ABSTRACT

IEEE 802.11e Standard : Medium Access Control introduces new function wich called Hybrid Coordination Function to provide QoS guarantee for multimedia traffic. HCF provide two channel access mechanism : controlled channel access mechanism called HCCA and contention based channel access mechanism called EDCA. Most of WLAN vendor chooses EDCA as their MAC because its simplicity. In WLAN, especially in congested network, admission control is needed to limit new flow and guarantee QoS of existing flows.Therefore adaptive admission control is needed. Fuzzy logic is choosen as adaptive algorithm for admission control because its ability to handle fuzzy situation and its reability to be implemented in MAC layer.

In this research, fuzzy based admission control model is presented and the model uses network load and collision rate as fuzzy membership and also includes tuning parameter EDCA adaptively. The research is done in mixed traffic TCP-UDP and performance is tested with simulation using Network Simulator NS-2.

The result shows that in congested network, fuzzy based admission control will decrease packet loss of UDP traffic and increase throughput TCP traffic.

Keywords : IEEE 802.11e EDCA, QoS performance, *admission control*, *fuzzy logic*, EDCA parameter, TCP-UDP traffic.