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DESIGN AND DEVELOPMENT OF SOLAR TRACKER

Design Project

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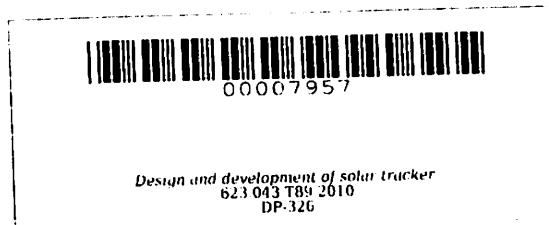
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^aDESIGN AND DEVELOPMENT OF SOLAR TRACKER

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ABSTRACT

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The Design and Development of Solar Tracker was conducted at Saint Anthony Village Salitran 3, Dasmariñas, Cavite. The general objective of the study was to design and develop a solar tracker that would track the sun as it move.

The project was composed of a single circuit; the Solar Tracker. The Solar Tracker was composed of solar panel, photo sensors, limit switches, motor and 12v lead acid battery. The Solar Panel absorbs sunrays convert the sunrays into electricity and will charge the battery that supplies the circuitry. The limit switches serves as the limiter to the rotational movement of the solar panel. The motor moves in a clockwise or a counter clockwise rotational direction. The photo sensors serve as the triggering device of the motor.

The design project was evaluated by comparing the two batteries that was charged from a solar tracker and a stationary solar panel. The batteries were discharged at the same time before charging for 3 hours. After it was charged, the batteries were connected to the same load and measure how long it can supply the load. The result was that a battery charged from a solar tracker was more efficient than a battery charged from a stationary solar panel.

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DESIGN AND DEVELOPMENT OF SOLAR TRACKER^{1/}

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INTRODUCTION

Renewable energy solutions are becoming increasingly popular. Photovoltaic (solar) systems are but one example. Maximizing power output from a solar system is desirable to increase efficiency. In order to maximize power output from the solar panels, one needs to keep the panels aligned with the sun. As such, a means of tracking the sun is required. This is a far more cost effective solution than purchasing additional solar panels. It has been estimated that the yield from solar panels can be increased by 30 to 60 percent by utilizing a tracking system instead of a stationary array. This project develops an automatic tracking system which will keep the solar panels aligned with the sun in order to maximize efficiency.