AUTOMATIC WATERING AND MONITORING SYSTEM PALM PALM BREEDING USING METHOD FUZZY SUGENO BASED ON NodeMCU 32 (Case Study: Blessings of Palm Oil)

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ABSTRACT

Oil palm is a plant that grows well in tropical areas with annual rainfall of 2,5003,000 mm and suitable temperatures between 25-27°C. Getting quality palm oil seeds requires proper care. The problem with watering oil palm seedlings is that currently it is still done with human assistance without paying attention to the water content required. The aim of this research is to make it easier for farmers to water oil palm seedlings, especially in providing water to suit the needs of oil palm seedlings. Increasingly sophisticated technological advances make it possible to monitor automatic watering via a website. This system uses two sensors, namely a soil moisture sensor and a temperature sensor which are used to detect soil temperature and humidity as well as the output produced by the duration of watering oil palm plants. In order to obtain accurate data, the author uses the Sugeno fuzzy calculation method to process input and output values so that they are in accordance with the needs of oil palm seeds. The results of testing for 5 days showed an average temperature of 26.22 degrees, soil humidity of 39.90% while watering time was 21.48 seconds. Meanwhile, the average error from system testing with MALAB was 6.542%.

Keywords: Palm Oil, Fuzzy Logic, Fuzzy Sugeno, Watering, Monitoring