Analysis and Mapping of Traffic Spots in City Transportation using Android System

Prof. L.R. Desai[1], Rahul Dhiwar[2], Manisha Kandewad[2], Priya Relekar[2], Aakanksha Ingle[2]

Professor, Dept. of Computer Engineering D.Y.P.I.E.T, Pimpri, India[1]

BE Student, Dept. of Information Technology, D.Y.P.I.E.T, Pimpri, India[2]

ABSTRACT: - Recently, with the faster development of various information technologies such as computer, communication a large amount of systems needs to be rapidly emerged for different applications. And every new emerging application system is an integrated with various and complex technologies. For instance, under the support of microcomputer and embedded operating systems, the functions of smart devices become richer. They continuously improve the travel quality and driving efficiency from all ways, so the number of vehicles equipped with smart devices increase greatly. For this reason, as a transport tool, vehicle starts to play important role.

KEYWORDS: Google Application Programming Interface, Web Services, Google Map, Android SDK, Android Development etc.

I.   INTRODUCTION

With continuously increasing number of vehicles, mainly in large cities, there are more and more abnormal traffic events occurring on road, which easily cause road congestion. Traffic spots are often the potential sites of interests due to the higher likelihood of events and opportunities (i.e. traffic jam, exhibitions and commercial promotions). Thus to make the people aware of traffic situations, the proposed system will analyse and represent it on google map implemented on the android systems. Many people are used to travel on daily basis, but due to high traffic on various routes they might face lot of problems in their work. Proposed system is helpful for not only the users who travel daily but also for the people who are new in the city and want to travel from one place to another place. Even though they don't know the exact location of place and route where they want to go they can easily use our proposed system while travelling.

Basically, the application will be such that user can use it in the online mode. Navigating user on the basis of traffic situations, example if user wants to move from Shivajinagar to Swargate that he/she may have more than one route. Thus to navigate user via the route which will have less traffic conditions on the basis of day to day or earlier survey. Thus this is the real time system whereas analysis will be done on the current survey. One of the major tasks in the Smart City study is identifying the crowdedness spots of moving vehicles in a city area. Informally, the crowdedness spots of vehicles can be described as area of more crowdedness of vehicles in city.

The crowdedness spots of extremely more crowdedness are usually the sites of over traffic. An immediate application of the crowdedness spot study is that we can predict vehicle speeds based on the actual crowdedness distribution in particular area. Indeed, crowdedness spots are often the potential sites of interests due to the higher likelihood of events and opportunities (e.g. traffic jam, exhibitions, and commercial promotions). However, it is hard to collect the location information of all the vehicles in the city because of the privacy issues or localization equipment limitations. The raw data set is from the City Traffic Bureau of a major city in China. The ultimate goal of this paper is to have a better understanding of city traffic via quantitative research on crowdedness spots and provide a best suited path to the user in terms of time and distance. Proposed system will provide best route by calculating and analysing the traffic on route and time required to reach the destination and gives us best route which take less time and less traffic.

Proposed system will overcome lot of issues that are not solved in earlier system or traditional system. Our aim is to only provide a best route with minimum time and minimum traffic so that user can feel good while travelling as well as it is an example of smart city. It will very helpful to make city smart.

II. RELATED WORK

To make our proposed system more strong lot of researchers have carried out their work in the area of recommender system in the past by using various techniques. These recommendations can be related to our application Analyzing and mapping traffic spots in crowdie area. Here in this paper we are considering recommendations system for traffic analysis and mapping a route towards the destination. This paper presents here a number of such techniques. In vehicular sensor networks (VSN), with the inter vehicle cooperative communication, vehicle nodes can find out the abnormal traffic events and disseminate the related information to the interesting vehicles or persons.

Various techniques such as mobility based clustering and searching crowdedness in highly mobile environment also there are various techniques that are also provides a fast and effective scheme for clustering. There are various limitations of many techniques that can be overcome by some other techniques. So we studied all techniques to overcome the drawbacks of earlier system to make our proposed system more helpful and advance system.

Crowdedness:- Crowdedness spot is a crowded area with a many number of objects. Detecting the crowdedness spots of moving vehicles in a city area is essential to many applications. An spontaneous method is to cluster the objects in areas to get the density information. Unfortunately, the data capturing vehicle mobility possesses some new features, such as highly mobile environments, supremely limited numbers of sample objects, and non uniform biased samples, and all these features have raised new challenges that make traditional density-based clustering algorithms fail to retrieve the real clustering property of objects, making the results less meaningful.

Clustering Moving Objects:- Due to the advances in positioning technologies, the real time information of moving objects becomes heavily available, which has used new challenges to the database research. As a long-standing technique to identify overall distribution patterns in data, clustering has achieved brilliant success in analyzing static datasets.

SEER: - Intelligent transportation systems have become more important for the public transportation in all countries. In response, various countries decided to provide abundant intelligent transportation services are used to improve the traffic condition. A challenging service in SG is to estimate the real-time traffic condition on surface streets. In this paper, we present an innovative approach SEER to tackle this problem. In SEER, we deploy a cost-efficient system of taxi traffic sensors. These taxi sensory data are found to be noisy and very lossy in both terms of time and space. By intensively mining the spatio temporal correlations along with the evolution of traffic condition, SEER provides more knowledge to setup statistical models for inferring traffic condition when they cannot be directly calculated.

Traffic data analysis:- Another work is focuses on the analysis of mobile traffic object data. They are mainly more interested in the finding areas of high traffic load. For instance, studied the problem of clustering path and proposed to use short data sequences as object movements. Also studied the path patterns for activity monitoring and studied traffic how patterns in road networks and proposed a density-based algorithm called Flow Scan. Kriegel introduced a statistical approach to describe the likelihood of any given individual in road networks to be located at a certain position and time. These works mainly focused on how to accurately measure and predict vehicle speeds when showing very limited insight into mobile vehicle clustering.

Other proposals suggested using dedicated sensors deployed on roads to perceive vehicle crowdedness. Coifman studied how to detect freeway incidents by traffic detectors on roads. Hollmén studied spatiotemporal road condition forecasting by Markov chains and artificial neural networks. Mo proposed the sustainable sensing in the forest. Yoon tried to detect traffic conditions on surface streets given location traces collected from on-road vehicles and infrequent low-bandwidth cellular updates. The current work assumed that the dedicated sensor devices had been deployed so that

the collection of vehicle crowdedness becomes straightforward. In our work, we do not have devoted sensors but employ mobile objects as "sensors" to perceive the crowdedness.

III.   COMPARATIVE STUDY

Sr. No.	Name	Working	Limitation
1	Towards Mobility based Clustering.	Mobility based clustering is a novel approach to identify hot spots and hot regions in a more mobile environment with extremely limited and biased samples.	1. Speed information is critical. 2. Factors besides spot crowdedness will have impact on the vehicle mobility.
2	Detecting Crowdedness Spot in City Transportation.	Identify crowdedness spots in a highly mobile environment with extremely limited object samples. The unique feature of mobility based clustering is to use speed information to infer the crowdedness of moving objects.	We need more field studies to further verify the effectiveness of the mobility based approach.
3	Continuous Clustering of Moving Objects.	Gives Fast and effective scheme for continuous clustering of moving objects. Gives dynamic summary data structure for clusters to enable frequent updates to the data without the need for global re-clustering.	We need to consider the time efficiency with respect to the interval length.

IV.   PROPOSED WORK

In the proposed system we develop the application based on GPS as well GPRS based system, which we can detect the high traffic areas in city roads. Basically given concept is belongs from vehicular network. In previous system they are not able to give appropriate path according to both Traffic and time. So we proposed a system that provides a best suited and appropriate path along with both the time and traffic. We study crowdedness spot categories and the crowdedness taxi acquisition from the detected crowdedness spots.
We calculate the performance of mobility-based clustering based on real taxi data collected in the city through field studies. When our system once installed can be used for various other purposes:

Smart Traffic Management uses traffic data obtained from multiple sources such as Google Traffic and Traffic updates from ground controllers can be used to slightly manipulate and vary traffic signal timings to ease congested roads.

In proposed system we will provide a new facility like sharing of path through the social networking sites like Facebook, Whatsapp as well as by Bluetooth also. So that user can share route to their friends also.

V.   CONCLUSION AND FUTURE WORK

In this paper, we presented a solution for the easy passage of emergency vehicles by means of pre-emption of signals at intersections. We plan to implement a small scale working model will demonstrate the network feasibility and feasibility that it can be implemented as a real world application. Traffic Signal Pre-emption if implemented can reduce times for emergency situations and increase road safety with minimum trouble to regular traffic. We have proposed

mobility-based clustering approach to identify crowdedness spots in highly mobile environment with extremely limited and biased object samples.

Development of an android application to find the less traffic path by analysing the real time dataset and mapping it on the Google map with respect to their time and distances. Usage of Google APIs, Google map and web services enhanced to learn web applications too. We used the sharing feature so that user can share the routes with other users with the help of social media applications and technologies such as email, Bluetooth etc. Applicable for the users particularly such as ambulance, fire brigades, police vans, any such kind of emergency vehicles to reach to destination as soon as possible.

VI.   ACKNOWLEDGEMENT

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