

Movable Solar Tracking System

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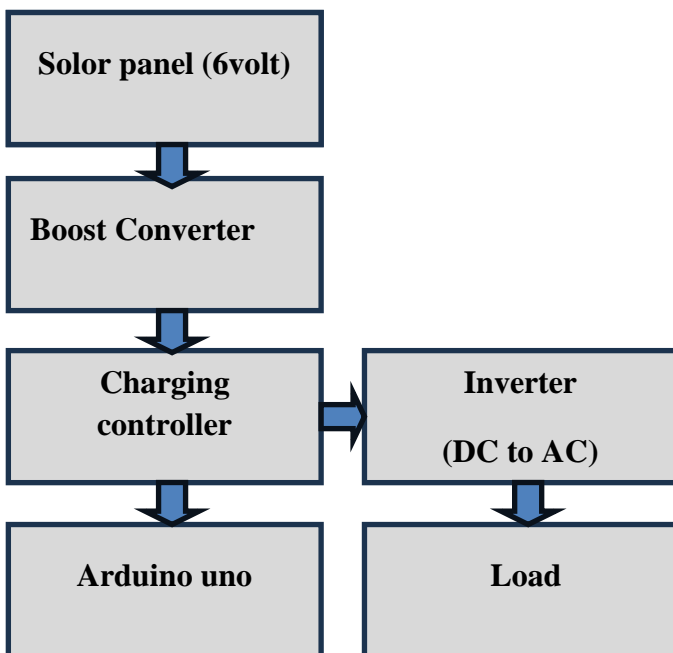
ABSTRACT - During the 20th century, the rapid growth of the human population significantly increased the demand for electricity. To meet this demand, a movable solar panel system was developed. This system is designed to occupy minimal space while efficiently generating electricity from sunlight. The solar panel produces an output of 8 volts, which is subsequently converted to 12 volts using a boost converter.

Key Words: Solar Tracking, Sun Position Sensor, Energy Efficiency, Solar Panel Rotation, Renewable Energy, Solar Irradiance.

1. INTRODUCTION

The solar tracking system is portable energy solutions designed. The problem might be faced in the absence of 24/7 electricity. That this project is used to overcome the problem as we have created electricity using solar panel by which an solar energy is converted into electric energy by using dc converter so this can be reviewed in using the electricity for changing components.

2. BLOCK DIAGRAM



System Components Overview

- Solar Panel (6V):** The solar panel serves as the primary source of electrical energy in the system, converting solar energy into direct current (DC) electrical power. With a nominal output of 6V, the solar panel generates the necessary power to charge the system's components, ensuring a sustainable energy supply for the entire project.
- Boost Converter:** The boost converter is employed to increase the voltage from the solar panel's output to a higher DC voltage, suitable for the charging requirements of the system. This component is crucial for providing a stable and efficient power supply to the charging process, ensuring the voltage is raised to an appropriate level for optimal performance of the connected devices.
- Charging Controller:** The charging controller is an essential component that regulates the flow of electricity to the system's battery and devices. Its primary function is to prevent overcharging and overheating, thereby safeguarding the system from potential damage. By controlling the charging process, it ensures that the batteries are charged safely and efficiently, prolonging their lifespan and maintaining optimal system performance.
- Arduino Microcontroller:** The Arduino microcontroller serves as the central control unit for the project, providing automation and monitoring capabilities. It enables the system to interact with external components, such as sensors and other devices, to monitor various parameters (e.g., voltage, temperature) and make decisions based on pre-programmed logic. The Arduino is integral to ensuring the project operates effectively and in accordance with the defined requirements.

5. **Inverter (DC to AC Converter):** The inverter is used to convert the direct current (generated by the solar panel into alternating current (AC).

3. CONCLUSIONS

In this we have construct a project which is movable solar panel it is portable whenever the sun moves the solar panel heads towards the sun , it's direction is towards the sun which consumes the sunlight and it converts into electrical energy which helps us to reduce the electricity bill

4.ACKNOWLEDGEMENT

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