

ABSTRACT

Microhydro is a power plant that uses micro-hydro power as a power source that is built on a small scale. MHP working system using discharge flow of water from the water tank that will drive the turbines that generate a voltage of the generator. Turbine speed must be controlled in order to have a constant speed so that the frequency of 50 Hz resulting always in accordance with the standards of PLN in Indonesia.

Labaratorium Basic Control Systems IT Telkom has a Microhydro Power Plant which may be considered as hydropower miniplant. The miniplant consists of reservoir, also the turbine wheel. The amount of water in the reservoir is not constant. As a result the flow of water that will rotate the turbine is also not constant. As with hydropower above, wheel rotation speed must be controlled to be constant by providing a constant flow of water. A constant flow of water regulated by regulating the opening of the valve. That miniplant has not been controlled for that by utilizing the means available in the DSK Labaratorium the Author designs and implements control systems for turbine rotation speed on miniplant using Omron PLC CP1H.

In this thesis, the turbine rotation speed of hydroelectric power miniplant (MHP) control system which was built capable to control the turbine. Spinning mill with a range of 00-50 rpm with dynamo maximum output voltage is 0.53 Vac. Using PLC large valve openings arranged to discharge water wheel turning constantly. Control system response is not too good because the output of the dynamo that is not constant and has not applied the PID control.

Keywords: Microhydro Power Plant, turbine, rotation speed control, Omron PLC