

AN INTRODUCTION TO SOLAR BASED PIEDRIVE

Rishabh Kumar¹, Kumar Manu², Rinku Kumar¹,
Rahul Bhardwaj¹, Rohit Kumar Agarwal¹
B.Tech. Final Year Students¹, Assistant Professor²
Department of Electronics & Communication Engineering
Moradabad Institute of Technology, Moradabad-244001
Uttar Pradesh, India

ABSTRACT

Now-a-days, dealers of natural resources like fuel, coal etc. are facing a hard time to keep pace with the increasing demand. Therefore, to carry out this demand it is quite necessary to make a new exploration of natural resource of energy and power. This paper will give an overview of a smart car operated by using solar energy.

KEYWORDS: Photovoltaic, PieDrive, Driving Assistive Systems, Solar Panel.

I. INTRODUCTION

Energy is one of the most vital needs for human survival on earth. We are dependent on one form of energy or the other for fulfilling our needs. One such form of energy is the energy from fossil fuels. We use energy from these sources for generating electricity, running automobiles etc. But the main disadvantages of these are that they are not environmental friendly and they are exhaustible. To deal with this problem we need to look at the non-conventional source of energy such as solar energy. Solar energy is radiant energy that is produced by the sun. With regard to this idea a prototype of a car that runs on solar energy is presented in this paper.

Organization: This paper has been organized into five sections. The first section comprises of brief introduction. The second is proposed model. The third section gives working of solar panel. Fourth section is about advantages and disadvantages. Fifth section is conclusion.

II. PROPOSED MODEL

The block diagram of proposed model has been shown in the figure 1. This model includes DC motors, stepper motors, motor driving IC's, a microcontroller, LCD and solar based power supply as the main components. This prototype of car will run from the current produced with the help of solar light. It will be a kind of backup to battery as it can be used to charge the battery. So it will run by the combination of both i.e. sunlight as well as battery.

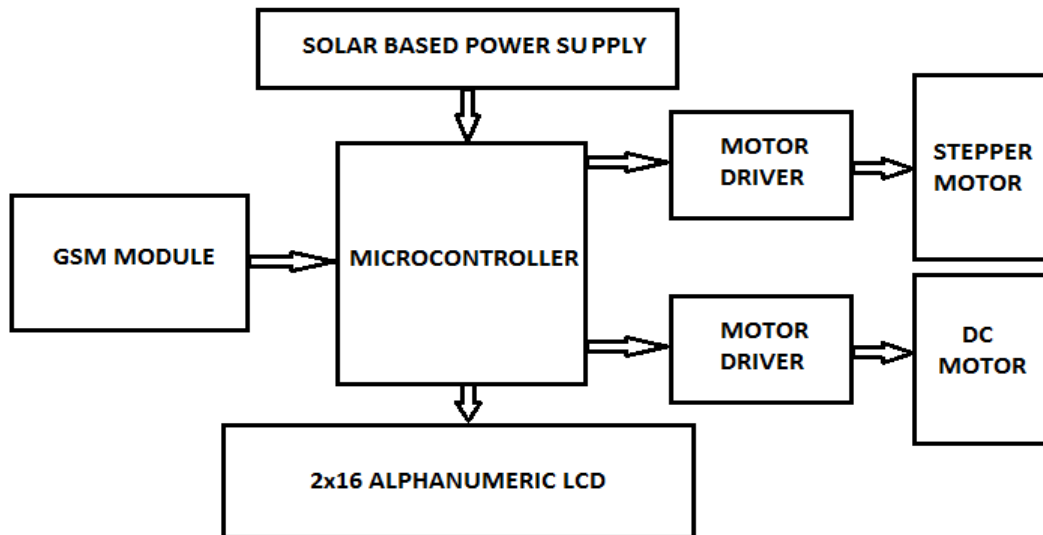


Fig.1: Block diagram of solar based pieDrive

III. WORKING OF SOLAR PANEL

Solar Panel refers to a panel designed to absorb the sun's rays as a source of energy for generating electricity. A photovoltaic module is packaged, connect assembly of typically 6x10 solar cells. Under the sun a photovoltaic cell acts as a photosensitive diode that instantaneously converts light into electricity. The basic unit of a solar panel is a solar cell, which usually consist of one or two layers of silicon based semiconductor wafer. The photon bombard and penetrate the cell by activating the electrons. When struck by the photons in sunlight, the solar cell generates an electrical charge due to the photovoltaic effect. The flow of these electrons moves in a steady electrical current from one side of the cell to the other.

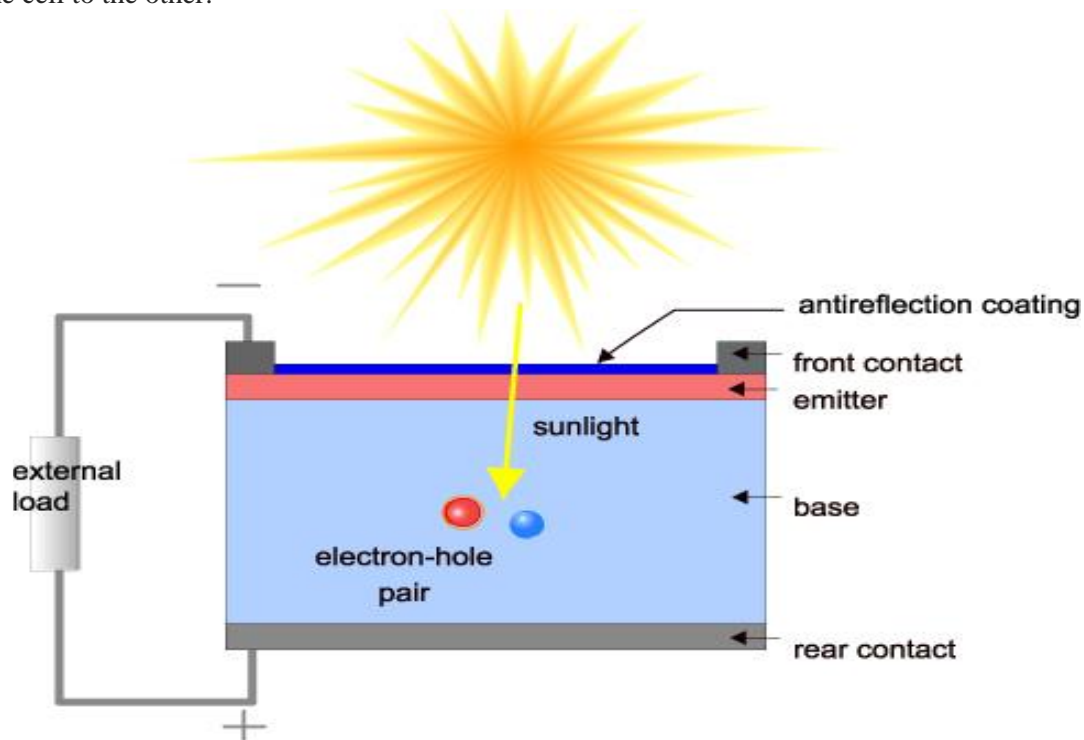


Fig.2: Basic diagram showing working of solar cell

IV. ADVANTAGES AND DISADVANTAGES

- Solar energy is energy supplied by nature- it is thus free and abundant
- This energy can be made available almost anywhere there is sunlight.
- It provides clean green energy. It is pollution free as it makes use of sunlight i.e. renewable source of energy
- Solar energy has intermittency issues; not shining at night but also during daytime there may be cloudy or rainy weather.
- Solar energy panels requires additional equipment's to convert DC to AC in order to be used on power network.

V. CONCLUSION

Use of non-renewable source of energy can help in having clean, reusable energy to power various equipment's. The use of this energy is free, does not create pollution, and if used wisely can help in becoming less dependent on other costly form of power. So, this type of car running on solar energy is very useful for the society.

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AUTHOR'S BIOGRAPHY

Rishabh Kumar is pursuing B.tech in Electronics & Communication Engineering from Moradabad Institute of Technology, Moradabad. Area of interest includes Digital electronics and Embedded system.



Kumar Manu is currently working as Assistant Professor in Department of E&C Engineering at Moradabad institute of Technology, Moradabad, India. He completed his B.Tech. from UP Technical University, Lucknow, India in year 2006 and M.Tech. from Motilal Nehru National Institute of Technology, Allahabad, India in year 2012. His current research areas are Observers, Neural Networks, Renewable Energy and Embedded Systems.



Rohit Kumar Agarwal is pursuing B.tech in Electronics & Communication Engineering from Moradabad Institute of Technology, Moradabad. Area of interest includes Matlab and Embedded system.



Rinku Kumar is pursuing B.tech in Electronics & Communication Engineering from Moradabad Institute of Technology, Moradabad. Area of interest includes Digital electronics and Embedded system.



Rahul Bhardwaj is pursuing B.tech in Electronics & Communication Engineering from Moradabad Institute of Technology, Moradabad. Area of interest includes Microcontroller and Embedded system.

