

CLOUD BASED DATA LOGGER FOR MONITORING MICRO CLIMATE ON AGRICULTURAL LAND USING LONG RANGE COMMUNICATION SYSTEM (LORA)

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ABSTRACT

Agriculture plays an important role in the Indonesian economy with a contribution of 9.75% to national GDP and providing employment for 29.96% of the population. However, agricultural productivity and efficiency in Indonesia are still low. One of the factors that influences productivity is the microclimate which has a crucial role in plant growth. Unfortunately, information about microclimates is difficult to obtain, causing difficulties in making effective decisions in agricultural land management. To overcome this problem, cloud-based monitoring and storage systems and LoRa communications can be used. By using this technology, farmers can access microclimate data quickly and easily via devices connected to the internet, as well as carry out large-scale data analysis and real-time processing. LoRa technology also allows the use of sensors over long distances with low power consumption without an internet network in the area. This system will later read microclimate parameters in the form of air temperature, air humidity, light intensity, wind speed, wind direction, air pressure and rainfall. The data is stored in the InfluxDB database and visualized using Grafana. Apart from that, there are also telegram bots as an alternative communication interface between users and connected systems. It is hoped that this system can help farmers monitor microclimates in real-time, analyze data, and make better decisions in managing agricultural land.

Keywords: *Smart Agriculture, Microclimate, Long Range (LoRa), Cloud*