

## ABSTRACT

*Measurement of fluid flow rate is a measurement to obtain the required data. Fluid flow rate measurement has many types of fluid flow measurement devices vary, depending on the measurement principle used. Fluid flow measurement is important when it comes to flow control. In practice, there are some flow rate measurements that have not been equipped with a valve control system. So the user can not control the required valve rotation. Therefore, in this study developed a system of measurement and control of gas flow. There are several purposes in this study, among others, valve control using a setepper motor, and fluid flow rate. The process performed by the flow sensor will be received and processed by the microcontroller and then displayed via lcd. Arduino Uno is a component that is used as a data processor obtained from sensors and as a stepper motor drive. In this study the sensors used are YF-S401 and stepper motor 28byj-48. The average error value obtained by the sensor is 5.92% and the level of accuracy is 95.08%. Comparison of each graph, the increase in KP value will lead to shorter response time. Conversely, a decrease in the Kp value will also lead to a longer response time. Therefore, the results are close to the setpoint is to use the error value multiplied by 3 and it can be concluded that the overshoot occurs at 4.28 liters/minute or has a difference of 2.28 liters/minute from the setpoint, rise time of 14 seconds, peak time at 16 seconds, settling time of 68 seconds, and for the next system response to the steady state with a steady state error value of 1.3%.*

**Keyword :** Fluid Flow Rate, Microcontroller, Stepper Motor, Valve