

ABSTRACT

Nowadays a very rapid technological developments have resulted in a lot of things can happen in the world of telecommunications, as well as in the network to a vehicle moves. VANET is seen as promising approach towards an Intelligent Transportation System (ITS). The network was able to avoid and reduce the number of accidents that still happen often. DSRC is a wireless technology that is developed to support the communication between vehicles and between vehicles and infrastructure in a very dynamic network. A general transmission range hasn't been specified by the standard though a transmission range up to 1 kilometer has been proposed. There hasn't been a comprehensive study towards the performance of IEEE 802.11p MAC protocol that consider transmission range with different speed and node density, specifically on V2V communications where the nodes in the network are highly mobile. Research towards the performance of a highly mobile network is very important to understand the connectivity between nodes when disseminating data. Therefore, the research will study the performance of a highly mobile vehicular network with changes in transmission range, vehicle speed, and vehicle density.

On this final task will be discussed regarding the affect of transmission range with different speed and node density on a network VANET specification in highway scenarios. The VANET network in this research uses the DSDV routing protocol. The performance of network will be analysed based on result of QoS.

It can be concluded that the transmission range changes affect the performance of the VANET network that use DSDV routing protocol. At low density the farther the transmission range used then the value of QoS parameters will tend to improve. But as the density increases, farther transmission range could also degrade the QoS parameters. As node speed becomes faster in the network QoS parameter values are likely to worsen. It is also found that the value of the QoS parameters on the network at higher nodes speed is worse compared to QoS parameter value on network at lower nodes speed.

Keywords: VANET, DSDV, QoS, Transmission Range, Node Speed and Density