

## **ABSTRACT**

*Shallot plants are one of the livelihoods of farmers who have a high selling value from their crops. However, most farmers still control shallot crop pests by spraying pesticides excessively and it is feared that the shallot crop will experience excess residue. Another impact, pests that should disappear may experience resistance and resurgence. Physical control has been attempted by installing light traps on plantations but the operation is still manual so it is inefficient for farmers' working time and prone to wastage of electrical energy due to negligence. In this study, the light trap will be optimized by implementing an automatic light monitoring and control system. The Lynx32 LoRa board plays an important role as a data processor connected to the LDR sensor so that the lights can run automatically, the PZEM-004T sensor so that it can monitor the voltage and current in the light trap and sent via LoRa communication. In this study, automatic control can operate based on light intensity, LoRa can transmit data up to a distance of 250 meters under LoS conditions. The PZEM-004T sensor has good accuracy for voltage with an error of 0.08% while the percentage of current and power errors is quite high, namely 13.26% and 5%.*

**Keywords:** *Internet of things, LoRa communication, LDR, PZEM-004T*