

ABSTRACT

The main objective of this final project is to develop and implement an IoT-based automatic watering tool that will make it easier to manage and care for plants grown at home or in the garden. This tool uses Internet of Things (IoT) technology to connect the watering device to the internet network. With the help of a mobile app or web platform, this tool can provide centralized control. The study covers the basic ideas of watering plants, IoT technology, and current automatic watering devices. In addition, user requirements are identified, including the types of plants to be watered and the amount of water required. From there, system design begins, which includes the selection of components such as microcontrollers, soil moisture sensors, and IoT communication modules. The automatic watering device hardware is designed and used by installing a soil moisture sensor to identify the moisture level in the soil and a relay to control the water flow. This hardware is connected to a microcontroller and an IoT communication module, which allows remote control via the Blynk mobile app or web platform. This software allows users to receive notifications and set watering schedules according to plant needs. Through mobile applications or web platforms, users can also monitor crop conditions, such as soil moisture levels. After the hardware and software integration stage, tests are carried out to ensure that the IoT-based automatic sprinkler operates properly. This includes testing functionality, reliability of communication, and responsibility to changing environmental conditions and plants. The results of this last project should make it possible to create water solutions that are well connected to the Internet of Things technology. This automatic watering device can help users maintain better plant conditions, increase the efficiency of water use, and provide flexibility in controlling and monitoring plants remotely via an internet connection.

Keywords: NodeMCU ESP8266 Microcontroller, Blynk, Soil Moisture Sensor