ABSTRACT

Wireless communications is growing rapidly, one of them is car to car communication which is implemented in a Vehicular Ad-Hoc Network (VANET). The system allows the car to communicate to exchange data both send and receive information via radio waves. In the process of data exchange is needed synchronization process as quickly as possible (fast synchronization).

In this final project will be designed a simulation to analysis the characteristics of fast synchronization that work in 802.11p protocol that was developed as Wireless Access Vehicular Environment (WAVE). The simulation environment will be designed in urban areas and with variety of input parameter. The simulator that will be used is NS 2.34, SUMO 0.12.3, and MOVE (map and vehicle movement editor). To test the protocol, it must measure the QoS, that are Average end to end delay, Packet Delivery Ratio, Throughput, dan Packet Loss Ratio to know the performance of 802.11p.

The simulation result shows that the performance of 802.11p during the synchronization process works well and can be applied to VANET technology. It is proved by testing the value of average end-to-end delay does not exceed the delay tolerance for application safety message. In this simulation, the result of maximal average end to end delay is 15.0049 ms. While the delay tolerance for the application of safety messages in VANET technology is 100 ms.

Keyword : *car to car communication*, VANET, *fast synchronization*, 802.11p