



iJRASET

International Journal For Research in
Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 6 Issue: III Month of publication: March 2018

DOI: <http://doi.org/10.22214/ijraset.2018.3604>

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Study of Various Techniques used in VANET Applications

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Abstract: VANETs stands for Vehicle ad hoc Networks is a sub part of Mobile ad hoc Networks (MANETs) which are used during commutes for different purpose by different device but the main purpose of it is that to improve security on road with comfort of passenger and traffic management. It also integrates the new generation of wireless network to vehicle. It is self-organizing and autonomous wireless communication network, where every one of the nodes in VANET includes themselves as servers or client for exchanging and sharing information. A vehicle will speak with other vehicles directly and that is Vehicle to Vehicle (V2V) communication, either a vehicle can communicate the Vehicle to Infrastructure (V2I) called Road Side Unit (RSU). In this paper various challenges related to transport has been discussed. Also a comparison of various techniques used in VANET has been provided.

Keywords: RFID, GPS, LCD, GSM, FSSC, Challenge.

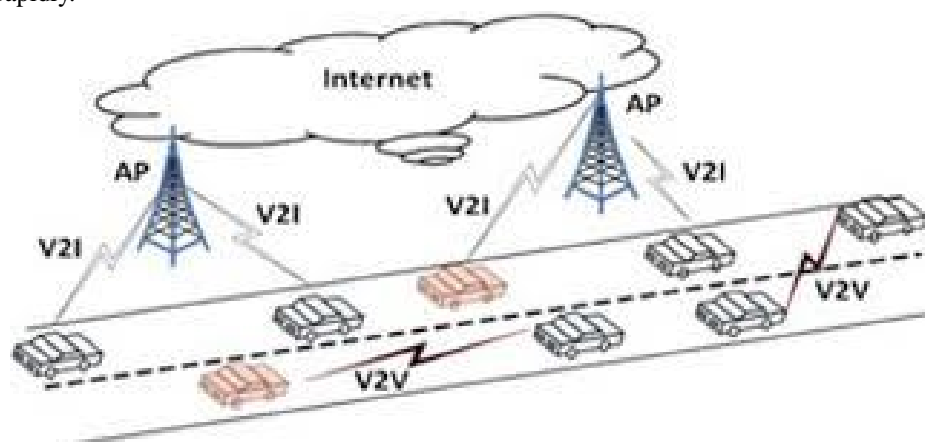
I. INTRODUCTION

Vehicular Ad Hoc Networks (VANETs) is an innovation that gives correspondence among vehicle. It gives the wellbeing data among vehicle. This advancement in remote correspondence has been visualized to enhance street security. It coordinates the new innovation which is remote system to vehicle. A compact off the cuff framework (MANET) contains flexible center points that partner themselves in decentralized, self-dealing with way and may in like manner set up multi-ricochet courses. The objective of VANET is that it permits correspondence between street transports vehicles and advances security on streets. The correspondence medium is introduced on every hub (vehicle) in VANET. The main aim of VANET is that provide the safeness and security related to information because human lives are involved.

II. CHALLENGES

A. There are many challenges in VANET.

2) **Technical Challenge:** Due to mobile network congestion and collision control is big challenge for VANET because channel condition change rapidly.



3) **Security:** Security is big issue for any field that's why in VANET also security is issue like as data security and it important to distribute privacy keys among vehicles security.

4) **Quality of Service:** Quality of Service is the capacity of a system to give a best support of chose arrange movement over different types of innovations. QoS parameters are figured to decide the strong quality of the correspondence inside the system.

III.LITERATURE REVIEW

Given below are some of the paper we have studied.

A. Approximate Analysis of a Multiple Geocast Routing among Geographical Regions in VANET Applications

In this VANET applications are discussed in which separate urban zones are divided into topographical area from which data is collected by zone ought to be spread. In every area, a round Network Territory called producer and collector focus (ERC) is utilized for providing and getting information. Vehicles in each ERC provide and get information to from vehicles inner alternate ERC characterizing a various geocast directing issue. Every vehicle to cross an ERC makes an impression on the different goals utilizing the base spreading over the minimum spanning tree whose nodes are the ERC. Information's are guided among the adjoining ERCs using a node to node location based tradition. The information that applicable up an ERCs are range inside the geographical using flooding. Multicast data are fundamentally in view of end-to-end concede measures [1]. In vehicle ad-hoc networks, the correspondence connect delays are arbitrary factors since they rely upon the fundamental vehicle streams. This paper builds up a rough demonstrate for end-to-end postpone dispersion in light of stage sort (PH) dispersions, and furthermore inspects another QoS multicast framework satisfactory to agreeable data assemblage and distribution applications. The outcomes are approved by reproduction. But it is only for simple network connection by using a simplified simulation model.

B. Mobile Enabled Bus Tracking and Ticketing System

Research was centered on how RFID machinery can be utilized to take care of issues looked by open in metropolitan urban areas and how to use in cashless ticketing framework. Cards implanted with RFID us open transportation empowers the following of people with following information being put away on a focal server.

Open transportation in numerous nations is being utilized as methods for transport for voyaging and in like manner individuals would lean toward this open carrying to be booked appropriately, on duration and the recurrence be expanded for workers to accomplish great utilization of it. It has been discovered that a significant sum of analysis assignment has been done, in this segment, by method for utilizing RFID innovation in people in general transportation frameworks close to the following of travellers while they trip and leave transports.

In expansion investigate has additionally been done in utilizing GPS close to the following of transports alongside RFID innovation on movement blaze, transport ends, crossing points and so forth and showing expected entry duration on LCD screen at transport ends alongside their present positions. Thinking about these angles, an astute portable transport following framework for the Urban movement association as contextual investigation has been designed that empowers suburbanites close to following their preferred transport and furthermore knowing their expected entry times. Notwithstanding following, the proposed framework additionally tells the travellers on their portable towards garnish up of approval in their RFID empowered shrewd coupon for voyaging, great earlier in duration.

C. Limitation

This paper does not discuss on how to calculate the arrival time but calculate the arrival time of bus by the bus information company.

D. C Farthest Destination Selection and Shortest Path Connection Strategy for Efficient Multicasting in Vehicular Ad Hoc Networks:

The aim of in this paper Vehicular Ad Hoc networks Systems (VANETs) have been asked for to give one-to-numerous .bunch correspondences (i.e. multicasting) for business and excitement .applications, for example, video meetings and record sharing's[2]. For these gathering correspondence applications, the current broadcasting-based and unicasting-based methodologies intended for Security applications however cause high bundle ages and Repetitive information transmissions, individually.

Despite the fact that the well-known Briefest Path Tree (SPT) and Minimum Spanning Tree (MST) calculations for multicasting have been proposed, they accomplish just a particular objective, for example, the lessening of deferral or Tree cost. Amass interchanges and supporting high versatility of vehicles, this paper proposes a multicast convention which employment the farthest goal Selection and Shortest way Connection (FSSC) technique to shape a multicast tree. FSSC depends on the guide data and the area data of vehicles also, convergences.

In VANET, destination for multicast data are vehicle which can move on the road if it is not register the destination vehicle location then the source vehicle will not forward the multicast data.

E. Bus Safety System for School Children Using RFID and SIM900 GSM MODEM

The aim of paper is that safety and security provide to student such that on entry and exiting from bus on the behalf of recording and bus such type environment should be that every student can seat comfortably. To perform this system many components are used in this system which are following:

- 1) *RFID*: RFID stand for Radio Frequency Identification. RFID divides into two parts
- 2) *RFID Reader*: RFID Reader takes the message from the tag which is applied to trace the transport/auto. Used to share the message from RFID tag to RFID reader
- 3) *RFID Tag*: RFID tag stores the unique digital identity code and sends to the RFID Reader. It may be in form of active, passive, or semi-passive
- 4) *GSM*: In this model use the GSM 900 is used which accept the SIM that provide the information to the management system via internet
- 5) *LCD*: Stand for liquid crystal device that is used to display the information of the student.

From the literature review we find out that we need to search out efficient technique so that school vehicle and parents may communicate irrespective of disconnection of wireless network use by vehicles and to provide the safety information among them in real time.

Analysis of Technology

Technique	Definition	Paper	Pros	Cons
RFID	It is a wireless communication by using RFID Tag and RFID Reader	“Bus Safety System for School Children Using RFID”	It provide the location to the reader along with its ID	The range of coverage is limited up to 3 meter.
GPS/ GSM	GPS is a network which are used for transmit the radio signal and which allow GPS receivers to determine their current location.	“Bus Safety System for School Children Using RFID “	No charge of sending signal.	It is not able to send the signal in water and underground.
Multicasting	<i>Multicast</i> is communication between a single sender and multiple receivers on a network.	“Approximate Analysis of a Multiple Geocast Routing among Geographical regions in VANET application	It is fast and easy for communication	It is only used for simple network communication
FSSC	It stands for Farthest destination Selection Path Connection. It is a algorithm to find the minimum distance between source node to destination node.	“Farthest Destination Selection and Shortest Path Connection Strategy for Efficient Multicasting in Vehicular Ad Hoc Networks”	This algorithm reduce the end to end delay and provide the efficient communication between the nodes.	If it is not registered the destination node then it will not find minimum distance between the nodes.

IV. CONCLUSIONS

We can create intelligent vehicular ad hoc network with efficient message delivery. In VANET could be enables to communicate themselves (vehicle to vehicle). However constrained with low battery power, speed and frequent disconnection between the vehicles. Our motto is to develop an efficient framework/algorithm which could make efficient communication vehicle irrespective of its speed

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