

ABSCTRACT

Incinerators use combustion methods to treat waste processing to reduce environmental pollution caused by waste. Incinerator is a waste burner that can reduce the problem of waste accumulating in an area. Incinerators can be a solution to generate electricity. With a combustion chamber temperature between 800 - 1200 °C, the heat energy generated by the incinerator has the potential to generate electricity for an area. The heat produced by the incinerator can be used to generate electricity by the process of converting heat energy into electrical energy. The heat energy in the combustion chamber in the waste burning process is used to heat the boiler which produces vapors. The water vapor produced from the high-temperature combustion process has a vapor pressure which is expected to be able to rotate the steam turbine.

To control the vapor pressure to enter the turbine, research is needed on the design of the valve control system. Fuzzy logic method is used to design valve control systems. The valve control system will determine the required steam pressure setpoint, then when the steam pressure reaches the setpoint, the valve will open according to the program and drain the steam into the turbine. Furthermore, the steam turbine will be connected to a generator to produce electricity.

Based on the results of the final project of designing and implementing Fuzzy Logic Controller on the turbine inlet valve control system, it was found that the turbine rotation reached 2741 RPM at a pressure of 2.54 Bar with a setpoint of 1 Bar and needed 19 minutes 30 seconds.

Keyword : *Electricity, Incinerator, Energy Conversion*