Abstract

This paper presents the hardware design and implementation of a system that ensures a perpendicular profile of the solar panel with the sun in order to extract maximum energy falling
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on it. Renewable energy is rapidly gaining importance as an energy resource as fossil fuel prices fluctuate. The unique feature of the proposed system is that instead of taking the earth as its reference, it takes the sun as a guiding source. Its active sensors constantly monitor the sunlight and rotate the panel towards the direction where the intensity of sunlight is maximum. The light dependent resistor’s do the job of sensing the change in the position of the sun which is dealt by the respective change in the solar panel’s position by switching on and off the geared motor. The control circuit does the job of fetching the input from the sensor and gives command to the motor to run in order to tackle the change in the position of the sun. With the implementation of the proposed system the additional energy generated is around 25% to 30% with very less consumption by the system itself. In this paper, an improvement in the hardware design of the existing solar energy collector system has been implemented in order to provide higher efficiency at lower cost.

Reference

- Muhammad Faheem Khan and Rana Liaquat Ali “Automatic Sun Tracking System (ASTS)”, Faculty of Electronics Engineering, Air University, Islamabad, Pakistan.
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Index Terms

Computer Science
Energy Systems

Key words
Photovoltaic (PV) Light Dependent Resistor (LDR)
Automatic Solar Tracking System (ASTS)