ABSTRACT

In the era of the industrial revolution 4.0, many various industrial fields and production fields have implemented automation technology, one of the areas affected by industry 4.0 is agriculture or commonly known as the Internet of Things (IoT)-based Smart Agriculture System, where the concept of IoT is a devices that have sensors that can be integrated over the internet by collecting and transferring data. In the agricultural field, the cultivation of broccoli plants in increasing production and quality has various steps to prevent wilting. Starting from the process of planting seeds and sterilizing the mini greenhouse media. Mini greenhouse serves to create more productive plants that can be well controlled based on the Internet of Things.

In previous research, the IoT Smart Farming device carried out monitoring on pakcoy plants. On this occasion the author will implement a Smart Farming tool with IoT-based mini greenhouse media that uses several IoT components. This broccoli plant has a different sensitivity to the pakcoy plant, this broccoli plant requires a good temperature for this broccoli planting, which is a temperature range of 15℃-24℃.

The implementation of this tool uses several Wemos D1 R1 microcontroller devices based on ESP8266, the FC-28 Soil Moisture Sensor functions to measure soil moisture, the DHT22 sensor functions to detect room air humidity and room temperature, the BH1750 sensor functions to detect light intensity with a digital signal output, relay functions as an electromechanical component that can be run by electric current automatically and the ADS1115 component functions as an Analog to Digital Converter. After the implementation of the tool, this platform will be continued through the database and can be controlled through the application, so that the author can observe properly.

From the results of testing the functionality of the tool runs smoothly and the plants grow well. The results of the monitoring test are that there is a network test from the tool to the database with the ITU-T G.1010 standard for measurement of delay with the results of the Quality of Service test for sending data to firebase having an average delay value of 73.4566667ms which is

categorized as very good. Throughput which is classified as very good has an average value of 2.525Kbps or equivalent to 2.5 Mbps.