

ABSTRACT

Biogas is an alternative energy source produced from the fermentation process of organic waste which contains anaerobic bacteria. In the process of biogas formation, there are several factors that can affect biogas products including acidity (pH) and temperature. This research was conducted to ensure the biogas formation process works optimally and can minimize failures that occur during the biogas formation process, so a pH monitoring system can be made for the Internet of Things (IoT) based biogas production process. The pH monitoring system aims to monitor the acidity (pH) and temperature in the biogas reactor so that the biogas production process produces good quality. Then the measurement results read by the sensor will be sent to the Thingspeak platform. After designing and testing, the monitoring system tool produces a fairly good performance, where the system can work well during the monitoring process. In addition, the tool that has been designed has a low error rate, for the pH sensor, namely 2.9465%. As for the temperature sensor, it is 3.243%. During the monitoring process, the system was quite good with the success rate of sending data for the first monitoring of 79.86% and the success rate of sending data in the second monitoring of 82.70%. Therefore, the monitoring tool that has been designed can be used by biogas users in increasing their biogas production productivity.

Keywords: *Biogas, monitoring, pH, temperature, and internet of things.*