ABSTRACT

Vehicular Ad Hoc Network (VANET) is a wireless network routing based system using ad hoc networks. VANET is the development of Mobile Ad Hoc Network (MANET) which allows communication Inter Vehicle Communication (IVC) and or Roadside to Vehicle (RVC). The difference of VANET and MANET is on traffic regulations that regulate the movement of mobile nodes in VANET network so that its movement is determined by a specific pattern, unlike MANET can be random movement without any restrictions. VANET also have a more complex and dynamic network topologies because of the many different routes that can be passed rider with speed and different behaviors. Thus the routing protocol needs to be selected which is considered suitable and efficient so that data transmission can be maxmimally lasts .

This final task is to analyze the comparative performance of the routing protocols of Ad Hoc On demand Multipath Distance Vector (AOMDV) and Zone Routing Protocol (ZRP) in two different simulation environments, namely urban (urban) and highway (toll road) with a node speed change scenarios and changes number of nodes. This simulation is done by using NS-2.34 and traffic simulator SUMO 0.12. . The performance metrics that measured are Average End-to-end delay, Normalized Routing Load, Average throughput, Packet Delivery Ratio (PDR), and Routing Overhead .

The simulation result shows that the performance of AOMDV routing protocol is better than ZRP in both environments of simulations model. AOMDV has a better performance in all parameters tested mainly on parameters normalized routing overhead and routing load with the average value of each parameter 2,0068 and 2,353. In addition, based on the simulation result obtained that AOMDV performance is better when applied to the urban environment than highway environment.

Keywords : VANET , NS - 2 , AOMDV , ZRP , SUMO