

ABSTRACT

In recent years VANET has gained a lot of attention for increasing comfort and safety in vehicular networks. VANET is seen as a promising approach towards an Intelligent Transportation System (ITS). 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 one kilometer has been proposed. There hasn't been a comprehensive study towards the performance of IEEE 802.11p MAC protocol with different traffic density and transmission range specifically on V2V communications where 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, this research will study the performance of a highly mobile vehicular network with changes in transmission range, vehicle density, and vehicle speed.

This Final Task will discuss the effect of transmission range with different node speed and density in a VANET network in a tolway scenario. The VANET network in this research uses the DSR routing protocol.

It can be concluded that transmission range has an effect on the QoS. The higher the transmission range used, the QoS will have a tendency to improve. The result of QoS on differing density and speed of nodes tends to be stable especially on higher transmission range (above 500 m). The characteristic of DSR as an on demand routing protocol enables DSR to have an exceptional performance even in a highly mobile network where nodes are constantly moving.

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