

ABSTRACT

Vehicular Ad Hoc Networks (VANET) has become an interesting research topic and separated from research on Mobile Ad-Hoc Networks (MANET), although initially was considered the same topic by the most of researcher. Commonly, VANET use standard 802.11p (WAVE) as PHY layer, means it mostly use Standard IEEE 802.11 (WLAN) as their rule in access method at layer 1 and layer 2. Generally, the existing and widely use of Quality of Service (QoS) Scheme in 802.11 (WLAN) use Distributed Coordination Function (DCF) method which unable to separate QoS based on the traffic content, but only best effort for all kind of traffic, meanwhile the recent standards in handling of Quality of Service (QoS) in WLAN environment is the 802.11e EDCA (Enhanced Distributed Channel Access).

This recent QoS Standard in Wireless LAN would require further research for the purpose of implementing in many kind and topology of networks. The 802.11e EDCA is a QoS Scheme with prioritized access, based on content of the packet, IEEE 802.1e EDCA has provided a new mechanisms for QoS support compared with the existing DCF standards (Distributed Coordination Function) which. EDCA scheme provide four traffic type (voice, video, best effort and background task) which is called Access Category (AC) to define the priority.

This research evaluate the performance of VANET, with the common performance parameter such as throughput, delay and packet delivery ratio (PDR) when it use the EDCA access scheme compared with DCF access scheme. Mobility Model in the simulation will use Gauss-Markov mobility model with the AODV protocol as network routing protocol. This research oversee the use of it in VANET environment which use Standard 802.11p WAVE (Wireless Access for the Vehicular Environment) for physical. Simulation tools software which we use is Network Simulator-3 (NS-3).

This research should able to find the effect of using each access scheme with many variables like mobile node numbers, mobile node speed, bitrate per node, and randomness level. But to simplify the research, this study use only the variables of Mobile Node (represent the traffic demand in network). Mobile nodes speed varies randomly by default of simulation tools (NS-3) as well as other parameters, such as DCF and EDCA parameters value etc. .

The Result data of the research (Obtained by Simulation Software) then analyze with Pearsons Correlation Coefficient methods, that calculated with common spreadsheet software. In the final result, we should yield some conclusions of each correlation between determined QoS Parameter and other specified parameter value and express a necessary recommendation about the topic.