

ABSTRACT

Vehicular Ad-Hoc Network (VANET) is a wireless network that uses a routing system based on ad hoc network. VANET is the development of Mobile Ad-Hoc Network (MANET) which allows communication Inter Vehicle Communication (IVC) and Roadside-to-Vehicle (RVC). Differences between VANET and MANET is the movement traffic regulations of mobile nodes on the network VANET so that movement is determined by the specific pattern, but in MANET can be random movement without any restriction. VANET also have a more complex network topologies and dynamic because of many different routes that can be passed with speed and different behaviors. That's way routing protocol needs to be selected with considered suitable and efficient so that data transmission can be optimally lasts.

This final task is to analyze the comparative performance of routing protocols Fisheye State Routing (FSR) and Zone Routing Protocol (ZRP) in an highway environment with two different simulation scenarios, the scenario changes in speed and changes in the number of nodes. This simulation was done using the NS-2:31 and NS-2:35 and traffic simulator SUMO 0.12.3. The performance metrics are measured is Average End-to-end delay, Normalized Routing Load, Average throughput, Packet Delivery Ratio (PDR), and routing overhead.

From the simulation results showed that the performance of FSR is better than ZRP in almost each scenario. FSR has a better performance in each parameter like in overhead routing parameters, normalized routing load, and delay with an average value are 3.0399; 15.175 ms; and Normalized routing load 3.8190. While the parameters of the Packet Delivery Ratio and throughput routing protocol ZRP is better with the average 83.498%; and 41.35 Kbps.

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