ABSTRACT

One of the problems in industrial world is water level controlling system on a storage. Based on survey in 1989, it was mentioned that 90% process in industrial world are using PID controller due to its simple design and has a good performance. However one of PID weaknesses is the control parameter highly depend on control object, whereas we know a fluid process on a storage has a dynamic that results nonlinearity effect so it will affect system performance. Therefore it needed Gain Scheduling method which able to overcome that effect thus obtained an optimal response.

On this final project the author will devise, implement, and analyze PID Gain Scheduling method in water tank system thus obtained optimal response on every setpoint. This system will also be used as a study material at Control Digital Laboratory in Telkom University, that expected could give a new insight for Telkom University students.

As a result based on eight different setpoint given to the system, Gain Scheduling PID could enhance system performance i.e transient response. Specifically 4% faster rise time and settling time response in average and relative overshoot response.

Keywords: Gain Scheduling, PID, nonlinear system.