

## ABSTRACT

*Water Level Meter* or usually referred to as a water control system in a tank or container whose function is to be able to find out the water level that is happening, where most of the water use is intended for bathing needs in a home installation. In the process of filling the home water tank, conditions often occur where the pump motor is not controlled at all, where it can cause large power consumption when used and can also damage the motor because the motor often turns on and off suddenly.

In accordance with the problem, it is necessary to control the water tank filling process. So the purpose of this proposal is to design a water level control system where the speed of the ac motor pump can be controlled using the *Proportional-Derivative* method which aims to reduce the usage power when charging and can also extend the life of the pump motor. The process of high water levels that is happening can also be monitored directly via the Web on the safari mobile device.

After implementing the Proportional-Derivative method with a value of  $K_p = 3.10$  and a value of  $K_d = 0.05$  with a range of duty cycle values from 66% to 50%. Obtained an average motor output power of 142.91 Watt, with every control parameter values of rise time is 0.159 s, settling time is 0.259 s, steady state error is 0.000704 and overshoot is 0.375% at 0.4 s.

**Keywords:** Water Tank, AC Motor Pump, Ultrasonic, Monitoring, *Proportional Derivative*