ABSTRACT

Vehicular Ad hoc Network (VANET) *is a subset of the concept of the Mobile Ad Hoc Network* (MANET) *where vehicles act as nodes on the network. The baseline characteristics of high node mobility* VANET *is causing rapid changes in the network topology. Because the VANET network topology changes frequently, find and maintain routes are the most important thing in* VANET. *Of the ad hoc protocol, position-based routing protocol is considered as a more efficient routing protocol for* VANET.

In this research, analyzing the position-based routing protocols which have different data delivery mechanisms, namely the Greedy Perimeter Stateless Routing (GPSR), *Greedy Traffic Aware Routing* (GyTAR), *and Border-Node Based Routing Most Forward within Radius* (B-MFR) *on Inter Vehicle Communication* (IVC). *Simulation using Network Simulator NS-2:34 and mobility generator is the Simulation of Urban Mobility* (SUMO). *As an integrated simulator to incorporate* NS-2.34 *and* SUMO *used* MOVE. *Simulations based on the scenario of number of nodes and node speed changes with the network topology in an urban environment, namely the* Bundaran Hotel Indonesia *street in Jakarta. The performance metric used is the end-to-end delay, normalize Routing Overhead* (NRO), *packet loss and throughput.*

The simulation result shows that the routing protocol B-MFR outperform to both test scenarios. In the scenario of the number of nodes, B-MFR has average end-to-end delay, NRO, packet loss and throughput in a sequence that is 0.147 ms, 0.395, 12.97% and 80.7 kbps. While the increase in the speed node scenario, B-MFR has average end-to-end delay, NRO, packet loss and throughput in a sequence that is 0.24 ms, 0447, 13.33% and 80.21 kbps.

Keywords: VANET, GPSR, GyTAR, B-MFR, SUMO, MOVE