

ABSTRACT

Rose plant care requires special attention, especially in watering, so that it can grow optimally. Irregular watering, either too much or too little, can cause damage to the plant. This study aims to design and analyze an Internet of Things (IoT)-based rose plant watering device that is capable of watering automatically and efficiently based on environmental parameters. The designed system uses a soil moisture sensor, temperature sensor, and air humidity to monitor environmental conditions. The data obtained is sent to the IoT platform via Wi-Fi connectivity, so that users can monitor and control watering in real-time through the application. This system is also equipped with automatic settings based on soil moisture and weather data integration to avoid over-watering when it rains. The test results show that this tool is able to maintain soil moisture at an optimal level for rose growth, which is 60–70%, with a reduction in water consumption of up to 25% compared to manual methods. Remote monitoring and control via the IoT platform also increases time efficiency and makes plant care easier, especially for users who have limited time. In conclusion, this IoT-based plant watering device has proven effective in supporting automatic and efficient rose care. The implementation of this technology is expected to be an innovative solution for farmers and plant enthusiasts in optimizing productivity and resource efficiency.

Keywords: DHT11, Soil Moisture, IoT, Automation, Wi-Fi