ABSTRACT

Nowadays a very rapid technological developments have resulted in a lot of things possibly happens in the world of telecommunications, as well as in the moving vehicle network.Technology has evolved so the entire network is based on ip, therefore a network that can do communication between vehicles in the streets is produced. The network was able to avoid and reduce the number of accidents that still happen often. In VANET, topology depend on the vehicle mobility model that create the network.Those vehicle requires certain transmission range to communicate with each other.

On this final assignment will be discussed regarding the influence of the transmission range with the certain node speed and node density difference on a VANET specification network in toll road scenarios. The routing protocol used in this study is ZRP.

Design of a simulation system is divided into two subsystems namely mobility subsystem and network subsystem. The design of mobility subsystem is done by using ONESimulator software. While the network subsystem design is done by using Network Simulator 2 (NS2). The density and speed of the nodes is formed in such a way to describe a model of mobility. In the end, VANET will be observed by the quality of the resulting network. Performance is evaluated with average end to end delay,average throughput, and packet delivery ratio.

It can be concluded that the transmission range changes affect the performance of the VANET network that use ZRP 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. Node density also affects VANET network performance that uses ZRP routing protocol in case of certain transmission range and node speed .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, ZRP, Transmission Range, Node Density, Node Speed, QoS,NS-2, ONEsimulator