ABSTRACT

TELEMETRY AND CONTROL OF FLUID TANK

Fluid Level Control is a control system that regulate the fluid level in a tank. In practically, Fluid Level Control is applied as a control system experimenter in the digital control system laboratory. Currently, devices produced by factories are quite expensive, and the device only use serial communication. Therefore this Fluid Level Control comes as an alternative by using the concept Internet of Things (IoT), so that the fluid control mechanism can be done remotely. The system runs using dual PID controls to regulate fluid pump speed.

The implementation of this control process uses a closed loop system. In contrast to conventional PID, dual PID controllers work in two conditions. First when the error value is less than 1cm, and second when the error is more than 1cm. As for the telemetry, the Wemos D1 Mini is used. Thus, the actual value of fluid heights can be displayed on smartphones and PCs via the web.

The results of the research used the double PID method with the PID Constant Value specifications K_{p1}=300,K_{p2}=225, and K_i=67.5, and complemented by using the Average filter, show that the system's performance was running well at the setpoint 15 cm with average error is 0.63% and also strongest when given disturbance at 8cm. So that this system can be used as an alternative device for digital control system experimental with a cheaper price. This system can be also more user frendly, because the setpoint value, and the PID constant can be set from the web.

Keywords: *Telemetry, PID, Level Control, Hybrid Control*