Prevention of Traffic through Inculcating and Sharing Information via Vehicular Cloud

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Abstract— What is the traffic? Traffic is the movement of people and goods from one place to another. The movement typically occurs along a specific pathway that can be called a guideway. With the ever-expanding economy of cars whole the world, traffic congestion is a severe problem that can have a bad impact on the economy, the surroundings, and human sentiment. Now today’s ordinary cars to tomorrow's self-driving cars increases in technology will enable vehicles to be prepared with highly complicated sensing devices, such as cameras. As vehicles achieve the ability to act as mobile sensors that carry useful and important traffic data, people and vehicles are sharing recognize data to increase the driving experience. This paper recapitulate a vehicular cloud service for road route planning, where users which is used this system (Application) collaborate to share traffic images by using their vehicles’ on-board cameras. We present the architecture of a conspire traffic image-sharing system called Social Vehicle Navigation, which allows users to drive vehicle to report vehicular cloud and then this cloud through share visual traffic data called NaviTweets. A group of NaviTweets is then infiltrate, refined, and compressed into a concise, user-friendly understanding information about the route of interest, called a Traffic Digest. These systematize can provide more pertinent and true information about the on road situation specially related to traffic and can aggregate predictions like estimated materialization, thereby supporting users’ route decision making. That’s why this paper presents the all information from requirement gathering to implementation, all content given in this paper all get implemented and running on the Android smartphone platform, that’s why increase congestion and pollution percentage so that this system By conveying advance adequate notification drivers could make educated decisions that would reduce the traffic congestion, improve traffic invulnerability, and reduce fuel and time

Key words: Navi Tweet, social sensors, SVN, traffic images, vehicular clouds, vehicular networks

I. INTRODUCTION

Considering the 21st century conventional cars to tomorrow’s self-driving cars, advances in technology will enable vehicles to be equipped with more and more easy going, comfortable sensing devices, such as cameras. As vehicles have the ability to act as mobile sensors working which carry useful and necessary traffic information, people and vehicles gives an opportunity of sharing sensing data to enhance and improve the driving experience. A group of vehicles that corporate compute, sense, communicate and physical resources can be coordinated and dynamically allocated to authorized users. This paper gives an idea about the vehicular cloud service for planning the route, collaborating the information, sharing the traffic information, images by using the on-board cameras. Authors presented the architecture of a collaborative traffic image-sharing system known as Social Vehicle Navigation (SVN), which allows drivers in the vehicular cloud to elaborate and share visual traffic information that is NaviTweets. A combination of NaviTweets information is then filtered, refined, and condensed into a concise, user friendly snapshots, images summary of the route of interest, called a traffic Digest. With the help of these digests a more pertinent and reliable information in front of the road situation is brought before us and understand the complement predictions like estimated time of arrival, that supports users to make the decision route. This paper brings an idea about the system design and a prototype implementation that run on the Android smart phone platform, along with its evaluation. Currently measuring attempts to alleviate traffic congestion via smart cars use mainly uses crowd sourced traffic data collected from GPS-equipped devices and to determine traffic speed and recognize traffic conditions. When we are provided to navigation systems, the information is used to present a list of recommendations that provide routes for trip planning. The majority of today’s systems anonymously pull GPS location information from mobile phone users available and also provided with the facility for non-android users or navigation systems to generate a live traffic map. The other conventional ways of reporting traffic conditions have mainly been through the police investigation, transportation methodology, drivers busy on phones, and traffic reporting companies also the news channels. Nowadays, as the technology is increased there is vast increase in real-time traffic updates on traffic congestion have become widely available and accessible through online maps, mobile cell phones, and GPS-equipped devices.

The implementation of the project that includes additional ideas basically is the open facility for the people to prevent from the traffic and to reach the destination as early as possible. Also the users incase not in the range will also be given the opportunity to send the text message.

The people involved in the traffic is also given the route planning accordingly by checking via vehicular cloud. The alternate route is suggested to the users available in the traffic and also the people getting involved in the traffic circle. The traffic circle is maintained at the place so as to avoid the increasing of the traffic. The users are notified about the traffic the entire situation being created in the place. The user will take the image of the north, east, west, south, direction from where he is been taking the snapshot.

Drivers’ route planning can be influenced by such traffic information that will consequently leads them to less congested routes. Planning is done by selecting a route from the available list of alternative routes calculated that supports factors like shortest distance or estimated time of arrival (ETA), taking real-time traffic data into account.

Fig.1 shows that this application used by number of person not a single person at a time. Vehicular cloud store each information related to traffic area like images, traffic...
area location its longitude and latitude, some text message and more important point is that inputted density of traffic by user store it .suppose same location different density entered then comparing all density select maximum density and then selecting max density then approximately define radius on the basic of max density.e.g max density*2.

II. PROJECT IDEA

The idea of the project was from the various accidents that takes place also the delay in reaching to the destination. The traffic that is caused due to enormous increase in the vehicles. As the tremendous increase in the technology the vehicles and the rush is quite increased that had caused crowd. The project was brought just to avoid the rush and the crowd, accident, delay caused.

III. RELATED WORK

A. Collaborative Sharing:

Drivers can work with full dedication in their service, in which other drivers subscribed to the same service can collaborate by sharing necessary information with regard to the request. Gerla et al. described Pièces-on-wheels, where images taken from on-board car cameras in the vehicular cloud are delivered to the customer on request. Due to the using of the mobile cell phone cameras it has become easy and also portable capture the live picture For example, an insurance company investigating a car accident can request pictures that were taken at a particular location at the time of the incident. Similarly, Hussain et al. introduced a service called Vehicle Witnesses as a Service (VWaaS), which utilizes mounted in-car cameras where vehicles provide pictures. However, the authors mainly focused on the security and privacy of the data exchange between entities.

Unlike traditional navigation systems, Waze is a navigation application that collects traffic related all data from users to provide collection traffic reports to a central server, where such information is shared with other user to provide real-time traffic and road information, such as the volume of traffic or accidents affecting traffic. Other navigation apps, such as Inrix Traffic, have included user-generated traffic reports, and after Google Maps added similar features in its mapping business. Moreover, recent research discussed the traffic information sharing traffic integration technique are used.

B. Traffic Information via Social Networking Services:

Due to the increased in day by day usage of social networking services (SNS) like Twitter or Facebook, users post events to inform or share information with one another. Research into which extracting and gathering useful information from SNS, especially the traffic information, has been conducted. In the authors proposed extracting traffic events from Twitter and, using natural language techniques, that classify them by the location mentioned and the type of traffic event. Similarly, Sakaki et al. extracted traffic-related Tweets along with location information based on keywords. Schulz et al. Suggested detecting small viral incidents, such as car/bike accidents from micro blogs by utilizing machine learning and semantic web page techniques, localizing the micro blogs by location and time to provide real-time detection of incidents. Tostesetal. investigated the relationship between Foursquare and Instagram check-ins to detect traffic movement and built a more efficient traffic condition predictor. D’Andrea et al. proposed a real-time system to detect from Twitter events relevant to traffic and to classify them by event type, such as traffic congestion, accidents, crash, or heavy traffic held due to an external event like a football game.

C. Route Planning:

In the field of transportation, it is necessary route choice behavior is associated with the decision-making process of route selection, and much research has been conducted to understand this complex behavior. Studies previously did not consider traffic images as part of the criteria for route selection; thus, there has been limited work on their role in route selection behavior. However, there are patent proposals and studies in the literature that apply or identify the usage of traffic photos in route planning. Hanche et al. proposed a method to install infrastructure that includes a amount of camera sensors that is spaced along major roads to provide traffic images, which are sent to a central station and then distributed to users. Users have a receiver that displays the images so they can preview the route ahead and make route choices. Proposed a navigation device that displays a route on a road map along with locations where visual traffic information exists.

D. Vehicular Social Networks:

A framework called Vehicular Social Networks (VSN) was introduced, which is an integration of social and vehicular networks where the goal is to construct a periodic virtual social community people who are simultaneously traveling on the same roadways. As an application of VSN, the authors presented Road Speak, a voice chatting system over VSN, which is used to facilitate communications between various commuters so they can share common views and interests.

SVN is another different application of VSN, which was first introduced in. The SVN version described in this paper differs in several ways. Firstly, a new design architecture is proposed which is to fit vehicular cloud settings. Second, a desktop web version of SVN was developed, and the latest version of the prototype was upgraded from OpenStreetMap (OSM) to the Google Maps platform, which currently incorporates all media file types (i.e., voice, images, and video clips). Third, the digest algorithm differs in that their is previous version that was based on time and space, whereas the current version is based...
on time, space, and causal relationship (e.g. car/bike accident causes traffic congestion mess).

Fig. 2: Example Scenario

IV. MOTIVATION OF THE PROJECT

The motivation to plan for this topic was to reduce the traffic that is been carried out in the place. The aim was to people to overcome from the basic problem that is traffic been faced by the people. The basic causes of the accidents are related to the traffic in the country. The other idea was to reduce the time required to reach the destination by a particular user. There are in numerous people working people consisting of the youth along that uses vehicles to reach the place wanted to. But unfortunately couldn't reach to the required destination just because of traffic. People have to leave their house beforehand just to reach the destination. In case if late, drive fast that leads to the causing of accidents. The motive was to provide an alternate path to the user so as to reach the destination on proper time. Even we prevent the traffic to get reduced rather than increase at a level.

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VI. ARCHITECTURAL DESIGN

This system includes the detection of the traffic been taken place at a particular place. This project readily presents the information that includes the time taken to free up the traffic and the users available. But the problem here is it only specifies the time going to take reduce the traffic apart from taking the external help in the conventional ways. It does not provide the alternate route that is fulfilled in the further proposed system to overcome the difficulties faced by the users. Also the users is given the authority to negotiate with the users getting into the traffic and notify them about the situation that is been held.

The system includes many of such features that overcome the disadvantage of the existing system. It includes the Collaborative Sharing that allow the drivers to specify the interest in selecting the route as well as sharing the information necessary. Also the pic-on-wheels service is provided for snapping the image of the traffic around. The second thing into consideration is the Traffic Information via Social Networking Services. This can be done using the services as Twitter, Facebook, share events etc. With the help of this the tweet is going to be send to the users relating the traffic information and the time required for the recovering to the original clear phase.

Fig. 3: System Architecture

Route planning is associated with the decision making in the selection of the route to reach destination. Studies at the further will also indicate that the route selected for avoiding the traffic is not as same to which place avoided.

VII. CONCLUSION

This paper described a vehicular cloud service for traffic control, route planning & important things drivers does not go as part of traffic, where cars obtain local traffic information from nearby cars in real time in contexts like text, images, and short images. However, too much information can make route planning even more difficult when processing it all. By GEO location concept current location and then appropriate all route get display after that calculate time required to goes to an destination is calculated. Then user select decision making used route. This paper introduced the use of traffic images provided through the vehicular cloud to assist drivers in route planning and route decisions. We proposed a social vehicular navigation system where driver generated geo-tagged traffic reports can assist other drivers in route planning. The traffic reports are called NaviTweets, and summaries are called Traffic Digests, which are composed and sent to drivers upon request. The paper presents the system design and the SVN prototype, along with performance and user-study evaluations.
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REFERENCES


