

## Design And Manufacturing Of Two Axis Automatic Solar Tracking System.

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### **Abstract**

*Solar energy has experienced rapid growth in the recent years due to decreasing non renewable source and renewable energy development and utilisation. this study analyses the technical, economic and policy aspects of solar energy development. while the cost of solar energy has decreased rapidly in the resent years, it still remains much higher than cost of conventional energetic technology. solar energy technology could help increase a demand of a energy in rural and remote communities, help improve long term energy security and help to reduce carbon dioxide emission. In particular the expansion of the market for grid-connected distributed PV systems. overcoming current technical and economic barriers will requires research and continue development, and to reduce costs of initial investment and to improve production efficiency.*

**Keywords**— *Solar Panel, Microcontroller, DC Motor, Light Dependent Resistor*

## I. INTRODUCTION

The increasing demand for energy, the continuous reduction in existing sources of non renewable energy source and the growing concern regarding environment pollution, and to explore new techniques for the generation of electrical energy using renewable sources such as solar energy. The conversion of solar light into electrical energy represents one of the most difficult and challenging energetic technique, continuous development with very low maintenance costs. In remote areas the sun is cheap source of electricity because instead of using non renewable sources; it uses solar cells to produce electricity. To generate electricity from the sun a photoelectric mechanism and subsequent development of solar cell- a semiconductive material used, that converts visible light into a direct current. The conversion principle of solar light into electricity, called Photo-voltaic or PV conversion. The output of solar cells depends on the intensity of sunlight and the angle of incidence. It means to get maximum efficiency: the solar panel remain in front of sun during the entire day. This problem results in decrease of their efficiency. To get maximum energy; it is necessary to have it equipped with a solar tracking system. The unique feature of solar tracking system is that instead of tacking 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.

## II. RELEVANCE

This topic is more beneficial as compared to fixed solar panels. As both do the same work as production of energy, but in our case our prototype has more advantages as compared to fixed solar

panels. As the automatic solar tracking panels has more maintenance problem and is more expensive but gives more energy output as compared to fixed solar panel. The efficiency of automatic solar tracking system is more than fixed solar system.

### III. MOTIVE

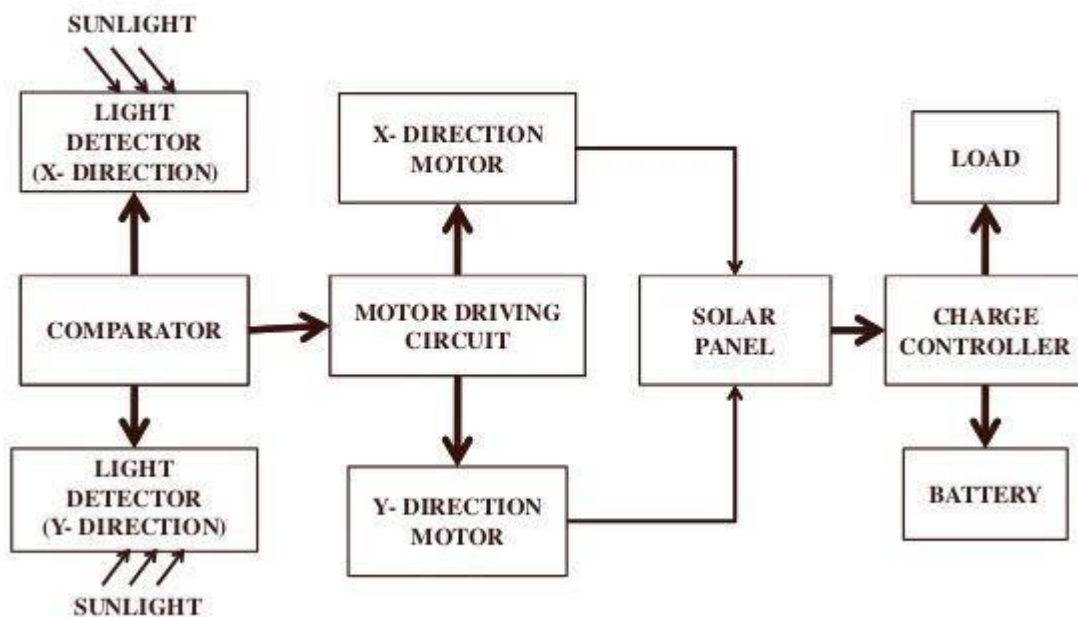
To increase the power or energy output by using automatic solar tracking system over a fixed solar panel. It generates more power within low maintenance cost and high durability.

### IV. OBJECTIVE STATEMENT

To design a more efficient solar tracking system and prove that the automatic solar tracking increases the efficiency over a fixed solar panel system. The rate of increase of energy efficiency is expected to be between 30 and 40 percent. Using horizontal and vertical motion solar panel which collects maximum sun energy on a small area as compare to fixed solar panel.

### FIGURES

Fig. 1 Block Diagram of Automatic Solar Tracking System



### V. SUMMARY

The aim of our project is to develop a automatic solar tracking system to generate maximum energy over a simple solar panel system. The existing simple setup of solar cell is converted into a movable solar tracking system using light sensors and DC motor; In order to increase the output power and efficiency of the system. The main advantages of automatic solar tracking system over a normal solar panel is that it can trace the path of the sun to absorb maximum sun light;

and it results into a optimum output.

Thus the proposed model will be able to get more energy output than simple solar cell and it is economical and beneficial to the society.

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