
Abstract

The control system of industries plays a very important role in the automation of an equipment mover, which is the process of operation requires a level of reliability and high accuracy. For example industry operating systems such as water level control, pressure, temperature, humidity, flow and many more that require automatic control system. To achieve a reliable operating process, the use of automatic control is essential as part of a solution to overcome the weaknesses of the user / operator / technician.

In this final project has been created a faucet control electronics (electrical valve) with PID control. Microcontroller rotated the motor so that the valve would be opened or closed in accordance with given instructions. In this final project have been used a PLC as controller inputs and the microcontroller as the processing motor driver L298, LCD 16x2, DC motor, potentiometer sensor. This system could be controlled by PLC by implementing the multiplexer of ladder diagram or ADC-DAC PLC, next PLC DAC output is connected with ADC microcontroller ATmega8535.

Data obtained in the use of PID control at the point of maximum opening 218 on this system have been able to fix in all point, there are have been able to fix unit step response, eliminating steady state error and giving damping effect eventhough the settling time becomes longer with the parameters $K_p=1$, $K_i=0.8$, $K_d=0.6$ and $t=0.65$. With these parameters in point 218 settling time becomes faster 7.66124875 second (23.65765 – 15.99640125) instead of settling time before the implemented PID ($K_p=1$, $K_i=0$, $K_d=0$ and $t=1$).

Keywords: control systems, PID, electronic valves, microcontroller