

ABSTRACT

Household waste is waste that comes from daily activities in the household. Most household waste is organic material such as waste from the kitchen, food scraps, flour, vegetables, fruit peels, leaves and twigs. Much of this household waste that is not managed properly results in a lot of it ending up in rivers, ditches, or on the road. This has the potential to cause environmental pollution and cause disruption to human health.

One solution that can be applied to kitchen waste management is to process it into organic compost. The composting process requires optimal conditions such as the availability of adequate nutrients, sufficient air, proper humidity, and so on. Therefore a monitoring system was designed with a DS18B20 temperature sensor, humidity sensor, and soil pH sensor which can be used to monitor conditions during the decomposition process starting from temperature, humidity, and pH content. The results of this monitoring can later be viewed online through the ThingsBoard. It is hoped that this device can facilitate the manufacture of organic compost from kitchen waste.

Testing of this final project resulted in a percent error accuracy for testing the DS18B20 temperature sensor at 2%, the soil moisture sensor at 2%, and the soil pH sensor at 3%. It was found that the results of monitoring fertilizer processing for 5 days for temperature values ranged from 30°C to 34°C, humidity values ranged from 56% to 68%, and soil pH values ranged from 4.04 to 5.46. The test results for the delay in sending data from the tool to ThingsBoard were 13 s. From this statement it can be concluded that the system is considered effective for regular monitoring and can be monitored in real time.

Keywords: *compost, monitoring, ESP32, temperature, humidity, pH, thingsboard*