ABSTRACT

Fuel stock monitoring systems are widely used at gas stations. Many problems are encountered due to non-automatic systems usage. Most recent level monitoring system still use a manual stick.

This final project is conducted to design the automatic level measurement device using ultrasonic wave by means time of flight method. The system is consisted of ultrasonic transmitter and transmitter based on ATMEGA8535 microcontroller. Both transmitter and receiver are aimed to the tank. The distance is proportional to the period between the beam is started, until the beam is received.

The experiment result shows average error of about 0.495%. The pump produces volume error of about 6%, since it works based on the on and off state. The measured volume has 5% average error compared to the volume yielded by the pump. While the overall system average error reach up to 24.5%. Ultrasonic usage on level measurement based on wave beaming involves no direct contact with the measured medium. This in turn prolong the sensor lifetime.

Keywords: Ultrasonic Sensor, Microcontroller, 485 Communication system.