ABSTRACT

Today, the rapid development of science has encouraged the creation of many technologies that benefit human life, one of which is the Internet Of Things (IoT). IoT is a unified system that allows humans to remotely control devices by utilizing internet networks and smartphones. IoT technology has been widely applied in various sectors of human life, one of which is in the care of plants or known as Smart Garden.

The Smart Garden system is used for monitoring and controlling, monitoring is used to monitor the value of sensors used in such systems, while controlling is used to control electronic objects attached to the system. Controlling needs to be done so that the parameter value of each sensor attached to the Smart Garden system remains at the value or status that the user wants. The Smart Garden System uses ESP32S as a microcontroller and several sensors, namely Capacitive Soil Moisture Sensor (CSMS), Light Dependent Resistor (LDR) Passive Infrared (PIR) to detect the motion of living things around the park, and also uses applications to monitor sensor values and control electronic devices.

The results of the plant maintenance observations are connected to the firebase then displayed using the Android-based Smart Garden app installed on the smartphone. From the results shown, users can see the ideal soil moisture value of 88, the light intensity value from 5.30-18.00 WIB with a range of 117-201, as well as mouse detection around the park in realtime. Then the QoS test results are by installing a tool with a distance of 5 meters against the access point and getting throughput results of 6530 bit/s, packet loss value of 0 %, average delay value of 0.237 s, and average jitter value of 4.2 x 10^(-5) s.

Keywords : Smart Garden, Monitoring and Controlling, CSMS, LDR, PIR, firebase.