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Traffic Detection Algorithm Using In Extended Floating Car Data System Improve the Detection Rate and Level of Services

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ABSTRACT: *In Controller area Networks (CANs), authentication is a crucial security requirement to avoid attacks to both inter-vehicle and vehicle-roadside communication. Vehicles have to be prevented from the misuse of their private data and the attacks on their privacy. This paper presents the results of a set of extensive experiments carried out under both daytime and nighttime real traffic conditions. The data were captured using an enhanced or extended Floating Car Data system (xFCD) that includes a stereo vision sensor for detecting the local traffic ahead. In this paper, we investigate the authentication and privacy issues in CANs. In this architecture vehicles are dynamically clustered according to different related metrics from these clusters, a minimum number of vehicles, equipped with IEEE 802.11 are selected as vehicular gateways to link CAN. Issues pertaining to gateway selection, gateway advertisement and discovery, service migration between gateways when exchanging messages between vehicles, there are network issues that must be addressed, including the hidden terminal problem, high density, high node mobility, and data rate limitations. Road Side Units (RSUs), vehicles (users) and a Regional Trusted Authority (RTA). In this paper, we consider a CAN consisting of a city lay and highway, finite numbered registered RSUs nodes along roads and a large number of vehicles on or by the roads. Our proposed model to use traffic detection algorithm improve the network performance and efficiency network. We suppose that, the RSUs are always reliable, while vehicles on city ride and in highway ride is used analyze the various metrics and compared with different routing protocols such as AODV, DSDV, DSR in simulation*

KEYWORDS: *xFCD, CANs, RSUs, DR, RTA, TCL, AODV*

I. INTRODUCTION

The benefit expected from vehicular communications and the huge number of vehicles, it is clear that vehicular communications are likely to become the most relevant realization of mobile ad hoc networks. The appropriate integration of on-board computers and positioning devices, such as GPS receivers along with communication capabilities, opens tremendous business opportunities, but also raises formidable research challenges.

They have many people around the world die every year and many get injured. Implementation of safety criteria's such as speed limits and road conditions are applied but still more work is required. This require use of Controller area Networks (CAN) - is a technology that apply on moving cars as nodes in a network to create a mobile network. CAN turns every participating car into a wireless router or node, allowing cars approximately 100 to 300 meters or more according to the protocols used in CAN of each other to connect and, in turn, create a network with a wide range. The range can vary according to the algorithms and protocols applied and implemented. As cars fall out of the signal range and drop out of the network, other cars can join in, connecting vehicles to one another so that a mobile Internet is created. It is estimated that the first systems that integrate this technology are police and fire vehicles to communicate with each other for safety purposes. Such network comprises of sensors and On Board Units (OBU) installed in the car as well as Road Side Units (RSU).

The so-called floating car data (FCD) refer to technology that collects traffic state information from a set of individual vehicles that float in the current traffic. Each vehicle can be seen as a moving sensor operating in a distributed network. It is equipped with global positioning and communication systems, transmitting its global location, speed, and direction to a central control unit that integrates the information provided by each one of the vehicles. FCD systems are being increasingly used in a variety of important applications since they overcome the limitations of fixed traffic monitoring technologies. If this system achieves a sufficient penetration rate, the service quality in urban traffic would be sufficient. The CAN have given bundles of benefits to organizations without any discrimination with size. Transformation of the vehicle's on-board computer from a nifty gadget to an essential productivity tool has been done by Automobile high speed Internet access, making virtually any web technology available in the car. While such a network does have certain safety concerns, this does not limit CAN’s potential as a productivity tool.

performance. To based on improve the detection rate and to reduce the packet delay on their network. Compare with existing model to improve the network performance and high level throughput performance on the network.

Here we have take a more parameters on the network. There are throughput, delivery ratio, packet delay, and network energy level on the network. In this controller area networks are totally different from the other networks.

II. RELATED WORK

The elaboration of data collected by vehicles moving on road network is relevant for traffic management and for private service providers, which can bundle updated traffic information with navigation services. Floating data, in its extended acceptation, contains not only time and location provided by a positioning system, but also information coming from various vehicle sensors. In this paper we describe our extended data collection system, in which vehicles are able to collect data about their local environment, namely the presence of road works and traffic slowdowns, by analyzing visual data taken by a looking forward camera and data from the on-board Electronic Control Unit [1].

Floating Car Data (FCD) fleets are a valuable data source to obtain travel times as basis for traffic information or route guidance systems. To deliver reliable traffic information and to improve algorithms and systems for generating FCD from GPS positions their current quality has to be evaluated first. In this contribution the travel times from actual vehicle trips are compared with travel times for each edge on those trips as they result from the FCD algorithm. About 540,000 trajectories generated by more than 4,000 taxis at the four Wednesdays in October 2010 are the basis for this comparison.[3].

The paper presents a new application enabled by Vehicle-to-Vehicle (V2V) communication systems; our target is to combine V2V with Floating Car Data (FCD) systems and merge advantages of both: the V2V application warnings to enhance the FCD traffic information precision as well as the information availability; inversely, V2V communication can also benefit from the FCD system and offer some large-scale road network traffic information. We present some architecture modifications which are needed to realize this new application, both in terms of in-vehicle components as well as the networking requirements. The proposed approach is to be built upon the existing infrastructure of FCD system to lower the implementation cost [4].

This paper presents the results of a set of extensive experiments carried out in daytime and nighttime conditions in real traffic using an enhanced or extended Floating Car Data system (xFCD) that includes a stereo vision sensor for detecting the local traffic ahead. The detection component implies the use of previously monocular approaches developed by our group in combination with new stereo vision algorithms that add robustness to the detection and increase the accuracy of the measurements corresponding to relative distance and speed. Besides the stereo pair of cameras, the vehicle is equipped with a low-cost GPS and an electronic device for CAN Bus interfacing. The xFCD system has been tested in a 198-minutes sequence recorded in real traffic scenarios with different weather and illumination conditions, which represents the main contribution of this paper [8].

An experimental implementation of a QoS-aware hybrid routing protocol that uses a flexible mix of proactive and reactive routing techniques within Mobile Ad hoc Networks (MANETs). After a brief review of the benefits and applications of proactive, reactive (on demand) and hybrid routing, the architectural details and protocol operation of SRC’s “Wireless Ad hoc Routing Protocol” (WARP) are given. This paper then discusses the laboratory testing methodology used during the development of WARP, and gives an experimental comparison of WARP with a proactive routing protocol – namely Optimized Link State Routing (OLSR).[10].

A hybrid deposit model for low overhead communication where in the sender directly deposits messages into the destination user-level memory. The destination address is a function of both sender state and destination state. The motivation is to increase the sender´s role in communication in order to simplify the destination´s role and thus enable fast, low-cost communication interfaces. The model separates data delivery from synchronization so as to enable the optimization of simple data delivery while leaving more difficult synchronization to other mechanisms. With hardware support, the hybrid deposit model looks promising for applications in parallel, distributed, and real-time computing [13].

III. PROPOSED APPROACH

These are also similar to MANETs in many ways. For example, both networks are multi-hop mobile networks having dynamic topology. There is no central entity, and nodes route data themselves across the network. Both MANETs and CANs are rapidly deployable, without the need of an infrastructure. Although, MANET and CAN, both are mobile networks, however, the mobility pattern of CAN nodes is such that they move on specific paths (roads) and hence not in random direction. This gives CANs some advantage over MANETs as the mobility pattern of CAN nodes is predictable. MANETs are often characterized by limited storage capacity and low battery and processing power.

CANs, on the other hand, do not have such limitations. Sufficient storage capacity and high processing power can be easily made available in vehicles. Moreover, vehicles also have enough battery power to support long range communication. Another difference is highly dynamic topology of CANs as vehicles may move at high velocities. This makes the lifetime of communication links between the nodes quite short. Node density in CANs is also unpredictable; during rush hours the roads are crowded with vehicles, whereas at other times, lesser vehicles are there. Similarly, some roads have more traffic than other roads.

The Traffic Detection algorithm for this purpose, the original source of the message or the node that is responsible for this cancelation or extension should broadcast a message. This message is similar to the original message except that the new time should be considered instead of the previous time; for cancelation, the time should be zero. In addition, the revision of the message should be increased by one. We called this message the supplementary message. It should broadcast until the drop off strategy for the source node stops it from rebroadcasting (the same strategy for the original source).

In proposed method various routing metrics are evaluated in different literatures to signify the importance and measuring purposes of numerous routing protocols. The collected information is then used to propose a novel approach to the level-of-service (LOS) calculation. This calculation uses information from both the xFCD and the magnetic loops deployed in the infrastructure to construct a speed/occupancy hybrid plane that characterizes the traffic state of a continuous route.

IV. TRAFFIC DETECTION ALGORITHM

```
Source-S Destination-D T-Traffic Q-queue
        If S-->D
            Route_Discovery ()
            Route reply ()
            S-->D
            Nodes. Neighbor list ()
        Get node id, pkt information
           If network= new_nodes then
                 Check any traffic T
           If    network=traffic then
                Q queue check to D
             Else
               Traffic Detection to D
           Else if
               Occur traffic T
          If network ≠ T
               Route data to D
            Else
               Dropped Packets
               Neigh_ vehicle ()
          End if
```

PERFORMANCE ANALYSIS

Aim of our simulation to analyze the performance of the AODV by using, (CANs) Controller Area Networks. The replication surroundings are produced in NS-2, in that provides maintain for a wireless networks. NS-2 was using C++ language and it has used for an Object Oriented Tool Command Language. It came as an extension of Tool Command Language (TCL). The execution were approved out using a environment of wireless mobile nodes rootless over a simulation area of 1200 meters x 1200 meters level gap in service for 10 seconds of simulation time [8]. The radio and IEEE 802.11 MAC layer models were used. The network based data processing or most expensive and data communication level on their performance on the network. Hence, the simulation experiments do not account for the overhead produced when a multicast members leaves a group.

Multiple sources create and end sending packets; each data has a steady size of 512 bytes. Each vehicle node to move randomly on their network, it's more and most expectable on their networks.

Table 1: Network Parameters

Parameters	value
version	Ns-allinone 2.28
Protocols	AODV
Area	1200m x 1200m
Broadcast Area	250 m
Transfer model	UDP,CBR
Data size	512 bytes

PERFORMANCE RESULTS

The simulation scenario is calculated particularly to charge the collision of system concentration on the presentation of the network model. The collision of arrangement density is deploying 30 –71 nodes more than a permanent open area topology of 1200m x 1200m using 5m/s node speed and 3 identical source-destination connections. AODV have a quantity of metrics that can be used for their performance network.

SIMULATION RESULT:-

Table 2: Compression Research

No	Nodes	Method	Throughput	Avg Delay	P.D.F
1.	0-100	VD-CAN	0.68	30.00	88.05
2.	0-100	TD-CAN	0.85	18.86	93.73

THROUGHPUT PERFORMANCE

The ratio of throughput performance overall network performance improve network performance and packet delivery ratio and minimize packet delay.

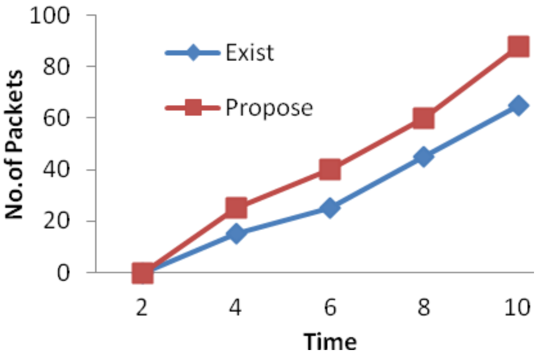

Fig1. Performance of throughput

THE DATA DELIVERY FRACTION:-

The packets are delivered from source to destination on their network. It is calculated by dividing the number of data received by ending state through the quantity package originated from starting point on network.

$$PDF = (Pr/Ps)*100$$

Where Pr is total Data received & Ps is the total data sending on their network.

The End-to-End delay:-

They have calculate a average number of delay on network, it includes all possible delay caused by buffering through route detection latency, queuing at the border queue, retransmission delay on medium access control, spread and move time.

$$D = (Tr - Ts)$$

Where Tr is receive Time and Ts is sent Time.

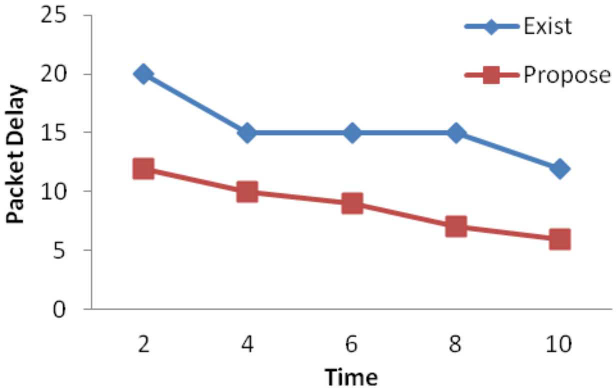

Fig2. Performance of delay ratio

V. CONCLUSION

We have presented scheduling dynamic traffic congestion aware routing algorithms for scheduling in multi-hop wireless networks. The algorithms approximate the performance of perfect matching type scheduling randomly closed. A key feature that allows the DTCAR algorithms to have low complexity it another way of S-DTCAR is that neither algorithm attempts to find a perfect maximal matching.

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