ABSTRACT

Water is a natural resource which is the basic need of every living thing, including humans. The water obtained in the form of ground water, river water, rainwater, and spring water can be used as a source of clean water through the processing stages. Water Treatment Plant is an installation system that carries out a number of water treatment processes from raw water to clean water for human use. The pH level control stage is one of the stages in the Water Treatment Plant.

In this final project research designed a pH control system in water using a PID controller (Proportional, Integral, Derivative). The pH value of water is at a value of 7pH or at the set point that is entered. With the use of PID control in controlling water pH levels, it is intended to automate the process that occurs.

The system designed in this study is able to read the pH of the water with an accuracy of 98.68%. This system uses PID control with the parameter Kp = 35.0; Ki = 0.1; Kd = 60.0 for conditions when the difference between the pH value and the setpoint is ± 1.00pH, and the parameter Kp = 37.0; Ki = 0.005; Kd = 0.005 for conditions when the difference between the pH value and the setpoint is ± 0.50pH, it can control the pH level at the set point quite quickly, and has an error range of ± 0.25pH.

Keywords: pH, Water Treatment Plant, PID controller