

ABSTRACT

In this study, a biogas production volume monitoring system and biogas pressure control have been developed on the digester with IoT as its monitoring base. This system is installed for 20 days on a digester with a fixed dome type measuring ± 5 liters with a semicontinuous feeding filling method. The substrate used is a mixture of stale rice and water in a ratio of 1: 2 whose filling time is once every two days. The pressure on digesters and biogas production volumes are measured using pressure sensors and flow sensors, with average error values of 2.768% and 11.342% respectively. Pressure and volume reading data is sent to the IoT platform so that it can be monitored remotely through the android application. The travel time of data transmission for one delivery is 8 seconds. In addition, data can also be monitored directly on the LCD that has been installed on the panel box. And the data is stored in the SD card as a backup storage place. On-off control of pressure parameters at value between 0.326 psi to 0.652 psi. This limit value can change the condition of the solenoid valve to open or close. This pressure control system produces an average error of 4.875%. For a total of 20 days of data retrieval, the volume of biogas obtained amounted to 10.37 liters.

Keywords: biogas, control, IoT, pressure, volume.