ABSTRACT

In several agricultural locations in Indonesia there are some land that have failed crops due to drowning land due to continuous rain and drought land, on completion in this final task, the authors will create a microcontroller-based tool that aims to monitor the height of water on the land using ultrasonic sensors and tolos that may activate an actuator if there is dry or overflow water condition.

This tool use Wireless sensor network technology which is a set of wireless network tools that have one or several sensors to capture information or data that tends to change, and farmers will get a notification if the water conditions overflow or empty.

In order to know the performance of the system designed, we do the network qualitative testing, and the performance test results NodeMcu network using MQTT protocol on outdoor conditions maximum 90 meters. Value of delay, throughput, availability, and reliability are affected by the number of nodes and distances. The smallest delay, availability, and reliability values are within 15 meters. The smallest throughput value is within 90 meters.

Keywords: *Wireless Sensor Network, monitoring, actuators, water height, microcontroller, sensors ultrasonic*