

## ABSTRACT

*Agriculture is one of the most important sectors of community income in Indonesia because the majority of Indonesians work as farmers. But so far, agricultural productivity in Indonesia is still far below expectations. Along with the development of current technology, smart farming can be used as a new technological innovation concept that is engaged in the management of agriculture using information and communication technology.*

*In this final project, a weather and soil quality monitoring system is designed to support integrated smart farming research in the INACOS laboratory which will be divided into two parts, namely the sensor node and the gateway. The gateway acts as a bridge for sending data from the sensor node. As for this system, a module is used, namely TTGO LoRa32 SX1276 as a data receiver from two sensor nodes, namely the AWS node and the Agriculture node. Sensor node data that has been received by the gateway is sent to the database to be stored and displayed on a website.*

*The results of this study are testing the acceptance of data from the sensor node which is carried out ten times and can be well received by the gateway. From the process of receiving data, it is also obtained a comparison of the time of data sent by the node and data received by the gateway by obtaining an RSSI of -104.1 and a delay of 52.3 ms. Furthermore, the time of sending data from the gateway to the database obtained an average delay of 29.2 seconds. The system is able to work optimally for data transmission that is carried out at a distance of 500 meters. The website is also able to work well after testing for the accuracy of the data with the database and can display data on the website.*

**Keywords:** *Smart Farming, TTGO LoRa32 SX1276, Gateway, Website*