ABSTRACT

Nowadays, the development of science and technology become more complicated. Mainly to learn the knowledge about control system. We need the learning instruments such as simulators or props that can help us describe the workings of a real-time control system. So, the student not only know the theory by mathematic modelling but also can see the real system when studying control system especially about PID Control

There are many ways to help students learn PID control system in controlling a plant. This system use National Instruments Labview to process PID control and image processing. The position of the ball in the square plate is processed by image processing to create the set point and feedback by using *NI-IMAQ* module. The system is pointing the ball to reach the the set point coordinate by moving the plate with two servo motors underneath. The movement of servo motors is based on the output of PID control. For the output device from a PC to the motor, we use *NI DAQ-6008* and microcontroller to drive the servo motor.

PID control is used to decrease the error system so the ball approach the right coordiante. Based on feedback we know the last position of the ball. The error is used to make a movement of servo motors, so the ball located the right position according to the set point on (0,0) of plate.

Keywords: National Intrument, Labview, PID control, Labview, NI-DAQ.