SISTEM KONTROL PENGELOLAAN AIR UNTUK MENINGKATKAN PERTUMBUHAN TANAMAN PADI MENGGUNAKAN *IOT* DENGAN METODE LOGIKA *FUZZY* MAMDANI

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ABSTRACT

*The purpose of this study was to examine whether the fuzzy mamdani logic could be used to predict the amount of water used for irrigation of rice crops. One way to perform system analysis that contains uncertainty is to use fuzzy logic yourself. This study used the mamdani method, also known as the Min-Max method. System design to obtain outputs is carried out in the stages of (a) formation of fuzzy sets, (b) application of implication functions, (c) formation of rules, and (d) affirmation. In this study, the centroid method was used to defuzzify. In this study, combining with a circuit that can automatically open and close irrigation doors is the purpose of this study. By using an automatic irrigation control system, farmers can control how much water enters their irrigation stream. With the development of technology such as sensors and microcontrollers, the manufacture of automatic irrigation control devices has become easier. The servo motor will open 180 degrees to find out the distance of the water. If the water distance is normal, then the servo motor will close if the water becomes farther. From the results of research that has been carried out by finding the age of plants 50 days, land area 800 m2, and ultasonic sesor water height 6 cm, using the fuzzy mamdani method, namely the Number of Water Needs (z *) = 12.81 mm.*

Keywords: Fuzzy logic, Mamdani method, water requirement, decision making, Arduino, irrigation, control system.