

2-AXIS SOLAR TRACKER PROTOTYPE DESIGN WITH PHOTOVOLTAIC POWER MONITORING BASED ON MICROCONTROLLER NODEMCU ESP8266

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ABSTRACT

Renewable Energy acts as an alternative to non-renewable energy such as fossil energy. One of the renewable energy is energy from sunlight. This energy is available every day and is spread in all areas on this earth. The solar energy received in Indonesia is approximately 4.5 kWh/m²/day in the west and 5.1 kWh/m²/day in the east. One of the tools that can be used to capture solar energy is a solar cell. Solar cell or photovoltaic (PV) is a device that can generate electricity from light energy. At this time, most of the solar cell installations are still in a static or stationary state. This causes the absorption of solar energy is not optimal. With this in mind, a tool called the Solar Tracker was made. Based on the test results, the system designed can read the position of the direction of sunlight and follow the movement of sunlight and can send the results of measuring voltage, current and solar cell power to the android application. The voltage and current measurement system in monitoring has a good level of accuracy, namely at 98.99% for voltage accuracy and 99.66% for current accuracy.

Keywords: *solar tracker, solar cell, PV, microcontroller.*