ABSTRACT

Water pumps are the main requirement of some farmers and the main needs in the household, both for the needs of drinking, cooking, washing, bathing and daily necessities as well as the need for irrigation of plantations, parks and others. Then the water pump is useful for supplying water to the desired place as a daily necessity

At present to take water from the source using a water pump because it is quite efficient and easy to get a water pump according to their individual needs, the problem that exists at this time is the source of the water pump driving the increasingly expensive electricity bills. From this problem produced the idea for "Solar Powered Water Pump Design and Implementation" where this technology can produce electrical energy from sunlight through the absorption of Photo Voltaic Modules, then the electrical energy will be stored in the battery or battery and the DC voltage on the battery or battery will be changed to AC voltage is processed on the inverter, AC voltage will be passed to the electric water pump so that the water pump can work so that it can drain the water to the desired place. At the water pump installed a water level control device that serves to read the volume and height of the water and turn off and turn on the water pump automatically.

With the existence of this solar-powered water pump, the results of solar panel testing were obtained, the test was carried out on average 60 minutes from 08.00 to 14.00 for three days, on average. temperature of 29.5 ^{o}C, voltage of 12.73V, load current of 0.60A, and power of 95.51 watts. The test results of the water level control get the error of water level of 0.11cm, the error voltage is 0.536V which means the power supply voltage is 9.536V, and the measurement error is 0.09 Liter. Measurement errors can be caused by a number of factors including inaccurate measuring cups, measuring the length and width of the container that is not very precise in each corner of the power container and the rippling or non-dynamic water condition causes inaccurate sensor readings.

Keywords: Water, water pump, solar cell, inverter, battery, water level control