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## Smart Solar Tracker With Energy Monitoring

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### Abstract

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### Abstract:

Renewable energy is quickly gaining importance as an alternative energy resource since fossil fuels are limited and their prices are very costly, sun being the biggest source of free energy. The main aim is to utilize the energy getting from the sun in the most efficient way. Also, farmers and other non-technical people in our country are unable to calculate the power consumed and amount of back-up that will be getting according to the load connected to the battery. Thus, the proposed system gives the solution for both the problems by making proper and efficient use of it to solve the crisis of reduction in fossil fuels, since solar is available in abundance. This is a smart system which aims to develop a dual axis solar tracker with an IoT (Internet of Things) monitoring system using a microcontroller. Solar panels must be aligned with the sun using a system that tracks the sun in order to optimum power output. Using panels that can revolve along an axis in relation to the location of the sun can increase conversion efficiency by at least 30-40%. Proposed system can be remotely operated using IoT. This report represents the design of a smart solar tracking system which is based on the MSP430 Microcontroller which provides movement of the solar panel in dual axis mode in direction where maximum sunlight is incident. The data which is collected from the system is stored in a cloud. So as it is observed, a two-axis solar tracking system generates more power. It is easier to maintain, no electricity required, no fuel cost and easy to install with long operating life.

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