

## ABSTRACT

*The appearing of Internet of Things (IoT) really helps the society for doing things. IoT can be happen because there are a connection between a network and a device. Message Queueing Telemetry Transport (MQTT) is one of the protocol that used in IoT. MQTT is frequently selected for IoT protocol because it is lightweight and can handle many clients. The openness of MQTT system make the protocol become vulnerable to be attack. One of the examples is Denial of Service (DoS) attack. DoS attack make a server or a network cannot be access by the user, and it is not working well.*

*Based on that, This Final Assignment will be doing an analysis of DoS attack detection on IoT network by creating an Intrusion Detection System (IDS). The algorithm that used to create a detection system design is a Mamdani Fuzzy Logic. The purposes of this is to analyze the algorithm efficiency and the Quality of Service (QoS) from the network. The work created on MATLAB and compare it with another QoS from Cooja Simulator.*

*The results show that detection with a synthetic network not accurate yet, because it cannot show the accuracy in numeric. Traffic loads, packet size, and thresholds on MATLAB test affect the QoS results that the system obtain. On Cooja testing, the highest accuracy is 50.53%, precision is 50.60%, and recall is 98.62%. QoS comparison between MATLAB and Cooja have a different results on "Attack" and "No Attack", where on throughput, MATLAB obtain a higher results than Cooja in No Attack scenario, and on the delivery time, Cooja obtain a better results than MATLAB in Attack scenario.*

**Keyword:** *Detection, DoS, MQTT, Fuzzy Logic*