ABSTRACT

At this time, Gas Fuel, began to be widely used for various purposes. Sources of gas fuel are natural gas and biogas. Both gas sources contain methane gas (CH_4) and carbon dioxide (CO_2). the required gas content in BBG is CH_4, while CO_2 gas must be minimized using a gas purification process, because it can reduce the fuel value of BBG. At PT Aimtopindo Nuansa Kimia, they want to build a pilot plant for gas purification using the Pressure Swing Adoption (PSA) method. In this study, a Pilot Plant monitoring system was created using a microcontroller as a receiver, processor and sender of data that is read by all sensors. The sensors used are two pressure transmitter sensors, two thermocouple temperature sensors, and two CO_2 sensors. So, it can be monitored via the LCD with time intervals (1 second/data), the IoT website with time intervals (2 seconds/data) and all data can be stored using the SD Card module with time intervals (5 seconds/data). Obtained an average accuracy rate of 96.16% for the Pressure Transmitter sensor 1, 95.70% for the Pressure Transmitter sensor 2, 95.45% for the Pressure Transmitter sensor 3, 95.40% for the Pressure Transmitter 4 sensor, 96.54 % for type (k) 1 thermocouple sensor, 98.34 % for type (k) 2 thermocouple sensor, 98.09 % for CO_2-Input sensor, and 94.4 % for CO_2-Output sensor. Based on the results of the tests that have been carried out, this system can monitor properly.

Keywords: CH_4, CO_2, Gas fuel, Monitoring, PSA