ABSTRACT

Methane is one of the results of anaerobic fermentation of organic materials used in biogas. As an alternative energy source, the use of biogas still leaves a problem. Methane gas is one of the causes of greenhouse effect, if the amount is excessive it will have a negative impact on the environment. From this problem, a methane gas concentration measurement system is needed. The methane gas is stored and measured in the gas chamber and the concentration of methane gas is measured using the MQ-4 sensor. The sensor results will then be processed into raspberry pi to calculate the concentration of methane gas. Then the measurement results can be seen on the display and stored in a file to be opened at another time. A multi-gas detector is used for the calibration process and characterization of the tool made. The tool was successfully created and was able to measure the concentration of methane gas within range 0% - 20% LEL, equivalent to 0 ppm - 10,000 ppm with an average error of 4.8% and a maximum error of 24.6% at low concentrations.

Keywords : MQ-4, raspberry pi, sensor, methane gas