ABSTRACT

The control system consists of a set of devices and equipment electronic equipment capable of handling stability, accuracy, and eliminating errors in the system. Water level control system is one that requires a level of stability. Control the water level is very much needed in the world of industry, for example in the chemical industry, oil and gas production processes, and others.

In this thesis the author to create or design a control system that can provide stability at the height of the water. Perfect stability of this water level will be designed with adaptive PID implementation. The use of this method is intended for the control system is able to adapt terhadapat changing circumstances. At the height of the water control equipment design uses ultrasonic sensors as feedback, Arduino Mega 250 as the controller and pump DC motor actuators.

After Adaptive PID control is realized to the height of water level control system resulted in rise time on the setpoint of 8 cm to 17 cm are likely to equal that with an average $\pm$ 46.6 seconds, settling time with an average of $\pm$ 54 seconds, has overshoot of about $\pm$ 0.09 cm and error steady-state of response does not exist.

Keywords: Control System, Adaptive PID, water level, rise time, settling time, overshoot