Abstract

Vehicular Ad Hoc Network (VANET) is a network consisting several wireless mobile nodes that communicate with each other without any fixed infrastructure. At VANET developed a wireless technology for Vehicle to Vehicle communication (V2V) and Vehicle to Road Side Unit (V2R). V2V communication can use cluster concept called CBSHWM. In the VANET vehicle density and velocity of the vehicle can affect the performance of the network. In the event of vehicle density will cause a delay when sending packets to the destination of vehicle. In addition, if the vehicle drove at high speed, it will cause displacement of vehicle which able constraints exchange of data packets in the network.

This thesis aims to analyze the performance of the two cluster formations: cluster formation weight-based and CBLR cluster formation at VANET network. Toll modeling scenarios used to test the density of nodes and node speeds.

The performance evaluation of cluster formation weight-based and CBLR cluster formation at vanet be reviewed of the parameters: cluster overhead, normalized clusters load, packet delivery ratio, packet loss rate and cluster convergence time. The results of the simulation are then analyzed and resulted that CBLR cluster formation is better for high speed network condition and high node density. In the changing scenario of node density for 40 of nodes found that the value of packet delivery ratio cluster formation CBLR 99,81 % in the other hand packet delivery ratio cluster formation weight-based 83,12 %. Scenario the effect of changing the speed of the node at a speed of 100 km/h found that the value of packet delivery ratio cluster formation CBLR 75,06 % whereas the packet delivery ratio CWeight is 57,96 %.

Key words: VANET, cluster formation, weight-based, CBLR, CBSHWM, toll road