iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 9 **Issue:** X **Month of publication:** October 2021

DOI: https://doi.org/10.22214/ijraset.2021.38680

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 9 Issue X Oct 2021- Available at www.ijraset.com

An Implementation and Modification of Routing Protocol Against Vehicular Adhoc Network

Meenakshi Prajapati[1], Pkumar Choure[2]
[1, 2]*Swami Vivekanad Group of Institution*

Abstract: ***Today the sector is transferring toward wi-fi system. Wireless networks are gaining reputation to its height today, because the customers need wi-fi connectivity regardless of their geographic position. Vehicular advert-hoc networks (VANETs) are taken into consideration to be the unique software of infrastructure-much less wi-fi Mobile advert-hoc community (MANET). In those networks, motors are used as nodes. The thesis works is primarily based totally on assessment among Ad hoc on call for Distance Vector routing protocol (AODV) and Modified ADHOC call for distance vector routing (MAODV) in VANET on the idea of electricity, packet shipping ratio, throughout, overhead and give up to give up delay. Researchers are constantly publishing paperson overall performance paintings on VANET for this reason we labored at the issue. The gear which we used for the paintings of overall performance are NETWORK SIMULATOR (NS2).***

I. INTRODUCTION

A Vehicular Ad-Hoc Network or VANET is a generation that makes use of transferring motors as nodes in a community to create a cellular community. VANET turns each collaborating automobile right into a wi-fi router or node. Most of the issues of hobby to MANET are of hobby in VANET, however the info differ. Rather than transferring at random, motors have a tendency to transport in an prepared fashion. VANET gives numerous advantages to businesses of any size. The conversation place that's associated with the scope of this inspiration is an rising and interesting software of an advert-hoc community in which motors are severing as nodes. This place has sure promised components and sports to be offered, which might be extensively associated with the safety, convenience, and amusement topics.

II. RELATED WORK

Wireless Ad-hoc Network: A wi-fi advert-hoc community is a decentralized kind of wi-fi community. The community is advert hoc as it does now no longer rely upon a pre-present infrastructure, inclusive of routers in stressed out networks or get admission to factors in managed (infrastructure) wi-fi networks. Instead, every node participates in routing via way of means of forwarding facts for different nodes, and so the willpower of which nodes ahead facts is made dynamically primarily based totally at the community connectivity. In addition to the conventional routing, advert hoc networks can use flooding for forwarding the facts. An advert hoc community usually refers to any set of networks in which all gadgets have identical fame on a community and are unfastened to partner with another advert hoc community gadgets in hyperlink range. Very often, advert hoc community refers to a style of operation of IEEE 802.eleven wi-fi networks.

1) *AD-HOC Routing Protocol:* An advert-hoc routing protocol is a convention, or popular, that controls how nodes determine which manner to course packets among computing gadgets in a cellular advert hoc community .In advert-hoc networks, nodes aren't acquainted with the topology in their networks. Instead, they must find out it. The primary concept is that a brand new node might also additionally announce its presence and ought to pay attention for bulletins broadcast via way of means of its neighbours. Each node learns approximately nodes close by and the way to attain them, and might announce that it, too, can attain them. The following is a listing of a few advert hoc community routing protocols. preference for one or the opposite technique calls for predetermination for standard cases.

The fundamental hazards of such algorithms are:

a) Advantage relies upon on wide variety of Math van nodes activated.
b) Reaction to site visitors call for relies upon on gradient of site visitors volume.

©IJRASET: All Rights are Reserved

2) *Vanet Routing Protocols:* All of the same old wi-fi protocol agencies are experimenting with VANET. This consists of all of the IEEE protocols, Bluetooth, Integrated Resource Analyses (IRA) and Wi-Fi. There are also VANET experiments the use of mobile and satellite tv for pc technologies. Dedicated Short Range Communications (DSRC) is a protocol that has been mainly to be used with VANET. DSRC has numerous advantages: it already is working at 5.nine GHz, it is simple to individualize and it's far orientated to the concept of transmitting alongside a road grid framework--in place of the omni directional transmission, that's popular for maximum wi-fi protocols. Vehicular advert-hoc networks upload to the complexity because of the truth that the nodes are visiting at excessive quotes of speed. Overall, VANETs should paintings in all kind of site visitors i.e. excessive and coffee automobile density environments in city and rural surroundings respectively. This creates a assignment for the hardware layout for VANETs. Because for instance in low density automobile surroundings the wide variety of automobile may be much less so a few motors may be out of rang for conversation. In excessive density automobile surroundings sharing of bandwidth is a assignment for VANET.

III. SIMULATION AND RESULT

1) *Mobility Models in NS-2:* To compare the overall performance of a protocol for an advert-hoc community, it's far vital to check the protocol below sensible conditions, particularly along with the motion of the cellular nodes. Surveys of various mobility fashions were carried out. This consists of the Random Waypoint Mobility Model this is utilized in our paintings.
2) *Implementation & Proposed Work:* For higher knowledge of our paintings i.e. assessment of routing protocol below WSN surroundings we've got framed our paintings in 4 eventualities which encompass a easy VANET and a few electricity green WSN protocol for now we've got taken AODV, MAODV in attention and done a comparative take a look at via way of means of imposing respective protocols on a custom generated topography. Then we've got analyzed the effects on the idea of numerous overall performance matrices inclusive of Packet Delivery Ratio, Throughput, End to End Delay, Normalized Routing Load and Residual Energy. This complete has been carried out the use of an open supply Network Simulator NS-2. In our paintings we've got done four simulations First state of affairs is with a normalized AODV protocol. Second is for MAODV Protocol then with Protocol implementation on a popular WSN surroundings. We have taken 10,20,30,40,50,60 nodes for our implementation to be carried out. The simulation is carried out the use of NS-2 simulator, To examine the overall performance of the community via way of means of making use of numerous sorts of facts waft following parameters has used to assess the overall performance of the paintings carried out which might be as given below:

IV. RESULT & ANALYSIS

A. *Packet Delivery Ratio*

This is the ratio of total data packets received over total data packets sent by the source during the simulation period .This evaluates the ability of the protocol to discover routes. Fig. shows the PDR under various protocols i.e. AODV, MAODV for the 10 vehicles, 20 vehicles, 30 vehicles.

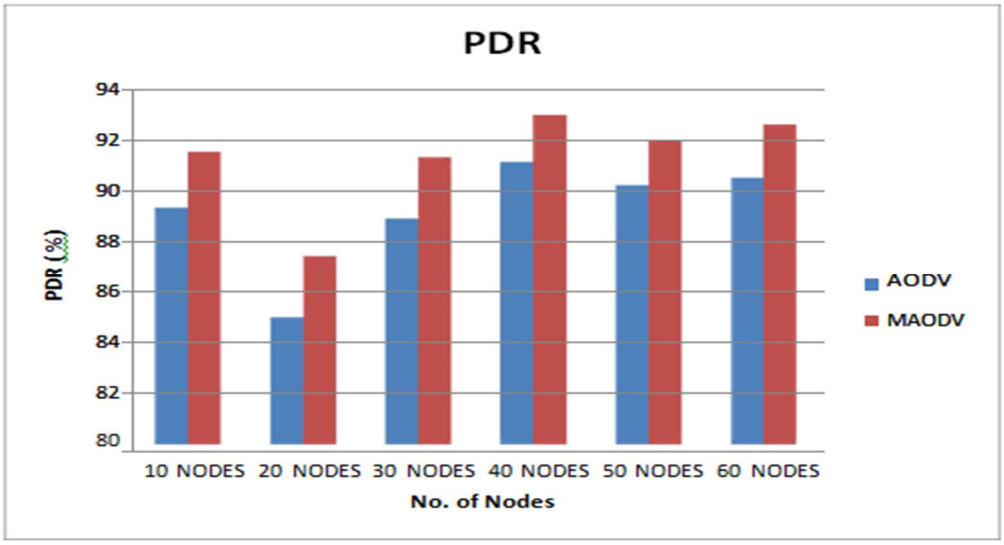


Fig1: Packet Delivery Ratio

©IJRASET: All Rights are Reserved

B. Throughput

There are two representations of throughput; one is the amount of data transferred over the period of time expressed in kilobits per second (Kbps). The other is the packet delivery percentage obtained from a ratio of the number of data packets sent and the number of data packets received. Fig. shows the overall Throughput for various protocols i.e. AODV, MAODV for 10 vehicles, 20 vehicles, 30 vehicles, 40 vehicles, 50 vehicle, 60 vehicle.

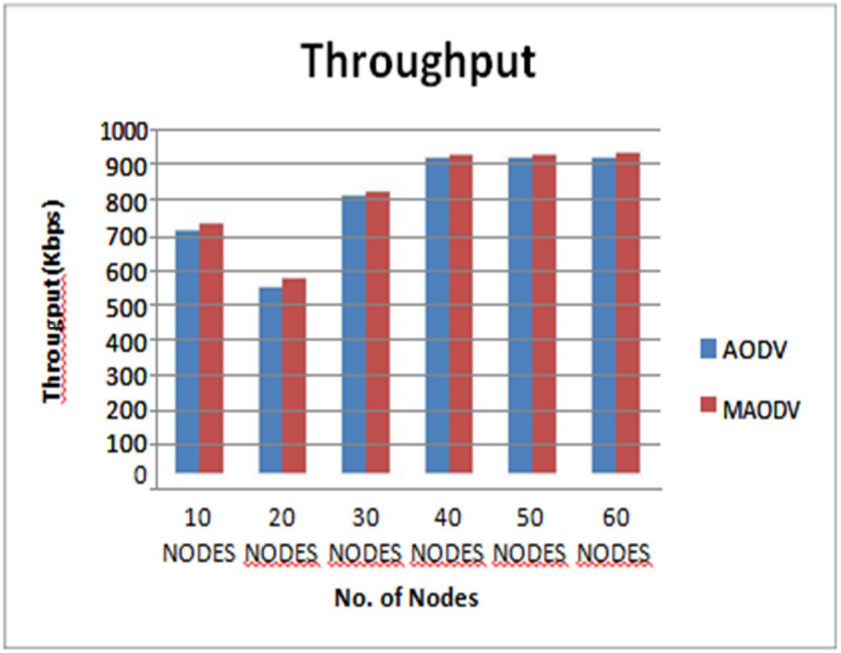


Fig 2: Throughput

C. End To End Delay

This is the average delay between the sending of the data packet by the source and its receipt at the corresponding receiver. This includes all the delays caused during route acquisition, buffering and processing at intermediate nodes.Fig. shows the End to End Delay under various protocols i.e. AODV, MAODVfor 10 vehicles, 20 vehicles, 30 vehicles, 40 vehicles, 50 vehicle, 60 vehicle.

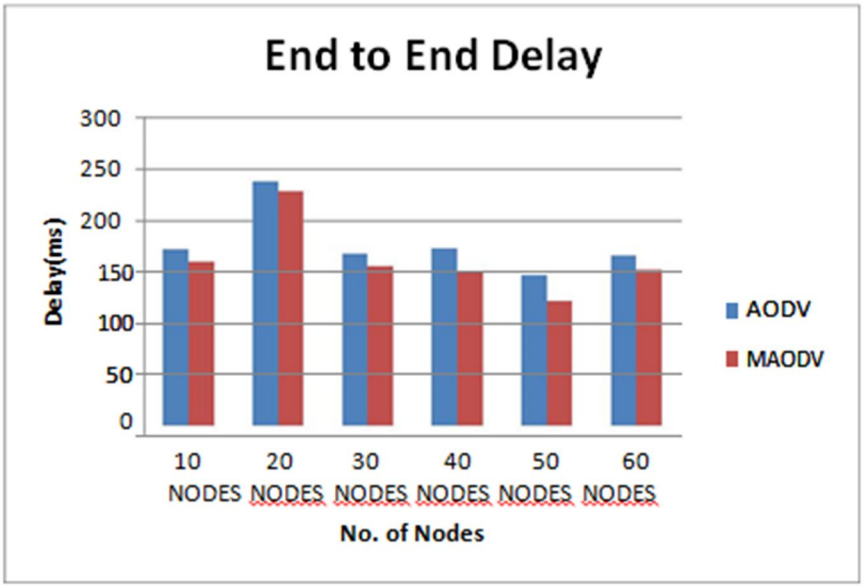


Fig 3: End to End Delay

©IJRASET: All Rights are Reserved

D. Residual Energy

It is the total amount of remaining energy by the nodes after the completion of Communication or simulation. If a node is having 100% energy initially and having 70% energy after the simulation than the energy consumption by that node is 30%.The unit of it will be in Joules.Fig. shows the Residual Energy under various protocols i.e. AODV, MAODVfor 10 vehicles, 20 vehicles, 30 vehicles, 40 vehicles, 50 vehicle , 60 vehicle.

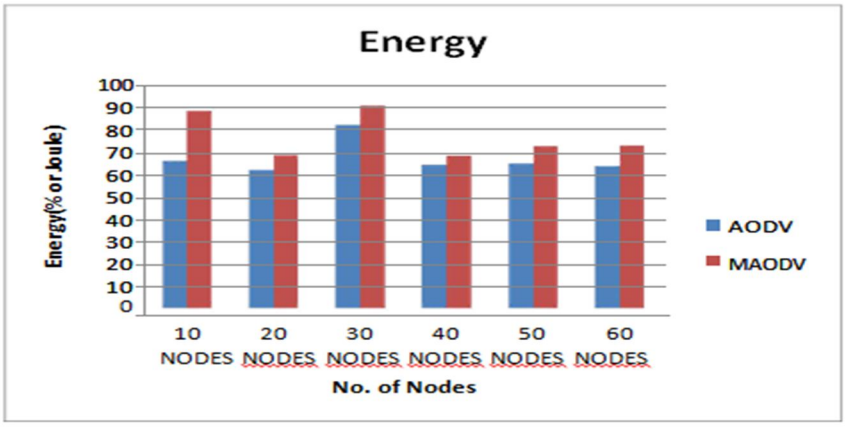


Fig 4: Residual Energy

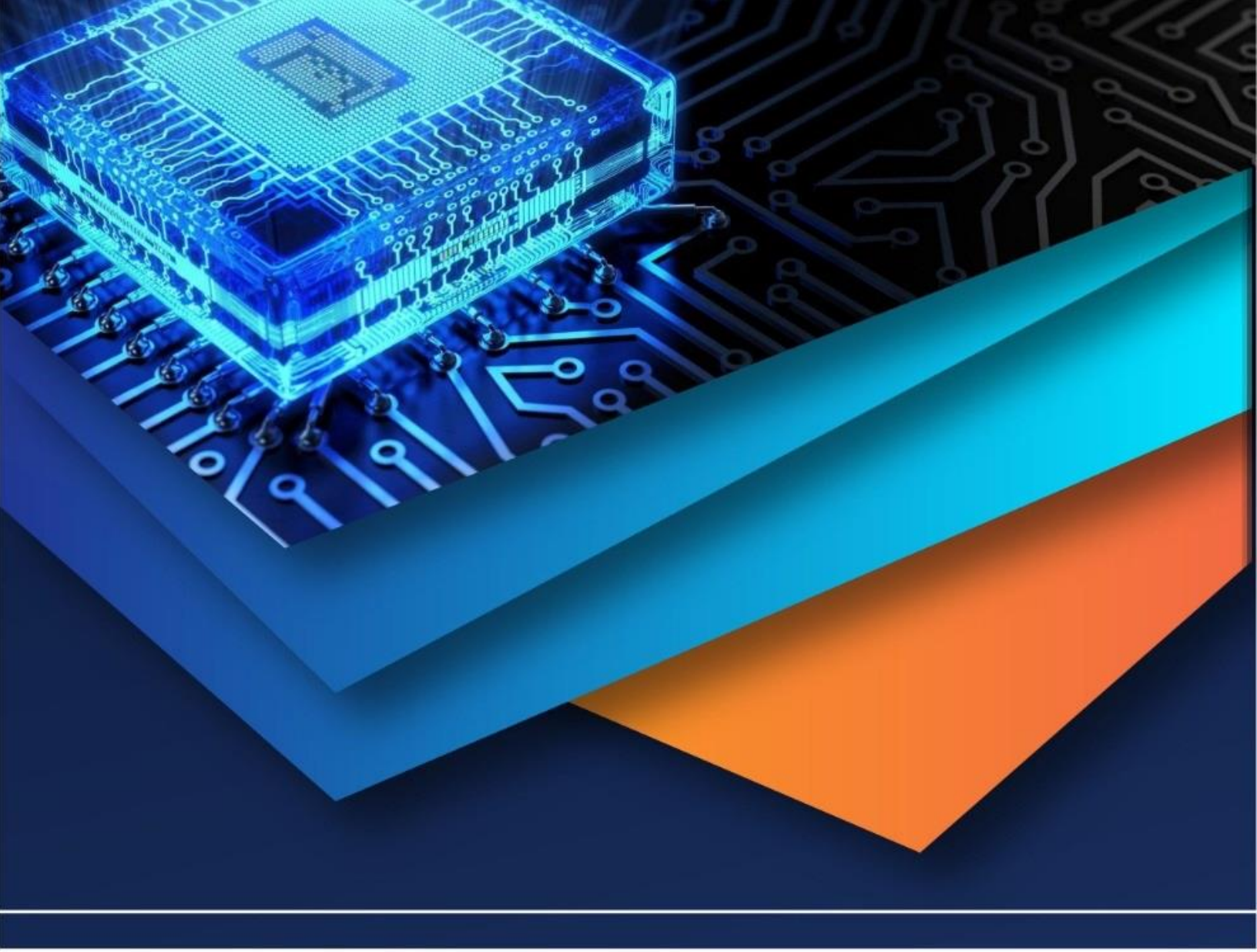
V. CONCLUSION

In the proposal for upcoming thesis with the meofanalyzing routing protocols in VANET,various explorations along with certain achievable are prepared.From brief overview of problem identification to study objectives and scope,multiple motivational and questionable arguments had been identified.Further a detailed discussion investigated the related and interrelated work done in VANET domain with different considerations like mobility and reliability over routing protocols.In methodology,a scalable flow of simulation along with their inputs and outputs and how toanalyze results areargued.Finally with simulation design, the result of implementation AODV and MAODV routing protocol gives the better performance which is near to the performance of MDSDV for each traffic type i.e. 10 vehicles, 20 vehicles, 30 vehicles, 40 vehicles, 50 vehicle, 60 vehicle with 100 sec simulation time for two ray ground propagation in IEEE 802.11 scenario for omni directional antenna.

REFERENCES

[1] http://en.wikipedia.org/wiki/VANET.
[2] Schoch, E. Ulm Univ., Ulm Kargl, F.Weber,M. Leinmuller, T. “Communication patterns in VANETs” Volume: 46 , Issue: 11 Page(s): 119- 125,Dated on Nover 2008.
[3] Saleet, H. Dept. of Syst. Design Eng., Univ. of Waterloo, Waterloo, ON, Canada Basir,O.,Langar,R.,Boutaba,R.“Region-BasedLocation-Service-Management Protocol for VANETs” Volume: 59 , Issue: 2 Page(s): 917- 931,Dated on Feb. 2010.
[4] Yan-Bo Wang Dept. of Electr. Eng., Tamkang Univ., Tamsui, Taiwan Tin-Yu Wu, Wei-Tsong Lee, Chih-Heng Ke “A Novel Geographic Routing Strategy over VANET” Page(s): 873- 879.
[5] Suriyapaibonwattana, K. Fac. of Inf. Technol., King Mongkut's Inst. of Technol. Ladkrabang, Bangkok Pomavalai, C. “An Effective Safety Alert Broadcast Algorithm for VANET” Page(s): 247- 250 Dated on 21-23 Oct. 2008.
[6] Abedi, O. Iran Univ. of Sci. & Technol., Tehran Fathy, M. ; Taghiloo, J. “Enhancing AODV routing protocol using mobility parameters in VANET” Page(s): 229- 235,Dated on March 31 2008-April 4 2008.
[7] Abedi, O. Comput. Eng. Dept., Iran Univ. of Sci. & Technol. (IUST), Tehran, Iran Berangi, R. ; Azgomi, M.A. “Improving Route Stability and Overhead on AODV Routing Protocol and Make it Usable for VANET” Page(s): 464- 467.
[8] Manvi, S.S. Dept. of Inf. Sci. Eng., REVA Inst. of Technol. & Manage., Bangalore, India Kakkasageri, M.S. ; Mahapurush, C.V. ,” Performance Analysis of AODV, DSR, and Swarm Intelligence Routing Protocols In Vehicular Ad Hoc Network Environment”, Page(s): 21- 25
[9] Juan Angel Ferreiro-Lage ,Cristina Pereiro Gestoso,Oscar Rubiños Fernando Aguado Agelet,“Analysis of Unicast Routing Protocols for VANETs”, Dated on April 20-April 25.
[10] http://en.wikipedia.org/wiki/List_of_ad_hoc_routing_protocols.
[11] http://en.wikipedia.org/wiki/Wireless_ad_hoc_network.
[12] http://en.wikipedia.org/wiki/Mobile_ad-hoc_networks.
[13] http://en.wikipedia.org/wiki/VANET.
[14] http://www.ehow.com/list_6670042_vanet-routing-protocols.html.
[15] http://en.wikipedia.org/wiki/AODV.

©IJRASET: All Rights are Reserved



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)