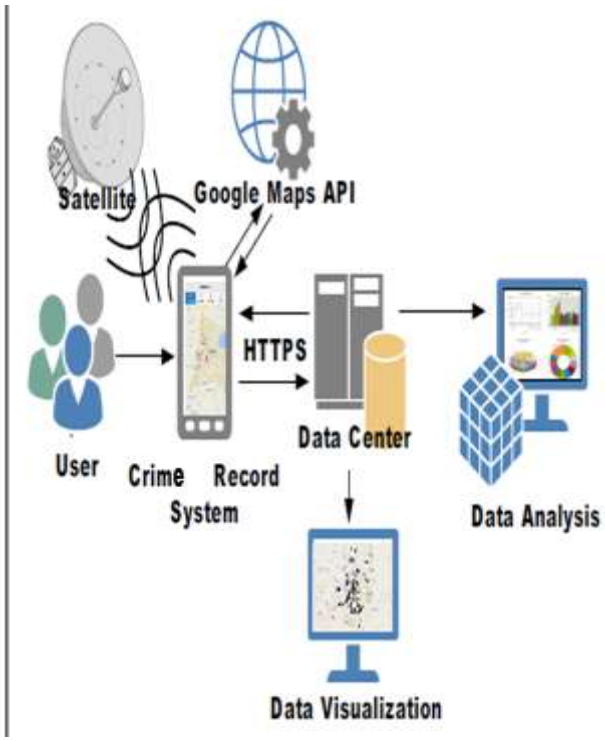
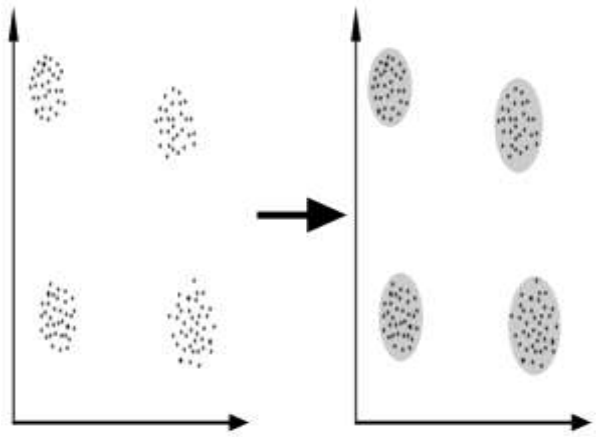


Fig. 1 Architecture Design

- **ALGORITHM**

Clustering:

Clustering can be considered the most important *unsupervised learning* problem; so, as every other problem of this kind, it deals with finding a *structure* in a collection of unlabeled data. A loose definition of clustering could be "the process of organizing objects into groups whose members are similar in some way". A *cluster*s therefore a collection of objects which are "similar" between them and are "dissimilar" to the objects belonging to other clusters. We can show this with a simple graphical example:



In this case we easily identify the 4 clusters into which the data can be divided; the similarity criterion is *distance*: two or more objects belong to the same cluster if they are "close" according to a given distance (in this case geometrical distance). This is called *distance-based clustering*.
Another kind of clustering is *conceptual clustering*: two or more objects belong to the same cluster if this one defines a concept *common* to all that objects. In other words, objects are grouped according to their fit to descriptive concepts, not according to simple similarity measures.

The Goals of Clustering is to determine the intrinsic grouping in a set of unlabeled data. But how to decide what constitutes a good clustering? It can be shown that there is no absolute "best" criterion which would be independent of the final aim of the clustering. Consequently, it is the user which must supply this criterion, in such a way that the result of the clustering will suit their needs. For instance, we could be interested in finding representatives for homogeneous groups in finding "natural clusters" and describe their unknown properties , in finding useful and suitable groupings or in finding unusual data objects.

Client-Server:
The client-server model is a distributed application structure that partitions tasks or workloads between the providers of a resource or service, called servers, and requesters called clients.

Usage Scenario

There are two or more users or actors which are a follows,

(a) User: User can enter valid user id and password.

(b) System: System consists of all databases and performs multiple tasks like performing Efficient attribute, removing key escrow.

V. RESULTS

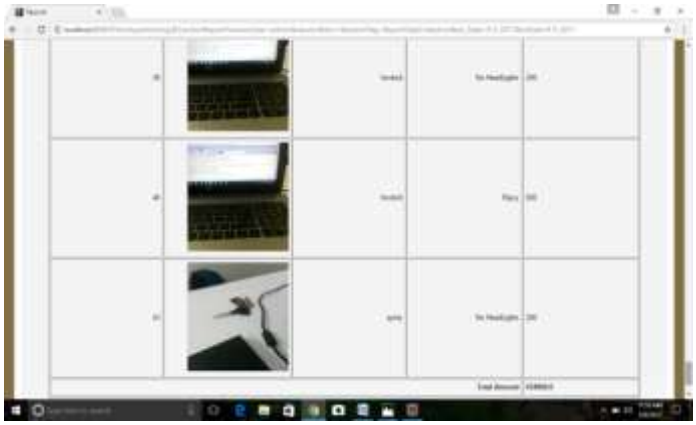


Fig 1.1

According to the survey done by our group members, these are the statistics obtained.
We can also obtain the statistics as per specific rules also. The violated rules are driving without helmet, No headlights to the bike or four wheeler, Riding triple seat on the bike. So we have got the results according to the violated traffic rules.

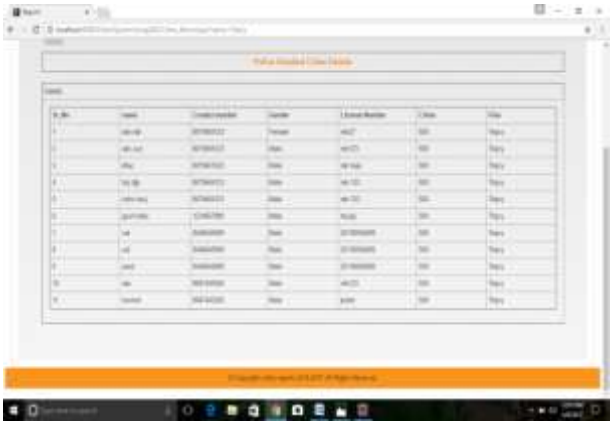


Fig 1.2 (triple seat stats)

As per the survey done , these are the overall statistics of people violating the triple seat rule for one month.

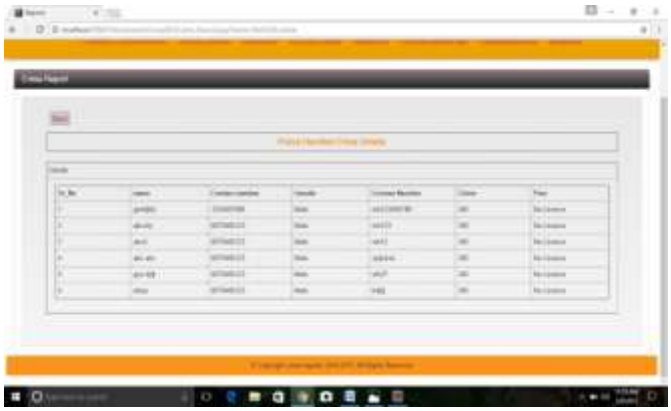


Fig 1.3 (No license)

As per the survey done, these are the overall stats of people driving without license.

Fig 1.4 (Graph chart)

These are the entire statistics of all the rules violated within one month. Thus the mostly violated traffic rules are driving without license and riding triple seat.

VI. SUMMARY AND CONCLUSION

From this application, them problem of storing huge amount information of the violated traffic rules during periods of investigation is solved and time to retrieve info is managed

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