APPLICATION OF ULTRASONIC SENSOR ON THE
CONTROL SYSTEM OF WATER LEVEL

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Abstract

At the end of this task has been the application of the instrumentation system of ultrasonic sensors on the control system of water level. Control method is used Integral Proportional derivative control (PID).

Tests conducted with the sensor uses five types of fluids namely Oli SAE 20, SAE 40 Oil, paraffin oil, cooking oil, and water. Tests on the sensor Oli SAE 20, SAE 40 Oil, oil and paraffin oil are conducted to know the response of the ultrasonic sensor is used to type fluida. Test results on the four types of fluida indicates that the ultrasonic sensor is used not influenced by the type of fluida. Sensor test done on the water during the evacuation and provision with the range 80 cm to 10 cm. Test results indicate sensor capable of reading the water level of height with an error ± 3 mm.

Tuning of PID parameters is done by trial and error using simulink software. Tuning done with some variations of PID control parameters. From the results obtained penalaan the value of $K_p = 5$, $K_i = 0.1$ and $K_d = 0.01$.

Keywords : PID control, ultrasonic, level, sensor systems, instrumentation