ABSTRACT

Biogas is one way to get renewable energy. Biogas can be obtained by anaerobic process. One of the biogas products for renewable energy is hydrogen. Hydrogen gas is the most abundant element in the universe with a percentage of about 75% of the total mass of elements in the universe. Hydrogen is alternative energy that is eco friendly because it doesn't cause harmful exhaust emissions. Hydrogen gas is colorless, odorless and flammable. Because of its flammability, hydrogen gas can be used as a fuel source. But the data on the concentration of hydrogen gas (H2) is difficult to obtain, because at this time the equipment for measuring the concentration of hydrogen gas is very limited. Therefore to solve the above problems is to make a measuring instrument.

In this study, there will be made a set of measurement instrument for the concentration of hydrogen gas (H2) in biogas was made from fermented rice, corn, and potatoes with a scale 10-liter Anaerobic Digester Reactor using MQ-8 sensor with a measuring range of 100-10,000 PPM to measure hydrogen gas concentration (H2).

Measurement instruments that have been made will then be calibrated so that they are suitable to be used to measure the concentration of hydrogen gas (H2). The design of this measurement instrument uses Arduino Uno as a microcontroller which will be calibrated by comparing the results of the MQ-8 sensor and the gas chromatograph result as the final value.

Keywords: Biogas, Hydrogen Gas Concentration (H2), MQ-8, Arduino Uno.