



MIDDLE EAST TECHNICAL UNIVERSITY

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

EE407
PROCESS CONTROL
LABORATORY

EXPERIMENT 3
LEVEL CONTROL SYSTEM WITH
ELECTRONIC CONTROLLER

Date of the Experiment:

17/12/2018

Lab Group:

Monday Afternoon 1

Group Members:

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I. Results

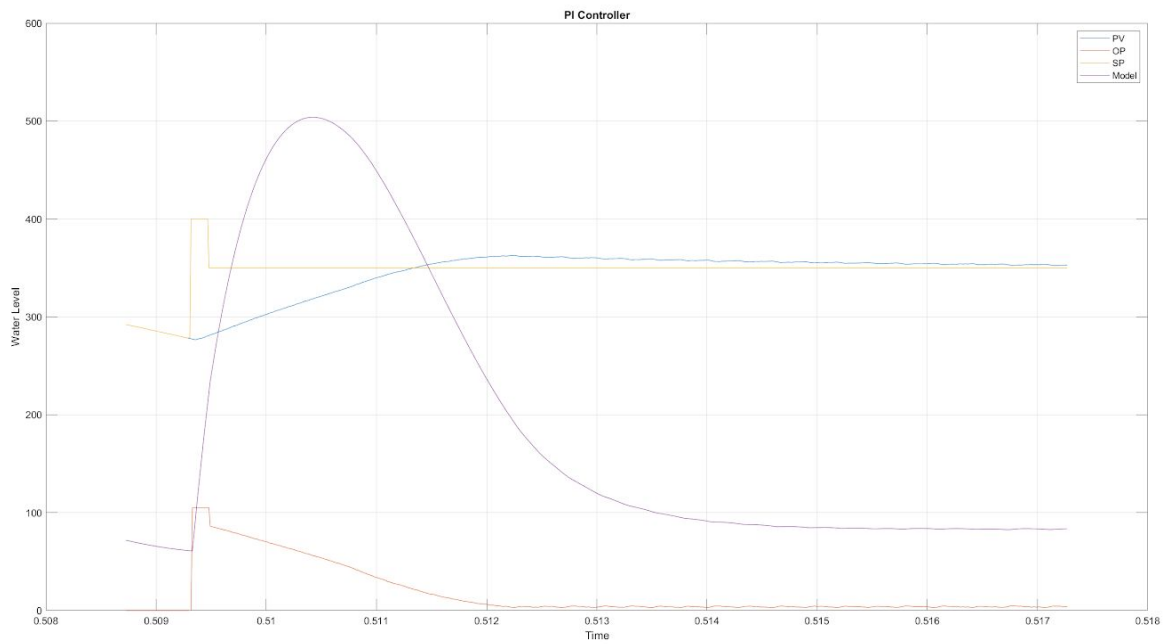


Figure 1: The step Response of PI Controller

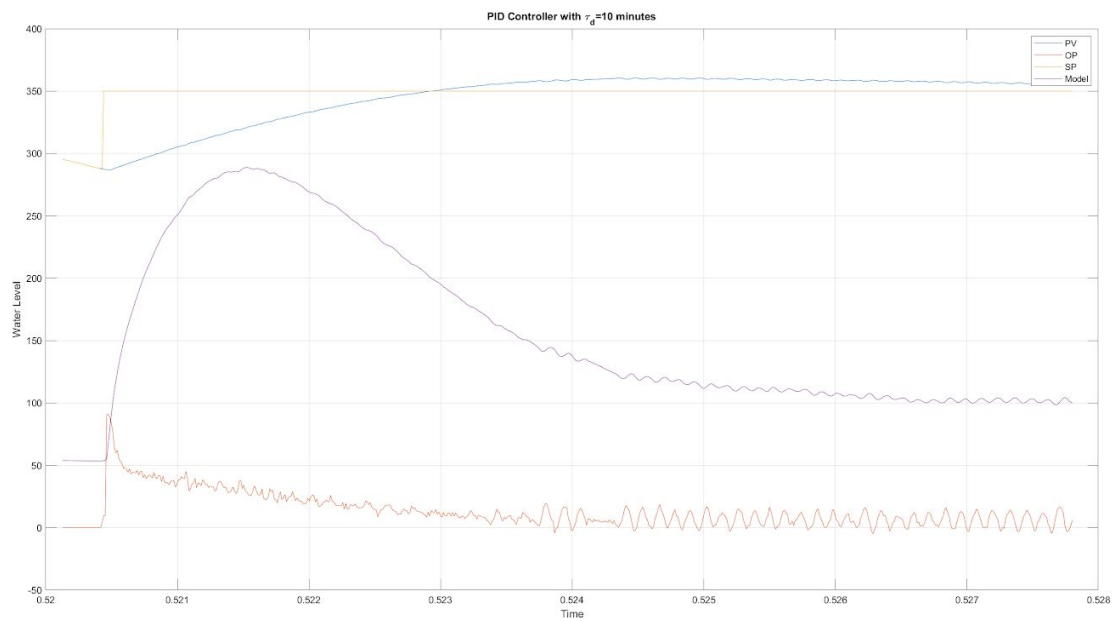


Figure 2: The step Response of PID Controller(TD=1 min)

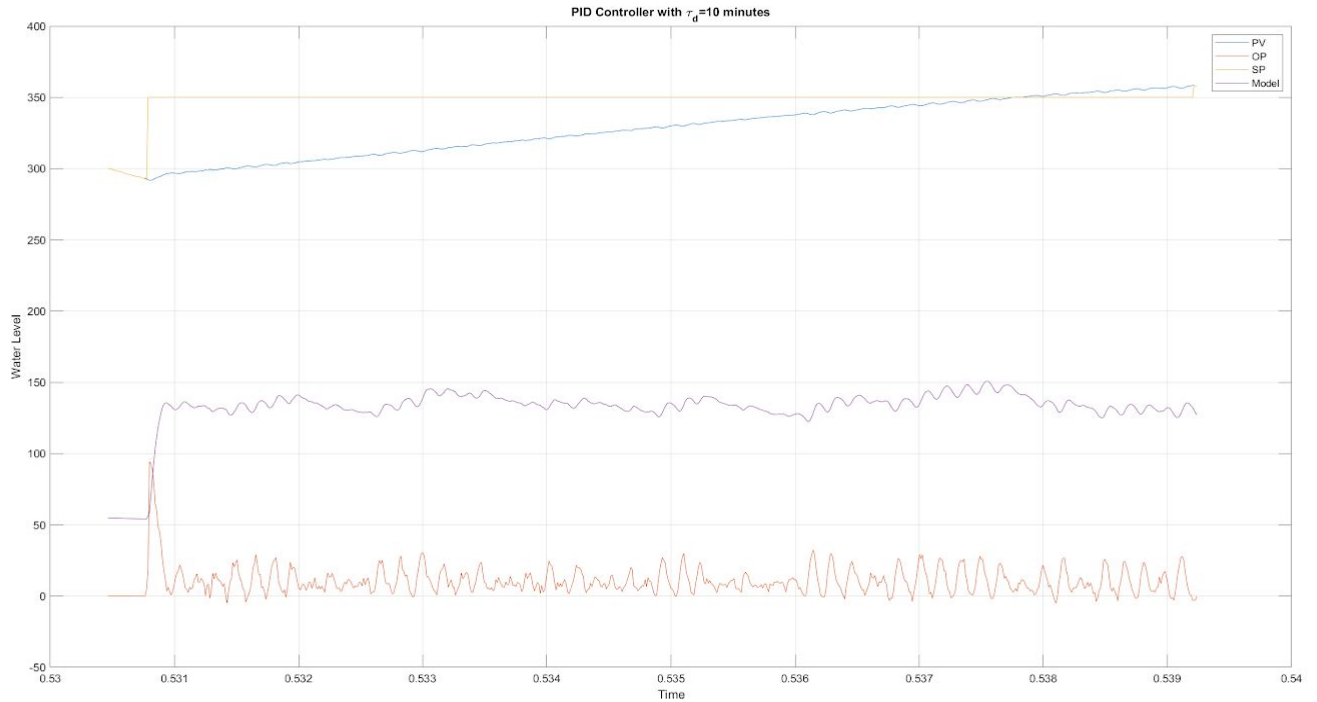


Figure 3: The step Response of PID Controller($\tau_d=10$ min)

II. Conclusions

In this experiment, the level control system is observed. The electronic controller with PID is observed. This experiment provides us to get familiar with industrial distributed control system and working with mechanism of a control system.

As we can see from the plots, we observe the effect of the PI controller to increase the overshoots and oscillations, the transient time(peak time) decreases the settling time increases in return.

We can observe the effect of the PID controller as the oscillations got decreased since the damping factor is increased. However, the derivative controller has amplified the noise values which is undesirable. We can see the effect of derivative controller for different τ_d values. The noise amplitude increases for large τ_d . as can be seen from the differences of Figure 2 and Figure 3.