ABSTRACT

The application of Internet of Things (IoT) technology in the process of making compost fertilizer can improve the efficiency and quality of the fertilizer produced. Compost fertilizer is an organic material that is weathered through the interaction of microorganisms. The success of the compost decomposition process depends on factors such as temperature, humidity, and the quality of the raw materials. However, a problem that often arises is the incomplete maturity of compost due to unstable humidity and temperature during the production process. In this study, the potential application of IoT technology in the compost production process is analyzed. IoT sensors can be used to monitor and control important parameters such as temperature, humidity, and raw material quality. The use of microcontrollers such as Arduino Uno and NodeMCU can help integrate these sensors with IoT-based monitoring systems. In addition, the Generalized Additive Models (GAM) method can be used to analyze sensor data and model the relationship between dependent variables (temperature, humidity) and independent variables (time, type of compost material, etc.). With the application of IoT technology and the use of appropriate sensors, it is expected that the efficiency and quality in the composting process can be improved. Real-time and accurate monitoring of important parameters such as temperature, humidity, and quality of raw materials can help farmers optimize the production process and produce high-quality compost.

Keywords: IoT, Compost, GAM, Soil Moisture, NodeMCU