DESIGN CONTROL SYSTEM OF LEVEL STEAM DRUM WITH LINEAR QUADRATIC GAUSSIAN (LQG) CONTROLLER METHODE AT PT. PJB UP GRESIK

Name : Muhammad Husni
NRP : 2404 100 052
Departement : Engineering Physics FTI-ITS
Advisor : Dr. Bambang L Widjiantoro, ST,MT

Abstract

PI Control (Propotional Integral) to level control at steam drum has limitation to handle measurment and process disturbance in the plant. That’s problems have maked large variability of level at ± 0.01 m and decrease efficiency in boiler plant. This final project do research about LQG control at level control. The characteristic of LQG control defected by weight Q and R of performance indeks. The weight it to influence gain of controller, where the tuning of controller gain doing when plant process is working “on”. The result of tuning regulator it have get best of weight Q and R is 1 and 1and for filter kalman get Q and R is 59.21 and 1. the result of some experiment, the LQG control have changed deliver variability of Level be ± 0.001 m even thought PI control have changed deliver variability of Level be ± 0.001 m; then on settling time, LQG controller more fast 15 s than PI controller. $LQG = 35 \, s, PI = 15s$.

Keywords : LQG control, PI control, Steam drum.