ABSTRACT

Household water resource generally come from PDAM or from under the ground. For supplies usually use water tank at certain altitude with water pump. Automation system of water pump generally uses the mechanical system of ball buoy. The ball buoy system is considered a waste of electricity and make water pump easily broke because the pump always start and stop for short period of time. Meanwhile, in radar buoy system the rope that attach both buoy often get hooked by pipe inside the water tank with the result is water pump is always on even though the water is overflowing. The other problem is when water supplies from PDAM or below the ground is empty and the water pump is on, that makes water pump always on. It can cause overheating and broke the waterpump because water pump suck nothing.

In this final project, it is designing and realizing an electronic water pump automation system using a water border sensor inside water tank. The water border sensor was made from cundutor cable that send electric signal to transistor circuit and then send to microcontroller so it can proccess the signal. For water pump protection, it added water source sensor. So when there is not any water source, water source sensor will pop the buzzer. For additional, it added water flow sensor to count water flow and volume of usage water. For monitoring, the data from sensor will be sent to aplication in real time.in the application we can see water tank status, water pump status, water flow, volume of usage water, and water source status.

In relation to the design and realization results, testing is conducted in the form of comparing the efficiency of electricity usage with an electric water level automation system, which is capable of saving power by 50% compared to the conventional method (ball buoy). Additionally, measurements of the quality of service (QoS) were conducted, in the form of response time from the device to the application based on delay parameters with an average of 63.37 ms and a Packet loss parameters with an average of 0%.

Keywords   : water tank filling automation, water pump, water border sensor.