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Protection Solar Power Battery Charging With Reverse Current Protection

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ABSTRACT

This paper centers on the assurance of stack and charge utilizing sun oriented control administration. Sun powered vitality is changed over into electrical vitality by photo-voltaic cells. This vitality is put away in batteries amid daytime to be utilized amid night time. In truth, the created venture has numerous preferences as existing gadgets, because it bargains with a controlled charging component that maintains a strategic distance from cheat, profound release and under/over voltage of the battery and stack. Unless obstructions like under/over charge are overcome, keeping up and expanding power supplies from sun powered vitality will require continuation of possibly expensive arrangement back

Keywords: *Solar Energy, Solar Power Management, Protection of Load and Charge.*

1. INTRODUCTION

Too to store it we ought to utilize charge controlling circuitry to ensure board from turn around streams as well as to charge the battery productively. So we illustrate this concept by employing a smaller than expected sun powered board to charge a rechargeable pencil cell battery. Moreover we utilize a charge control circuit outlined to halt switch current stream and charge the battery successfully utilizing the sun oriented board. In this way this permits us to successfully give sun based battery charging with invert current assurance. Among all this chaos and steady alter in our day to day lives, utilization of vitality has continuously been a consistent portion in it. In spite of the fact that our precursors were acclimated to live a life without the require for power, our era nowadays cannot envision a life without power. Whereas playing such a noteworthy part in our lives, the exceptionally fact for assets that deliver power is beneath peril. Consequently the utilization of renewable vitality assets presently, in an compelling and productive way is imperative. In spite of the fact that there are numerous renewable assets such as Wind vitality, Sun based vitality, Hydro vitality, Tidal vitality, Biomass vitality, Waves vitality and numerous ways to harness them, Sun powered vitality is the foremost productive and dependable source of vitality. Typically since, other renewable assets are periodical and might get terminated since of human exercises, but the sun oriented vitality, that's from the sun, can as it were be terminated after a millions of a long time.

2. Problem statement

The electricity necessities of the world are elevated at an unconventional rate and the power demand has been increasing. The fossil fuels and other conventional non-renewable resources which are presently used for the generation of electricity or electrical energy are not sufficient to keep up with the ever-increasing demand of electricity in the world. The generation of electrical power by cold based steam power plant and nuclear power plants causes pollution, which is harmful to the current and future generation. The proper uses of solar energy and its different application which are used at home, defence sectors, etc. are not sufficient to keep up with the ever-increasing demand of electricity in the world. Nowadays in modern times, the demand for power and energy is ever-increasing. And the resources we use for these purposes are non-renewable resources and are harmful

to the environment and the ecosystem. Hence the use of renewable resources is being implemented. Despite these issues the implementation of renewable energies-based projects which are also safe for the environment are not proceeding as planned. The people still go for non-renewable sources such as coal, etc for power and electricity as it is faster and quicker than renewable resources that take time. These non- renewable resources are harmful to the environment.

3. BLOCKDIAGRAM

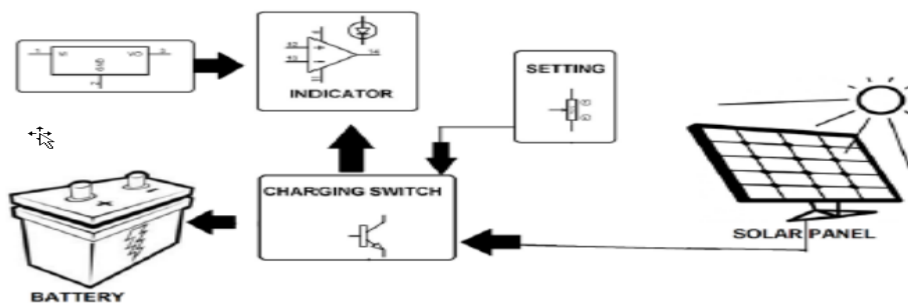


Fig1.BlockDiagramof Project

To realize the point and destinations of this work, the taking after are the steps included:

1. Consider of the past work on the extend so as to make strides it proficiency.
 - ☐ Some time recently actualizing any venture, one ought to think about the past work on that venture or any comparative works as to progress its proficiency conjointly to progress the quality of the extend so it may provide the foremost yield as conceivable.
2. Draw a circuit chart.
 - ☐ A circuit graph should be plotted and drawn as to be recognizable with the components and its capacities additionally which component will go where when building the venture.
3. Test for coherence of components and gadgets.
 - ☐ After the circuit chart is drawn and the components are acquired, the next step is to test for the durability and the coherence of the gadgets and components required for the venture. This can be to anticipate any incident within the future when the extend is being actualized and amid the testing stage of the venture.
4. Design of the framework was carried out.
 - ☐ After checking the coherence of the components and the gadgets, another the plan for the extend ought to be carried out as to be successful within the plan and working of the extend.
5. Examining of different component utilized in circuit.
 - ☐ After the plan is drawn at that point the ponder of the various components which is able be used within the circuit ought to be done as to be capable within the information of which components are being utilized in their extend.
6. Build of the framework circuit.
 - ☐ At that point the development of the framework circuit ought to be done and confirmed.
7. At last, the entire gadget was cased and last test was carried out.

□ Then the entire gadget ought to be associated together and tried for its capability. Different tests ought to be carried out as to check the diverse strength and the capability of the venture.

4. COMPONENTSUSED

1. 8W Sun based Board

This 8W sun powered board is an 18-solar cell gathering (9V) mounted onto a TPT backplate and secured with inflexible tempered glass which ensure the sun powered cells interior, too a white plastic outline is included here, within the sense that the white plastic outline covers it. The cell is profoundly proficient polycrystalline sun powered cell. This little sun oriented board is lightweight and tough. It's too waterproof, UV safe and scratch safe.



Fig 4.1 8W Solar panel

2. Batteries

The set of eight AA batteries from could be a incredible family pack for keeping remotes, cameras, and kids' toys up and running year-round. They're moreover made from 4% reused batteries, which makes them that much more naturally inviting. These batteries are pre-charged and prepared to utilize right out of the bundle and can be revived almost 1,000 times in their lifecycle, possibly supplanting hundreds of single-use batteries. Each charge gives these batteries 5.5 to 8 hours of utilize. That's very a bit of time for gadgets that are utilized occasionally or draw a negligible sum of control, like TV remotes or electric lamps. But in case you need to utilize these in hardware that are on for longer extends of time or utilize a parcel of control, like a set of string lights or a video amusement controller, you will discover you wish to revive these batteries lovely as often as possible.



Fig 4.2battery

3. Resistors

Building the circuit requires the information of different components like resistors, inductors, capacitors, battery sources, interfacing wires and more. The resistor is one of the most components of the circuit. A detached electrical component with two terminals that are utilized for

either constraining or controlling the stream of electric current in electrical circuits. The SI unit of resistor is Ohm. Each resistor has one association and two terminals.



Fig 4.3 Resistors

4. Diode

A diode could be a gadget which as it were permits unidirectional stream of current and rated voltage. A diode as it were squares current within the switchcourse whereas the turn around voltage is inside a restricted extend something else switch obstruction breaks and the voltage at which this breakdown happens is called switch breakdown voltage. A specific course of action of diodes can change over AC to throbbing DC, consequently it is called rectifier.



Fig 4.4. Resistor

5. Transistor

A transistor may be a semiconductor gadget utilized to intensify or switch electronic signals and electrical control. It is composed of semiconductor fabric more often than not with at slightest three terminals for association to an outside circuit. The transistor terminal requires a settled DC voltage in to function in a craved locale of its characteristic bends.



Fig 4.5 Transistor

6. Light Emitting Diode

A light-emitting diode (Driven) could be a semiconductor gadget that emanates obvious light when an electric current passes through it. The light isn't especially shinning, but in most LEDs it is

monochromatic, happening at a single wavelength.



Fig 4.6LightEmittingDiode

5 .FUTURE SCOPE

A.Renewable Vitality Source

As of now, photovoltaic sun based boards are generally 15-20% efficient at changing over the sun's electromagnetic radiation into the electrons it sends to the framework. Sun based vitality could be a very proficient source of green vitality that's accessible without charge. But it ought to be coupled with appropriate capacity for best utilize. Moreover, to store it we have to be utilize charge controlling circuitry to secure board from reverse streams as well as to charge the battery proficiently. Sun powered boards don't emanate nursery gasses such as carbon dioxide when they are creating power is without address. Usually why they are cherished of numerous who stress approximately the climate-altering potential of such gasses.

B.Reduces Electricity Bills.

It's a well-known fact that the planet is suffering, and many factors are making it worse. This sadly includes the energy and electricity we use daily; however, by switching to solar power, you can reduce the amount of electricity you use and make the world a better place. You can even save money with solar power. By using solar power, you'll be getting all of the energy you need from a free source. This way, you end up saving money on your electricity bills. However, this depends on your system size, how many solar devices you have, and how often you use your regular electricity and heat.

C. Low Maintenance Costs.

To ensure high generation and low maintenance cost, regular monitoring through data loggers is highly recommended. Typically, the maintenance costs for smaller Solar PV systems are about 2% of the initial system cost, and for larger systems is about 1% of the initial cost. It is clear that solar energy offers a sustainable and low maintenance source of power, and continued research promises to deliver systems that will in the future require ever reduced levels of maintenance. One of the key reasons why solar energy systems require little ongoing maintenance is because they have so few movable parts. One of the key reasons why solar energy systems require little ongoing maintenance is because they have so few movable parts.

6.CONCLUSION

Sun based vitality could be a very effective source of green vitality that's accessible for gratis. But it has to be coupled with legitimate capacity for best utilize. Too, to store it we have to be utilize charge controlling circuitry to secure board from switch streams as well as to charge the battery productively. So, we illustrate this concept by employing a smaller than expected sun oriented board to charge a rechargeable pencil cell battery. Too, we utilize a charge control circuit planned to halt turn around current stream and charge the battery viably utilizing the sun based board. In this way, this permits us to viably give sun oriented battery charging with switch current security.

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