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An Analysis of Shortestpath Protocal Using VANET Connection

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ABSTRACT: Vehicular ad hoc network (VANET) permits automobiles in imitation of communicate about the street yet are turning into a powerfully built solution to improve the visitor's safety. Both have confidence management yet privacy protection move standard roles of VANET but there needs in imitation of stand a trade off within them. VANET execute only improve the site visitors protection are assured in accordance with remain trustworthy. Which in turn possibly reason a band respect amongst it vehicles, need after consider the trust worthiness about the entities as send facts yet the credibility of the statistics earlier than identifying according to agree with between to them. To implemented the greedy perimeter stateless router protocol (GPSR) The high level exploit of that bill of exchange is an energy-aware about the everyday position based Greedy Perimeter Stateless Routing (GPSR) protocol In the proposed energy-aware GPSR protocol, referred to as much GPSR, we optimize the greedy forwarding mode as follows: a forwarding node preceding determines an accept of neighbour nodes the nodes to that amount according to the vacation spot than itself. The ounce of every such neighbour node is then computed after remain the volume regarding the fraction of the initial energy currently on hand at the close node then the development including the resolution regarding the near node Stability. To use this algorithm can be implemented to more efficient and shortest path solution.

KEYWORDS: Cloud computing; Resource allocation; Security; Quality of service.

I. INTRODUCTION

One of the first geographical routing protocols for mobile environments is GPSR [3]. It works in two modes. 1) Greedy forwarding mode in which packets are forwarded to the nodes that are geographically closer to the destination. If there is not any node closer to the destination, the greedy forwarding may come to a deadlock. In such condition, the forwarding node switches to the second mode. 2) Perimeter mode in which the node forwards the packet to one of its neighbors based on the right-hand rule. The forwarding node continues in perimeter mode until it finds a neighbor that is closer to the destination. Some mechanisms use nodes at intersections and street topology to make better routing decisions. For instance, GPCR [4] exploits an intersection detection mechanism using information of one- and two-hop neighbors. This information is obtained by periodically exchanging messages between neighboring nodes which imposes a high communication overhead. Geographic source routing (GSR) [6] is an intersection-based protocol in which the sender uses Djikstra shortest path algorithm to determine a sequence of intersections that a packet needs to traverse toward its destination by using the street map. This information is then included in the packet header to be used by all forwarding nodes in the path. Vehicle assisted data delivery protocol (VADD) [7] also uses street map. This protocol uses a store-and-forward technique at intersections to select the roads with the lowest estimated delay to the destination. In static-node assisted data dissemination protocol (SADV) [8], some static nodes at intersections are used to improve data delivery. When there is no vehicle available to forward a packet, the nearest static node stores the packet until a proper delivery path is available. A multi-path routing mechanism is also exploited in SADV to reduce data delivery delay at the cost of higher communication overhead.

None of the mentioned protocols takes the vehicular traffic information into account for making routing decisions. Therefore, they may lead to routing loops. The Greedy Traffic-aware Routing protocol (GyTAR) [9] takes

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the roads vehicular traffic into account to select the most reliable route. When a packet reaches a node at an intersection, the node selects an adjacent intersection toward the destination with the highest vehicular traffic, hoping that it provides better wireless connectivity. This leads to performance improvement comparing to other routing approaches. However, it uses a decentralized cellular traffic density estimation method which imposes high network traffic overhead. Moreover, routing may fail when no digital map is available.

We propose a new intersection-based geographical routing protocol for multi-hop data routing in vehicular networks for city roads. At intersections, nodes use both local traffic information in different roads and angle of roads aiming to find most reliable and efficient route for the given packet. Unlike most of the geographical routing protocols, our protocol does not need a digital map to find intersections. Instead, it develops a method using which each node dynamically detects whether it is at an intersection. This makes the TIGeR protocol also usable for places for which a digital map is not available.

II. RELATED WORK

VANET ACCESS POINTS

Given a road network with an Internet access point, the Research problem is to minimize the end-to-end delivery Delay of packets to the Internet access point. In this paper, we focus on one-way data delivery which is useful for the time-critical reports, such as vehicle accidents, road surface monitoring, and driving hazards [2]. We leave two-way delivery as future work. In this paper, we refer

1. Vehicle trajectory as the moving path from the vehicle's starting position to its destination position in a road network;
2. Expected Delivery Delay (EDD) as the expected time taken to deliver a packet generated by a vehicle to an Internet access point via the VANET
3. Carry delay as a part of the delivery delay introduced While a packet is carried by a moving vehicle;
4. Communication delay as a part of the delivery delay Introduced while a packet is forwarded among vehicles.

Our work is based on the following four assumptions: The geographical location information of packet Destinations, such as Internet access points, are available to vehicles. A couple of studies have been done to utilize the Internet access points available on the roadsides [6-7]. Vehicles participating in VANET have a wireless communication device, such as the DSRC device [1]. Nowadays, many vehicle vendors, such as GM and Toyota, are planning to install DSRC devices at vehicles [5].

Vehicles are installed with a GPS-based navigation system and digital road maps. Traffic statistics, such as vehicle arrival rate _ and average vehicle speed v per road segment, are available via a commercial navigation service, similar to the one currently provided by Garmin Traffic [1]. Vehicles know their trajectory by themselves. However, vehicles do not release their trajectory to other vehicles for privacy concerns. It should be noted that in the VANET scenarios, The carry delay is several orders-of-magnitude longer than the communication delay. For example, a vehicle takes 90 seconds to travel along a road segment of 1 mile with a speed of 40 MPH, however, it takes only ten of milliseconds1 to forward a packet over the same road segment, even after considering the retransmission due to wireless link noise or packet collision. Thus, since the carry delay is the dominating part of the total delivery delay, in the rest of the paper, we focus on the carry delay for the sake of clarity, although the small communication delay does exist in our design.

III. EXISTING SYSTEM

Recent workshop bear shown that such would lie superior for nodes in Wifi networks together with at all dynamic topology after hold a list on 2 hop neighbors, namely, the neighbors regarding its neighbors. This is important, for example, because routing, clustering, or advice broadcasting after whole the nodes of a devoted geographic vicinity. In it paper, we recommend a scheme that utilizes Bloom filters for maintaining 2-hop information. Furthermore, we advanced a young 2-hop broadcast algorithm making use of the unique habit concerning our Bloom filter encoded near information. We especially focus of the Vehicular Ad Hoc Networks (VANETs) application scenario. Here, beaconing is a fugitive broadcast over awareness messages via each to its instantaneous neighbors. An approach would in

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imitation of consist of whole 2-hop neighbors among every message; however would action solely because of little then sparse scenarios. We exhibit that our method substantially reduces the thoroughness about the sound messages, thereby retaining race assign or adulation likelihood substantially lower than between the naïve scheme. We further display the utility of our Bloom filter based 2-hop near table for developing greater layer protocols and a multi hop broadcast protocol known as Bloom Hopping.

Disadvantages

- It is high network problem is occurred.
- It is less efficient using this algorithm.
- It is no having scalability.
- To not have a shortest path solution.

IV. PROPOSED SYSTEM

To use this algorithm can be implemented to more efficient and shortest path solution. It is implementing to the most convenient of user side to VANET. The high level exploit of that bill of exchange is an energy-aware about the everyday position based Greedy Perimeter Stateless Routing (GPSR) protocol.

In the proposed energy-aware GPSR protocol, referred to as much GPSR, we optimize the greedy forwarding mode as follows: a forwarding node preceding determines an accept of neighbour nodes the nodes to that amount according to the vacation spot than itself.

The ounce of every such neighbour node is then computed after remain the volume regarding the fraction of the initial energy currently on hand at the close node then the development including the resolution regarding the near node Stability. To use this algorithm can be implemented to more efficient and shortest path solution.

Advantages

- To use shortest path algorithm
- To send more data without any network problem
- To connected VANET and GPSR can be access easily with more effcient.
- All the data are high securely access with VANET connection

V. METHODOLOGIES

Neighborship information is the underlying basis for routing, clustering, and message dissemination in mobile ad hoc networks. Yet, for highly dynamic topologies, this still constitutes a fundamental research problem, particularly if 2-hop neighbor information are needed. This particularly holds for highly dynamic wireless networks like VANETs, where protocols need to maintain as accurate as possible 1- hop [5]–[8] or 2-hop [9]–[12] neighbor information.

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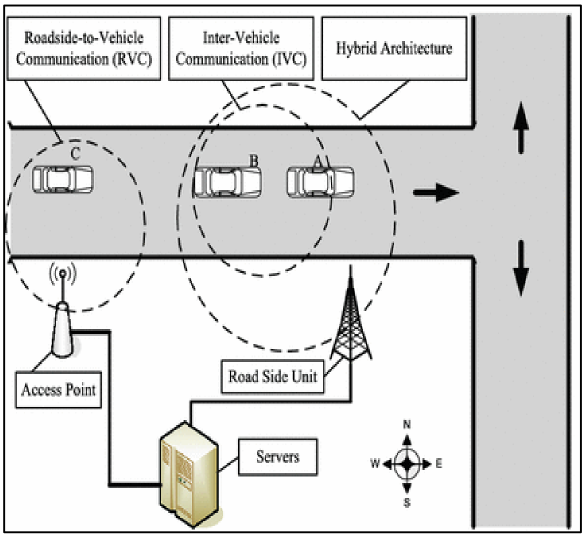

Fig 5.1 System Architecture

Network Formation

We consider a VANET in which numbers of vehicles are separated by certain distance (between consecutive vehicles). The VANET is purely based on vehicle-to-vehicle (V2V) architecture. We assume that vehicles move on a road . All vehicles are equipped with GPS. Each vehicle is loaded with a location digital map and is concerned about road information ahead of it on its way to forward direction. A lane segment ends at an intersection. Each vehicle is equipped with an agent platform to support the proposed agency.

Traffic Monitoring

The protocol performs real-time traffic monitoring using an active mechanism. The primary mechanism for active monitoring is probe message. Probe message is a packet that is periodically sent by each node in the network. A node which is located near a street vertex sends a probe message and it is forwarded to the next nodes along the street edges that are incident to the street vertex. The probe message is dropped if there is any network gap along the street edge. If the probe message is delivered to the destination vertex then nodes near that vertex become aware that the vertex is traversable at that moment and a return probe message is sent back to its original sender. The probe messages include each forwarding nodes geographic position and address. They also include the address and geographic position of their original sender, and the position of their destination vertex. Hence the probe message contains known edge list which identifies edges by their end point geolocations and communicates reliability information about each edge along the path.

Link Prediction

The vital part of the protocol is its ability to predict approximately the lifetime of a particular street edge. This helps to determine the most suitable path from a sender node to a receiver node. The link in the street graph would be the edge. Lifetime of the link is determined based on the distance between the neighboring nodes along the particular edge. After identifying the neighboring nodes, distance between each of them would be computed based on each nodes position in every two seconds. The communication link lifetime information would be updated in the routing packet. The route request send by the sender node reaches the destination node along the different available paths. The destination node sends route reply message along the most reliable path which is having favorable link lifetime. If a next hop node is not found, then probe messages are sent and the neighboring nodes are identified. And again the link lifetime would be computed.

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Bloom Filter implementation

A novel probabilistic 2-hop neighbor management approach using Bloom filters for application in dynamic wireless networks. Compared to alternative solutions, the use of Bloom filters provides best scalability of the system that comes at the cost of a small false positive rate. We analytically explored the Bloom filter properties for this application field and determined best suited Bloom filter sizes to keep this false positive rate marginally small. This also helps to prevent overload on the wireless channel. We also explored the capabilities of our solution to build a fundamental basis for higher layer protocols. As an example, we designed the multi-hop broadcast protocol Bloom Hopping, which very efficiently selects forwarders using the Bloom filter encoded neighbor information.

Performance Evaluation

The method to improve reliability in position based VANET reliable routing protocol, Bloom filter, was discussed. The analysis shows that reliability in RIVER protocol could be improved by incorporating it with link lifetime prediction. It provides higher data packet throughput and reduced transmission time. Further researches have to be conducted in the area of network densities.

VI. CONCLUSION AND FUTURE WORK

CONCLUSION

With the increasing popularity of vehicular Ad-Hoc networking, we believe that our forwarding scheme opens the first door for exploiting the potential benefit of the vehicle trajectory for the performance of VANET networking. As a future work, we will develop a data forwarding scheme from stationary nodes (i.e., Internet access points) to moving vehicles for supporting the Infrastructure-to-Vehicle data delivery in vehicular networks. This reverse forwarding to moving vehicles is needed to deliver the road condition information such as the bumps and holes for the driving safety. However, this reverse data forwarding is a more challenging problem because we need to consider both the destination vehicle's mobility and the packet delivery delay

FUTURE WORK:

Future implementation will investigate the impact of data traffic volume on the trajectory-based data forwarding in light-traffic vehicular networks and develop a data forwarding scheme considering the data traffic volume, the vehicle trajectory, and the vehicle contact time for communications along the road segment.

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