

Chapter 12

Enhancement of Network Performance in VANET Using Dynamic Routing Strategies

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ABSTRACT

Vehicular ad hoc networks (VANETs) have evolved as an invigorating network system and application domain in current communication technology. In smart city applications context, there are smart vehicles embedded with sensors and dynamically programmed IoT devices, which are to be managed and controlled energetically. Progressively, vehicles are being furnished with surrounded actuators, handling signals, and wireless communication abilities. This chapter focuses on the fact that this special network has opened various possible outcomes for intense and potential extraordinary applications on security, effectiveness, comfort, confidentiality effort, and interest while they are significantly vibrant. Irrespective of many challenges such as high frequency of topology change and link failure possibility, routing management in VANET has been successful in traffic scenario during vehicle-to-vehicle communication.

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1.INTRODUCTION

In the current technology, Vehicular Adhoc Networks (VANETs) are becoming more popular applications in road traffic management and control systems. The problem faced by smart cities in terms of traffic congestion issues can be solved better by the use of VANETs as there is a network connectivity between the vehicle and the network infrastructure (Rath et. al, 2018). Therefore, predictable information regarding road condition ahead and route information can be directed to the smart vehicles in transit and intelligent decisions can be taken sufficient time before any problem occurs. In other ways VANET in smart cities helps to reduce the problems of congestion, accidents, crime, parking problems and population overhead. Due to the overall development of the wireless technology, their applications are immense on vehicles and vehicles have been converted to smart vehicles to be accessed under smart traffic applications. The traditional driving systems and drivers have also converted to smart drivers with more technical knowledge of receiving smart signals from traffic controllers, understanding them and act accordingly(Rath et.al, 2019). VANETs support flexible communication between vehicles and traffic controlling systems in both infrastructure based and in wireless medium without fixed infrastructure. The proposed traffic congestion solution in smart city uses an improved technical explanation to the problem with powerful data analytics made by mobile agent dynamically under VANET scenario in a smart city(Rath et.al, 2018).

Vehicular Adhoc Networks (VANETS) empower the vehicles to communicate with each other vehicle and in addition with road side units. However, building up a dynamic routing policy for these networks conceivably because of the substantial portability and normal changes in these networks is a tough work. In VANETS transmission joins are at the danger of separation. Along these lines the advancement of the proficient directing component is required in VANETS. VANETS may really make to end up valuable for interstate way protection and additionally a few business purposes (Kaur K. et.al, 2016). For example; vehicular network might be utilized to educate drivers with the goal that the likelihood of guests jams; offering higher solace and also adequacy (Felipe C. et.al, 2016) . Remote association frameworks have permitted the majority of the advantages inside our lives and moreover enhanced our every day productivity additionally (Singh S et.al, 2014) . Specially appointed networks work without a characterized preset looked after foundation. VANETS working with 802.11-organized WLAN development currently got critical intrigue (M. Rath et.al, 2018). For the reason that vehicles worked with Wi-Fi gear speak to the cell nodes (S. Singh et.al, 2018). Another locale in which there is a ton prospect of remote advancements to make a gigantic impact might be the district of between vehicular interchanges (IVC)(O Sami et.al, 2017).

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