

ABSTRACT

The rapid development and advancement of technology in one of the control systems had a very important role and provide convenience for human survival. As an example of room temperature control that maintains a stable room temperature, a temperature control system can be implemented using a PID controller and LabVIEW. In the temperature control system, an LM35 temperature sensor is used to measure the temperature output in the room and a fan is installed in the room to lower the temperature when it reaches a predetermined setpoint and keep the room temperature in stable condition. Sensor data processing using the NI-DAQ USB 6008 and the PID Tuning using the Ziegler-Nichols method. The tuning value obtained with the best response on the system is $K_p = 2.727$, $K_i = 0.056$, and $K_d = 4.4$. The response time to reach a stable point temperature when using PID of 120 seconds tends to be faster than not using PID getting a response time of 240 seconds with a time difference of 2 minutes, with a stable temperature in the range of 29°C. The results showed that using PID in the system greatly affected the response time to reduce the temperature in the room. The data output graph is visualized on the ThingSpeak web server as data collection using an internet connection so that the data output information can be viewed on the ThingSpeak web.

Keywords : *Temperature, PID Controller, NI-DAQ USB 6008, Ziegler-Nichols, ThingSpeak*