Learning Location Based Vertical Handovers In WIFI Networks

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Abstract- *Location-based services (LBS) enable mobile users to query points-of-interest (e.g., restaurants, cafes) on various features (e.g., price, quality, variety). In addition, users require accurate query results with up-to-date travel times. Lacking the monitoring infrastructure for road traffic, the LBS may obtain live travel times of pseudonym routes from online pseudonym route APIs in order to offer accurate results. Our goal is to reduce the number of requests issued by the LBS significantly while preserving accurate query results. Our proposed work, the user has an access to pseudonym router via an internet. Based on his present location he has to choose the destination point, and then LBS will communicate with server and shows you the nearest places of his choice.Also, we study parallel pseudonym route requests to further reduce the query response time. Our experimental evaluation shows that our solution is three times more efficient than a competitor, and yet achieves high result accuracy (above 99 percent).*

Keywords- K-NN Pseudonym, Route Analysis.

I. INTRODUCTION

Mobile ad hoc networks (i.e., decentralized networks created on the fly by hosts located in proximity of one another) are no longer just a research concept. Due to their aptitude to require minimal effort to setup, ad hoc networks are suitable for a wide range of applications, including battle field's communications and disaster recovery operations. In August of 2015, researchers at the National Institute of Standards and Technology (NIST) demonstrated an ad hoc network prototype for first responders in building fires and mines collapse. Unmanned vehicles (aerial, terrestrial, and aquatic) with autonomic operation of a few hours already can be sent to regions where human presence is deemed dangerous [3, 4], and they can form networks on the fly to report observations to command and control centres When the hosts (or nodes) of an ad network are mobile, the network is called a mobile ad hoc network (MANET). This proposed work focuses on a subset of MANETs, namely vehicular ad hoc networks (VANETs). The rest of this chapter presents several useful applications of vehicular networks and discusses other vehicles-based network solutions inSection 1.1. Section 1.3 discusses the characteristics of vehicular ad hoc networks and the challenges of routing and forwarding in VANETs. The Vehicular Adhoc Network (VANET) consists of vehicles that are designed using wireless communication technology. In recent trends, VANET mainly focuses on the application development which can be grouped as improving road safety, traffic efficiency, and maximizing the benefits of road users [26]. In VANET, research on routing is limited to vehicles of short distance. But in some applications, it is necessary to send data to far vehicles. This is carried out by connecting vehicle with Road Side Units (RSUs) [2]that are interconnected with each other through a high-capacity mesh network. When Vehicles and RSUs are equipped with onboard processing and wireless communication modules, the communications between vehicle-to vehicle and vehicle-to-infrastructure are directly possible when it is in range or also across multiple hops.With the help of Internet, the users of RSUs are allowed to download maps, traffic data, multimedia files and to check emails and news update. We refer these types of VANETs as Service-Oriented VANET [1] that provides data to drivers and passengers virtually. The basic communication architecture of VANET is shown in Figure 1.1.Here we classify our paper into five sections. In Section 1, a brief introduction about the importance of RSU is given. Section 2 tells about the related works. Section 3 is about the different routing protocols based on V2V communications. Section 4 is about the different routing protocols based on V2I communications. Finally, Section 5 ends with conclusion of the paper and the future works that can be done. In recent years, most new vehicles come already equipped with GPS receivers and navigation systems. Car manufacturers such as Ford, GM, and BMW have already announced efforts to include significant computing power inside their cars [5, 6] and Chrysler became the first car manufacturer to include Internet access in a few of its 2009 line of vehicles [7]. This trend is expected to continue and soon, the number of vehicles equipped with computing technologies and Mobile network interfaces will increase dramatically. These vehicles will be able to run network protocols that will exchange messages for safer, entertainment and more fluid traffic on the roads. Standardization is already underway for communication to and from vehicles. The Federal Communication Commission (FCC) in the United

States has allocated a bandwidth of 75MHz around the 5.9GHz band for vehicle to vehicles and vehicles to road side infrastructure communications through the Dedicated Short Range Communications (DSRC) [8] services. The emergence of vehicular networks would enable several useful applications, both safety and non-safety related, such as automatic road traffic alerts dissemination, dynamic pseudonym route planning, service queries (e.g., parking availability), audio and video file sharing between moving vehicles, and context-aware advertisement.

II. EXISTING SYSTEM

IEEE 802.11ah is a new sub-GHz Wi-Fi technology that provides several advantages over traditional Wi-Fi such as a higher communication range, enhanced scalability, and lower energy consumption, however at the cost of substantially lower throughput. This, however, compromises the energy efficiency of the device, as it implies concurrent utilization of different radio access interfaces. To mitigate this issue, the device should utilize the interface of a certain technology only when there is a high probability of establishing communication over that technology To address this issue, vertical handover algorithms based on the combination of devices' physical locations and either Radio Environmental Maps (REM) or propagation modelling have been proposed. Moreover, their suitability and encouraging performance have been demonstrated for a number of the established Low-Power Wide-Area Network (LPWAN) technologies

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III. PROPSED SYSTEM

When person desire to know destination information based on consumer's requirement say for illustration user needs to reach nearest ATM or hospital. He can get ATM or hospital information using internet service provider. However he wishes effective result with respect to travel time and fee (i.e. nearest pseudonym route). KNN-Pseudonym route analysis consequently person needs application that supplies all the expertise he desires. The proposed procedure entails almost always three predominant modules, user module, LBS module and Pseudonym route-Saver module. In user module user receives a location map includes locations, user location and pseudonym route map from user place (source) and possible destination. In our proposed work, the users require accurate results that are computed with appreciate to live traffic information. The entire works require the LBS to know the weights (travel times) of all road segments .Considering that the LBS lack the Infrastructure for monitoring road traffic, the above works are inapplicable to our problem. Some works try and model the entire works require the LBS to know the weights (travel times) of all road segments.

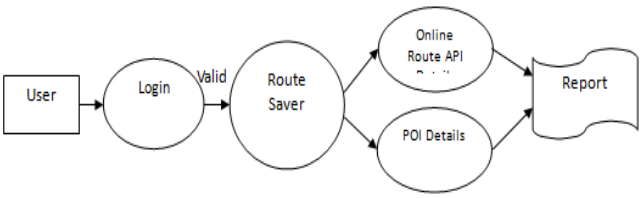
Considering that the LBS lack the infrastructure for monitoring road traffic, the above works are inapplicable to our problem. Some works try and model the travel occasions of street segments as time-various features, which may also be extracted from historical traffic patterns. These services may just capture the consequences of periodic events (e.g. rush hours, weekdays). Nevertheless, they nonetheless cannot reflect traffic information, which can be effected by sudden events, e.g. congestions, accidents, and road maintenance. The LBS module is responsible for accumulating the specified data from consumer and LBS generate optimized information which includes consumer's present area and pseudonym route log to the destinations. Then this information is transferred to the Pseudonym route-saver. Pseudonym route-saver utilizes the contemporary traffic understanding bought from traffic provider and calculates the journey time and most beneficial path to source and destinations by using Nearest Neighbor queries.

IV. MODEL DESCRIPTION

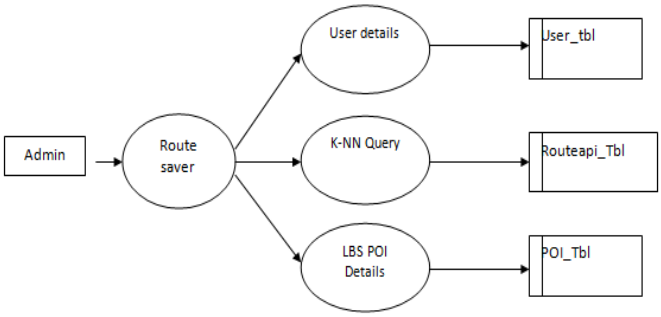
Multiple peer simulation Module
Server Module
Sharing-based nearest neighbour query visualization Module
Online query route API Module.

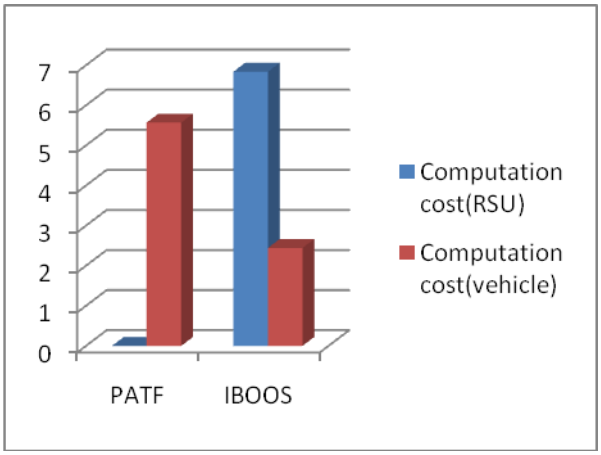
V. DATA FLOW DIAGRAM

LEVEL 0



LEVEL 1





EXPERIMENTAL SETUP

Calculation cost of the proposed validation conspire is investigated. The fundamental computations in RSU and vehicle side for VANETs check and key circulation are separately examined. For better portrayal, the point duplication and the matching activity are individually meant as p and e. The utilized secure hash capacities, augmentation, and outstanding activity are individually indicated as H, M, and Ex. The correlation results on calculation cost is appeared in figure where the estimated execution time is given concurring. As depicted above, bilinear matching is applied in the proposed configuration, offering progressed security properties. Note that the intricate matching counts are completely led in RSU side.

Scheme	PATF	IBOOS
Computation cost(RSU)	13.5174 ms	6.8363
Computation cost(vehicle)	5.5695	2.4416

Subsequently, better security affirmation can be given less calculation overhead for asset restricted vehicles, which is of importance to down to earth VANET situations. Moreover, to show the viability, the reproduction on the proposed confirmation plot is led regarding execution time for V2R validation measure is led. Accentuating on secure information transmission in asset obliged viable VANET situations, improved endorsement less validation instrument is proposed. Novel VANETs model with edge figuring foundation is received, where the RSU bunches cooperatively does essential activities. Considering this, safe verification configuration is built for V2R information trade. Note that autonomous meeting key for each real vehicle is given. Also, vehicle to vehicle information dividing between adjoining vehicles is mulled over. Proficient V2V bunch key appropriation measure is presented, where the unique key refreshing plan is ensured with CRT. Formal security examination is introduced, showing that the proposed plan can accomplish wanted security properties and give protection from different assaults. The introduced execution investigation demonstrates that the proposed conspire is more productive contrasted and the condition of expressions of the human experience.

V. CONCLUSION AND FUTURE WORK

This paper proposes the concept of location-based spatial queries for mobile computing environments. When a client issues such a query, the server returns, in addition to the result, a validity region for which this result is valid. Thus, before the client issues a new query at another location, it checks whether it is still in the validity region of a previous query; if yes, it can re-use the result. The experimental evaluation confirms the applicability of the proposed approach and shows that the computational and network overhead with respect to traditional queries is small. We believe that this work is a first but important step towards an important research area. Although spatial queries have been extensively

studied, to the best of our knowledge, there exists no previous work that studies validity regions. This concept can be extended to other types queries; for instance, region queries (e.g., find all restaurants within a 5km radius). In this case, the problem is more complex, conceptually and computationally, since the validity region is defined by arcs resulting from cycle intersections. The incremental computation of the query result based on validity regions is another interesting topic for future work. Consider that a mobile client sends a query to the server immediately after it exits the validity region. It is likely that the new result has significant overlap with the previous one. The incremental computation of the query results and the transfer of the delta (i.e., the new objects added into the result and the objects removed from it) can dramatically reduce the transmission overhead. In summary, location-based queries will play a central role in numerous mobile computing applications. We expect that research interest in such queries will grow as the number of mobile devices and related services continue to increase.

VIII. DECLARATION

Conflicts of Interest

No conflict of interest in this manuscript

Authors Contributions

Meiyalakan, Ezhilarasan was involved in data collection, data analysis & manuscript writing.

Author, AktharKhan, Gowtham, Dharanidharan was involved in conceptualization, data validation, and critical review of manuscripts.

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