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Intersection RSU in Vanet

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Intersection RSU in Vanet

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Keywords: vanet, intersection Rsu, broad casting at intersection.

I. Intorduction

In this type of a network the vehicle is equipped with communicating devices like gprs, computer operated radio model, forward radar, location tracking device, display. This equipped vehicle is allowed to communicate with another vehicle. Only condition for communication is the range of both vehicles. This network is named as VEHICULER ADHOC NETWORK. Main intention of this network is to provide safety to car and comfort to driver.

II. Related Servy

a) Real time Servy

In [1] & [2] Some real time examples of vanet are described. This are the projects of US and Germane government. [1] is ITS connect vehicle project developed by department of transportation [dot] U.S. According to them Transportation Safety is the topmost priority of this project. Their expectations from the system are as follows

- system must Prevent or minimize the severity of crashes
- Minimize driver workload i.e. driver should not be busy in giving inputs to system
- Ensure that to do not disturb driver while driving
- All road users are taken in to consideration
- The system is making sure that safety applications like radio frequency or tracking devices cannot be turned off.

After detail study of this system we can conclude that this system is revolution in the world of vanet. It is achieving all its goals and expectations. But this system is facing some problems like memory of the devices, cost of road side installment, increased cost of new cars, ownership issues with investors, revenue generation after one time installment will grow slowly which will directly question to profit. Most importantly this system does not concentrate on problem accidents at intersection.

[2] FleetNet is another real time example of vanet. It is developed by German Bundesministerium. The objectives of this project are

- To develop a communication platform Which will help for inter-vehicle communications
- To implement demonstrator applications
- To develop promising introduction strategies
- To standardize the solutions found in order to improve drivers' and passengers' safety and comfort Application of FleetNet are as follows
- Cooperative driver assistance which includes Overtaking assistance, Obstacle warning
- Traffic jam monitor Route weather forecast
- User communications and information services like distributed games, mobile advertising, hot spot internet accesses.

As FeepNet is totally based on the position based routing technique it is also having some drawback of PBR. This system is assuming that vehicle is all aware of the geographical area. But in case of vehicle new for the system then routing can not be handled properly. Memory required for storage is more as compared to first system. Data security is another issue faces in this system. Most importantly FleetNet also does not provide any attention to intersections problem.

So finally we came to analysis that actual work is done only on security, data transmission, etc but one of the main reason of accidents may get neglected. We had also surveyed some reason s of accidents.

[3] Is the survey of accidents happen in India in year 2013 to 2015 and it is stating that more than 40% of accidents happen at the intersection. Main reason behind this is driver from one road is unaware about the vehicle and speed of vehicle on another road. So if someone at intersection is kept to just notify that vehicle is coming towards the intersection then this problem can be solved. And no of accidents happening at intersection can be reduced. So what are available solutions to this we can keep signals to all intersection or we can keep one traffic police at intersection. Both

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this solutions are impossible to implement in country like India. Because keeping signals at intersection will increase unnecessary waiting time and it also degrade the performance of the vehicle. Second option is also not good solution because it needs no of employees to be recruited. So here comes idea about the inter section RSU.

III. Related Search

Till now we have observed what happened at intersection with respect to vehicle. Or we can say taking accidents into consideration. Now we have to consider that what happen at intersection with respect to package loss. For fast delivering packets we need connectivity in network. As we know node stability is major challenge in Vanet. Packets may loss due to poor connectivity.

In [4] This paper technique of connectivity of a routing path is discussed. The direction of packets may change at point of turn or intersection. Packets have options when it come at intersection it may select wrong intermediate intersection due to which it can loss packet. Author introduce back bone node which takes care of void regions on road, disturbances created by changing source and destinations positions. These back bone nodes are divided in two types first is intersection backbone node and another is back bone node at road segment this nodes are responsible for maintenance of connectivity at intersection. This system proposes a distance based greedy routing protocol whose aim is to reduce the end-to-end delay. This delay is reduced by a routing path which includes the minimum number of intermediate intersections.

So after studying this paper we came for observation that here packet loss problem is solved by minimizing number of intersections. Or we can say this system is avoiding that path which is having more intersection.

In [5] In this paper authors presented broad casting approach in Vanet, Specially for the intersection. Vehicle may come across the communication range of other vehicle at the intersection. Which will results in cancellation of rebroadcasting, miss guided message, hidden terminal problem, negative effect, etc. This paper proposed the system in which vehicles are classified into six classes based on their location; this will help to reduce negative effect.

This paper is somehow manages the problems faced at intersection with respect to broadcasting. But still this system fails to inform driver regarding vehicle coming towards intersection.

IV. Proposed Work

In proposed research work first we create a VANET system which will maintain the an intersection for every turning points it will maintain every node location which is arrive in that area.

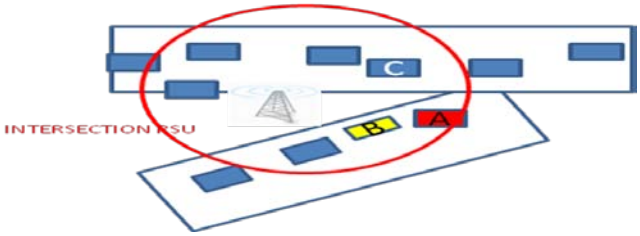

Figure 1 : Fig showing proposed work system

This RSU will also inform all vehicles coming within its range that how many vehicles are taking turn or going straight. This project we presented an improved scheduling algorithm for Vehicular Ad-Hoc networks (VANETS). Such algorithm is required for improving the throughput of the network. The algorithm differs from basic scheduling algorithm which was used before due to the fact that it has better throughput capability and more stable on a cluster with growing number of cars.

V. Simulaton Results

As we have proposed intersection RSU. Our simulation results will have road vehicles and road intersection.

The fig 2 explains the vehicular network construction

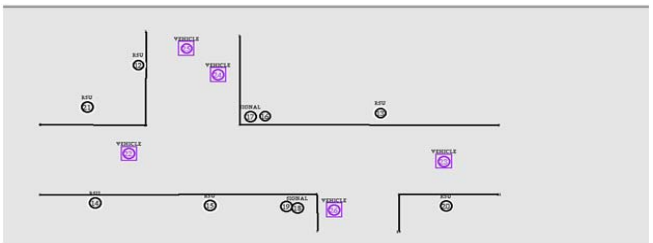

Figure 2 : Result after simulation

RSU is road side unit which is located in road side. i.e. this is result of first module “initialize network”. Here we have just organized vehicles on road and various attributes like speed, starting point, ending point, color of vehicle, RSU are set

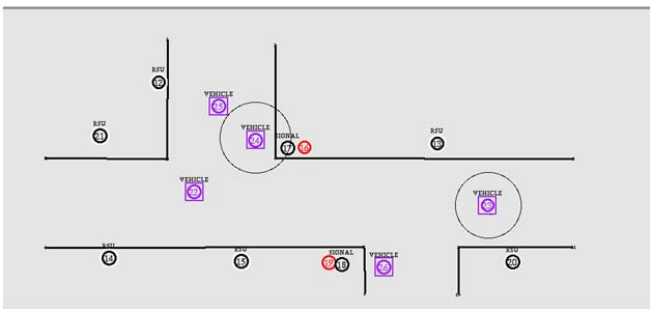

Figure 3 : Intersection Rsu Communication

The fig 3 explains broadcasting the information at the intersection point of junction, vehicle 24 transmits

information to nearest vehicle communication this is actual screen shot after intersection RSU is introduce in system So our proposed work intersection RSU is implemented here. Other work like cluster making and relay node selection we will implementation we will do in future scopeAfter the text edit has been completed, the paper is ready for the template. Duplicate the template file by using the Save As command, and use the naming convention prescribed by your conference for the name of your paper. In this newly created file, highlight all of the contents and import your prepared text file. You are now ready to style your paper; use the scroll down window on the left of the MS Word Formatting toolbar.

VI. Performance Analysis

a) Result analysis

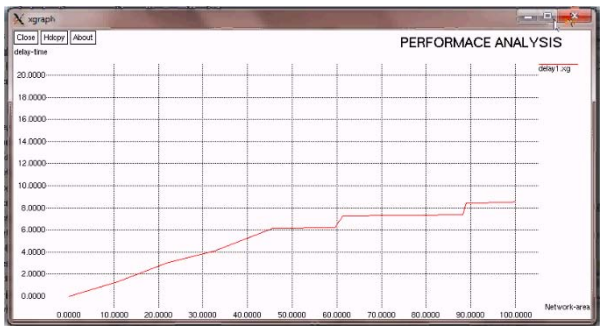

Figure 4 : Performance analysis [Delay]

This graph is of performance analysis of delay in package transmission. This graph actually justifies that average delay in delivering packets. Graph is plotted on delay in packages and network area. This graph shows us that delay growth is not so rapid we somehow manage to stabiles delay graph.

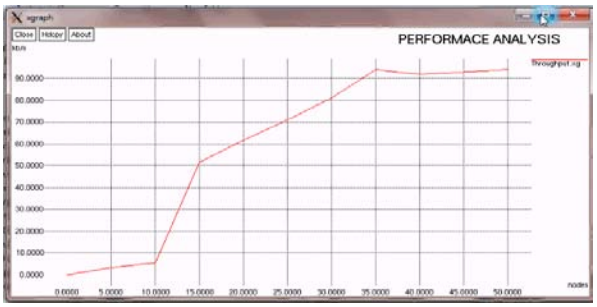

Figure 5 : Performance analysis [Throughput]

This graph explains data rate traveling speed in kilo bits per second. This graph is plotted in between kilobytes and nodes. So we can analysis from this graph that through put of our system is increasing rapidly. It is very high, which means we have help to improve performance o four system.

VII. Conclusion

In this paper we presented an approach to broadcast a message among highly mobile hosts like vehicles in road traffic. The proposed and implemented method considers unreliability that can occur in propagating message in roads that constitute an intersection. This unreliability happens because vehicles in different road of an intersection can be in communication range of each other and according to many recent methods broadcasting in one way may affect on vehicles of another way and cancels their broadcasting that result in reducing delivery ratio. So we proposed a broadcast method that works on the minimum waiting time principle we have also introduce intersection RS. This RSU is used to count the no of vehicles turning Left or Right. This will reduce no of accidents happening at the intersection of roads. Thus, our approach could indeed inform drivers on different roads. For future work we will consider other challenges that affect delivery ratio of broadcasting like fragmentations, bends, curve roads, different communication ranges of vehicles.

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