ABSTRACT

SYSTEM PLANNING IRRIGATION FOR RICE PLANT IN RICE BASED ON IOT USING MICROCONTROLLER

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Conventional or traditional farming techniques that are still commonly used by farmers today have several obstacles. The problem that is often faced by farmers with this technique is the irrigation system for their crops. The irrigation system is carried out continuously until the agricultural land is flooded, but there is no provision for how deep the puddle is recommended for rice growth. The process of monitoring the irrigation system is also still done manually by farmers by checking the fields periodically. The research carried out aims to create an Arduino-based rice crop irrigation system and utilize nodemcu to send data on the IoT platform. The system design created is expected to be a solution to control and monitor irrigation systems in rice plants by utilizing technology. The design of the irrigation system was made using an ultrasonic sensor to measure water level, a humidity sensor, and a DS18BB20 temperature sensor. The rice field irrigation system will automatically turn on the water pump if the water level is less than 5 cm, and the pump will turn off if the water level is more than 5 cm. In the functionality testing, the system has been running well and can display the values of the three sensors used to the 16x2 LCD and Blynk dashboard. Testing the percentage error shows the results of 3.77% in the comparison of water level calculations using ultrasonic sensors with manual measuring instruments. So based on these tests, the system created can function properly and the ultrasonic sensor value obtained is close to the manual calculation value.

Keywords: arduino, irrigation, irrigation system, microcontroller.