

## **ABSTRACT**

### ***INTELLIGENT SYSTEM PROTOTYPE FOR ARDUINO BASED AGRICULTURAL IRRIGATION***

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*The existing irrigation system in Indonesia currently uses a manual system, namely by opening and closing the irrigation channels to the rice fields which are still traditional. It is necessary to implement a system to control irrigation canals that can optimize the utilization of water supply so that farmers do not fight over water to irrigate their fields. To overcome the problems of this agricultural irrigation system, a prototype irrigation system for agriculture based on Arduino was designed using the DHT11 sensor to monitor the temperature and humidity in the land area. Then to detect the moisture in the soil using a soil moisture sensor which is increasingly plugged into the ground, the accuracy is more accurate. By monitoring using the DHT11 sensor, soil moisture sensor, relay, to connect between tools and applications, namely using ESP-01. To display the monitoring results, they will appear on the Blynk application via the farmer's smartphone. By using Blynk it will be easier for farmers to find out what the temperature and humidity levels are on their land and can irrigate their land in real time. From the results of testing the system, the results of the DHT11 sensor and soil moisture sensor can detect the temperature and humidity around and in the soil properly, the relay and ESP-01 work well so that the water pump can open the floodgate when the floodgate is turned on. The way the smart agricultural irrigation system works is that if the soil moisture sensor is plugged into the soil with dry soil conditions, a notification will appear on the Blynk application that the soil is dry then the pump will irrigate the soil until the soil conditions are sufficient. Then if the soil conditions are wet, a notification will appear that the soil is wet and the pump will not irrigate the soil.*

***Keyword : irrigation system, soil moisture sensor, ESP-01, Blynk***