

Smart Agriculture Monitoring System Web-Based Using Nodemcu and Telegram Notification for Chili Plant

Muhammad Fakrul Rizuan Azman¹, Nurzaid Muhd Zain²

¹*rizuanfakrul@gmail.com*

²*nurzaid@uitm.edu.my*

ABSTRACT

The traditional technique of moving water to the plant at the garden is using a hose or a bucket. This will consume physical activities and it will consume time if the chili plants are many. The chili plants need extra care by giving the right amount of water daily. If the chili plants are not enough water and overwater, the plants affect the growth of the plants. The gardener not know the right amount of water need by the chili plants. This will make the chili plants withered or die if the chili plants do not get the water daily. One solution for this problem is to build an automatic irrigation system. This project have three objective. The first objective is to design a system that can pass the data between device and system. The objective is successfully met when the results of the prototype functionality, complete system and WiFi network tests have obtained. The result from this research, data from the sensors is collected and passing to the database that is MySQL using WiFi connection. Then, the web-based system that used for monitoring will displayed the data from the database. The gardener can monitor the chili plants by using web application on computer as long the system is connected to the internet. This system will use soil moisture sensor and temperature and humidity sensor to read the data from the plants. The data will be stored in the database in MySQL and the gardener can view the data using the web application and also can use telegram to get the reading of the sensors. The prototype were tested in two experiments that use wet soil and dry soil to verify functionality. For the future works, the researcher can add more sensors so that more plants can be monitor by the user, enhance the interface of the web application to be more user friendly and add control features for the water pump.

Keywords: ESP8266, NodeMCU, Monitoring system, Agriculture, Chili plant, Soil moisture sensor, Temperature and humidity sensor, Water pump, Relay, Web application, Telegram, Arduino IDE