

ABSTRACT

Along with the times, IoT technology is also experiencing rapid development. One of the IoT systems that continues to be developed is the plantation sector. One of the main factors in plant growth is watering according to plant needs. Therefore, to increase good crop yields, a smart garden tool was made that is able to water plants automatically when the soil is dry and stops watering when the soil is wet. In this study, the plant used was Rose. Roses are one of the ornamental plants that have high consumer interest in Indonesia. Although it has thorns on the stem, roses have the nickname "Queen of Flowers, because we can find almost all countries in the world.

The monitoring system in this smart garden is designed to use several components in the form of a NodeMCU as a microcontroller, Relay, USB power supply as a power supply to transfer DC power to the sensor, a soil moisture sensor to measure soil moisture levels, a step-up module to increase the voltage from 5V to 12V. While the monitoring system is in the form of sending notifications of solenoid valve status and ground conditions using the Blynk and Telegram applications.

From the results of research that has been carried out for 30 days, the average soil moisture yield at 09.00 is 52%, at 13.00 is 50%, at 16.00 is 50.35%, and for 20.00 at 48% it can be concluded that, with the existence of smart devices This garden land in normal condition. The results of the soil moisture sensor delay are 3.48 ms, and for the 7 meter distance test the Blynk notification delay is 0.31 seconds, the Telegram delay is 3.45 seconds, while the 10 meter distance test is the Blynk delay is 0.36 seconds, and the Telegram delay is 0.36 seconds. 5.7 seconds and at a distance of 15 meters, Blynk's delay is 0.48 seconds, while Telegram's delay is 6.45 seconds. The conclusion obtained is that the tool runs well and Blynk's QoS value is better than Telegram.

Keywords: Smart garden, IoT, Microcontroller, Telegram, Blynk.