RANCANG BANGUN PROTOTIPE PENYIRAM TANAMAN CABAI RAWIT OTOMATIS DENGAN METODE FUZZY LOGIC CONTROL BERBASIS ARDUINO

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ABSTRACT

Indonesia is an agricultural country with the largest livelihood being farmers. The agricultural sector, especially the chilli commodity, plays a crucial role in the Indonesian people's daily needs. The demand for chilli pepper in Indonesia is predicted to increase by 7%. In 2020, chilli pepper target production will be 1.46 million tonnes, with a harvest area of 187,995 ha with a productivity of 7.8 tonnes per ha. (National.kontan, 2020). So far, the cultivation and care of chilli plants are still carried out conventionally. Farmers are still watering the planting media manually and without paying attention to chilli plants' humidity and ideal temperature. Therefore we need a tool that can help chilli farmers to shorten and simplify the work of farmers. In this research, an automatic plant sprinkler will be made with the fuzzy logic control method using the Arduino Uno as the processor, using two sensors: the humidity sensor and the DS18B20 temperature sensor. The Arduino Uno will process the sensor's value and turn on the water pump until the humidity and temperature are in ideal conditions. Based on the tests that have been carried out, the accuracy and precision values of the soil moisture reading are 95.85% and 98.43%, and the accuracy and precision values of the soil temperature readings are 97.42% and 99.29%. In testing the accuracy of the entire system, the value was 77.77%, so it can be said that the tool's reliability was still not good. Due to the sensor's wrong location at the dropping point, it resulted in less than optimal sensor readings.

Keywords: *Fuzzy, Humidity, Temperature, Arduino, Automatic*