SORAL TRACKER

**Abstract**

The main goal of increasing the efficiency is to get the maximum power from the solar panel. The project is to design and implementation simple and cheap price solar tracker system with two axes (azimuth angle as well as altitude angle) using Light Dependent Resistor (LDR) with real dimensions the project composed of solar panel, two-motor satellite dish and ball-joint, LDR sensor module and an electronic circuit. This project is compared with fixed solar panel and the results showed that solar tracker more output power than fixed solar panel. The project is divided into two parts; hardware and electronic. Hardware part generally composed of solar panel, two-DC motors with gearbox and LDR sensor module. Second part is electronic circuit. In this work sensing of the sun position carried out in two stages, first stage or direct sensing performed via set of LDR sensors as output tuning to trims the azimuth and altitude angles. second stage, when the weather is cloudy, dusty or rain, the tracking system will stop so the system stay in the position of the sun without move. The energy extracted from photovoltaic (PV) or any solar collector depends on solar irradiance. For maximum extraction of energy from the sun, the solar collector panel should always be normal to the incident radiation Solar trackers moves the solar collector to follow the sun path and keeps the orientation of the solar collector at an optimal tilt angle. Solar tracking system improves substantially the energy efficiency of photovoltaic (PV) panel. In this paper, an automatic dual axis solar tracking system is designed and developed using Light Dependent Resistor (LDR) and DC motors on a mechanical structure with gear arrangement. The results indicated that the automatic solar tracking system is more reliable and efficient than fixed one.

**Problem statement**

**Block diagram and description**



ARDUINO

UNO

LDR 1

LDR 2

LDR 3

SORAL

PV

LDR 4