

## **ABSTRACT**

*Agriculture is one of the most important sources of income for people in Indonesia because the majority of Indonesia's population works as farmers. But so far, agricultural productivity in Indonesia is still far below expectations. Along with technological developments, smart farming can be used as a new technological innovation concept that focuses on managing the agricultural sector using information and communication technology. So in this final project, an agricultural monitoring system was designed to support research on the LoRa-based Cyber-Physical System for Soil and Weather Monitoring on Smart Farming at Telkom University and Petronas Technology University which will be divided into three parts, namely the sensor node part, the gateway part, and the IoT platform section.*

*In this Final Project, to support research on the LoRa-based Cyber-Physical System for Soil and Weather Monitoring on Smart Farming at Telkom University and Petronas Technology University, an IoT platform was designed. Configuration is carried out with the gateway node to be able to display data according to what is sent by the sensor node via the gateway on the designed IoT platform in real time. This IoT platform is carried out using Node-Red which is installed on the Paspberry Pi.*

*The results of designing the Node-RED based IoT platform are expected to be able to display data according to data sent by sensor nodes via gateways in real time at predetermined distances and frequencies to support LoRa-based Cyber-Physical System for Soil and Weather research. Monitoring on Smart Farming Telkom University and Petronas University of Technology.*

*Keywords: Smart farming, smart farming, Raspberry Pi, Node-RED*