DESIGN OF IoT-BASED GREENHOUSE AUTOMATION SYSTEM

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ABSTRACT

Technological developments and advances, especially in the field of IoT (Internet of Things) have been widely used in various fields. By taking advantage of advances in IoT technology today it is very helpful in completing various human jobs. One example is the use of IoT technology in agriculture. Currently green house has been widely applied in the process of plant control so that conditions can be maintained. However, with IoT technology the work of controlling plants in a greenhouse can be made automatic and controlled remotely. The green house was made with the aim of facilitating plant cultivation, by using a soil moisture sensor as a soil moisture sensor and DHT11 as a temperature sensor. The soil moisture sensor is used to detect the level of soil moisture as a sensor that drives the water pump which aims as an automatic plant watering device and DHT11 as a sensor that functions to move the fan so that the appropriate temperature is reached, which is less than 32℃. Based on the results of the testing and analysis that has been carried out, starting from the design and testing stages and the results of testing on the design of an IoT-based greenhouse automation system, the following conclusions are obtained:
The tool that was created in this study succeeded in regulating and stabilizing the greenhouse temperature and stabilizing humidity in chili plants with a success rate of 100% based on 10 sample trials with several test conditions. Based on the tests that have been carried out several times, this tool is capable of monitoring the temperature and RH humidity of the soil. With the Blynk application, greenhouse plant owners can monitor from anywhere and at any time with an error rate of 1.70% for the DHT11 sensor reading and a 1.49% error for the soil moisture sensor.

Keywords : *Greenhouse, IoT, NodeMCU, Firebas*