DESIGN OF DUAL AXIS SOLAR TRACKER FOR STREET LIGHTING WITH ARDUINO UNO MICROCONTROLLER

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ABSTRACT

Solar energy is one of the renewable energy sources that can be used as a source of electrical energy in solar power plants. In this case the use of solar cells or solar panels is still installed statically. This study uses a dual axis solar tracker system so that in utilization it can produce a greater voltage. To get the maximum absorption of solar energy, the position of the solar panel must always follow the direction of the sun's rays. The dual axis solar tracker system is used to optimize the absorption of sunlight. The dual axis solar tracker uses 4 LDR sensors to detect the direction of the sun. The microcontroller used is Arduino Uno as a control system, but it is also equipped with an inverter which is used to convert DC to AC voltage. Solar charge control is used to control the charging line in the battery and as a supply to the load. In this study, the black box testing method was used. From the results of the study, it was found that the output of solar panels using a dual axis solar tracker system got greater results with a voltage of 15.17 Volts and without using a solar tracker system the output of solar panels was 13.10 Volts.

Keywords: *Solar Cells, Dual Axis Solar Tracker System, Arduino Uno, LDR (Light Dependent Resistor) Sensor*