

ABSTRACT

IoT-Based Rainfall and Water Level Monitoring System to Support Irrigation Automation in Rice Plants

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Rice plants are a type of plant that requires proper irrigation according to its proportions. However, in general, irrigation of rice fields is still done manually, requiring regular visits to the location to check the water conditions on the land and not limiting the water level with certainty. The high intensity of rainfall also influences the ideal water level conditions in rice fields. Researchers designed a system that aims to automate rice irrigation based on rainfall and water level data at each phase of rice growth. This system consists of rainfall sensors, water height and depth sensors as the main triggers in the system at each phase. At each phase, the water level will be read. If there is a shortage of water, the system will instruct you to drain the water through the solenoid valve and the flow will be calculated by the flowmeter sensor. If there is an excess of water, the outflow pump will turn on. The data read on the microcontroller will be published via the broker and then displayed via the IoT MQTT panel application. In this research, the prototyping method is applied, namely an approach to hardware development that is used to design and develop in an iterative manner. The stages of the method used start from needs analysis, design analysis, system development, system evaluation and system implementation. After evaluating the system, this system was able to run according to input data from rainfall and water level sensors at each phase of rice growth. This system successfully regulates the water level to maintain ideal conditions for rice fields based on rainfall sensor readings, water height and depth at each phase of rice growth.

Key words: *automation of rice irrigation, automation system.*

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