BUILD SMART MONITORING OF COMPOST CONDITIONS BASED ON INTERNET OF THINGS (IOT)

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ABSTRACT

In the composting process, the temperature and water content conditions must be specific, so that the composting process can be carried out properly. Therefore, the temperature and water content need to be continuously monitored. In this study the author will create a smart monitoring system for composting conditions based on the Internet Of Things (IoT), using NodeMCU as a controller or controller and includes Esp8266 wifi which is connected to a database where the data can be monitored from an android application that will be designed to see the condition additional compost this tool uses a moisture sensor to detect compost moisture, and uses a DHT11 sensor to detect the temperature and humidity of the air around the compost and if the compost is dry, the water pump will automatically turn on to be immediately supplied to the compost, then it starts when the sensor detects compost and will send sensor value data to the microcontroller using NodeMCU and sensor values are processed in NodeMCU, then NodeMCU will try to connect to wifi which is already connected to the internet after successfully connecting then the data from the sensor value will be sent to the database server then the sensor value is displayed in the application and will display the condition of the compost in a normal or dry state. The results show that sensors and tools can work well, it can be seen that the sensor value is in accordance with a predetermined value based on the value in the serial monitor, database server and then in the android application. The soil moisture sensor can detect the condition of the compost in a dry state with humidity below 50% then the water pump will turn on. If under normal conditions with humidity above 50% then the water pump will turn off, for the DHT11 sensor it can detect air temperature and humidity with an average of 30 and 90%. The average data transmission time is 2.5 seconds.

Keywords: Android, Sensor, NodeMCU, IoT, moisture