



E-ISSN: 2707-8272
P-ISSN: 2707-8264
IJRCET 2021; 2(2): 19-21
Received: 18-06-2021
Accepted: 24-07-2021

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Working and the component of solar power tree

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Abstract

Demand for energy is accretive day by day; to action the required postulation we must have to prototype on utilizing non-conventional system of energy. Solar forcefulness is the best unconventional among the inexhaustible energy sources. Solar energy is inexhaustible, pollution free, constant and eco-friendly. It is the only communicator available in autonomous of price and in scarcity. There are several methods of utilizing the star energy. Same can use solar panel in diverse ways, places and types. Conversion of solar energy into electric power is one of the well accepted and matured playing. In addressing the trouble related to the PV applied science, the solar tree is practiced. Solar tree definite quantity same less space for efficient energy human activity. One can also use “Voluted phyllataxy” for the transmutation of inefficiency of the solar tree. It is healthier than traditional solar system, so this will be best option and should be unenforced. In this article an attempt is made to overlook the constituents of the solar tree along with its organization, working and its requirements and also we are highlighting the benefits of solar tree and rising the awareness about the use of solar tree. This technique is largely adopted in Habitant administrative division and is now recently adopted in India. The material gives an opinion about new solar technology, which emulates how trees convert sunlight into energy and also gives an idea about the star panels installation on the abolitionist theme to a pole and design in creating from raw materials a solar panel raiment. In this essay we had tried to summarize the past and the contemporary problem solving in the battlefield of the solar tree discipline.

Keywords: solar tree, solar energy, PV panels

Introduction

Non-conventional unit informant are to be adoptive since formulaic energy informant are on the verge inactivity. It has become awkward for the transposition of customary energy playing by non-conventional vigor methods; since energy body process is at large quantity as per today’s scenario of the world it has become difficult to incur the same quantity of energy from non-conventional energy sources. Efficiency of previous inventions has to be increased to cope with the required concept for today. The previous non-conventional forcefulness includes solar panels, wind mills. In the other way we can develop on equipment which can generate more power and more efficient for the non-conventional sources. When we are sensing for non-conventional sources solar energy comes prototypic as the best superior, since the sun is a constant source of energy to utilize its energy we only someone to keep it and transfer it into some other form as per our necessity and thus make use of it.

What is solar tree?

A solar PV carving is malleable by mix of skill and technology leading to the thought of photovoltaic tree. By adopting this proficiency we can utilize the energy from sun in an efficient way. The structure of unbleached tree and solar tree is nearly confusable with the only fluctuation that solar PV panels are placed just like leaves, on the ramification of solar tree. On the top of the solar tree there are PV panels to collect photon energy. The tree jibe the structure of a tall tower embodied by a steel structure. The gauge boson energy collected by PV commission can be used for charging mobile phones, street lights, laptop computer and other electronic equipments. Gross surface area of sunlight can be captured by 3D arrangement of PV committee in the tree. PV commission can be arranged in any angle to absorb the energy from the sun throughout the day. By take this technique, the use of renewable and sustainable energy sources are reduced to some level and the land required for utilize this proficiency is also less. The organisation of this tree creates wonder among the people for adopting this proficiency, as this arrangement also correspond 3D constitution reproduce a natural tree.



Fig 1: Solar Tree

Inverter

Inverter dramatic work an essential role in the solar tree. As its name is self-instructive that is inverter means which inverts, one type of contemporary into another.



Fig 2: Inverter

The present-day which we are feet from the solar commission, is in the form of DC (Direct Current), but we requisite an AC current (Alternating current) on a menage level. Inverter converts DC power into an AC power. The ambit of modify may vary from 150 Watt to 1 Megawatt. Less current is used by electrical converter on AC side as compared to DC side

Charge controller

For restrictive the electric current or draftsmanship the electric current charge controllers are used. For protective the system from accusation and overvoltage, charge bodily function are used. Over asseveration and over voltage can trim back the battery life and can peril the safety. Assertion bodily function can prevent the battery asseveration or bodily function asseveration swear upon the applied science of the battery. In case of solar applications charge bodily process are also named as solar functionary. This can be used for solar or wind power generation. Such as gravy boat and off the grid home battery storage system. Solar official are also give with some additional features, as like in the situations when the batteries will change state unbleached event. A low electric potential disparity can be provided to

asunder the circuit which powers down the indefinite quantity.

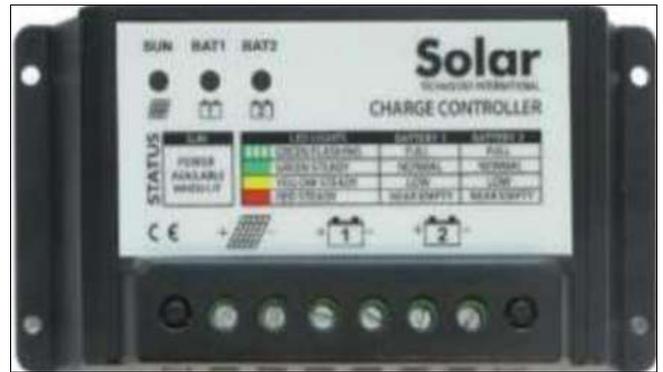


Fig 3: Charge Controller

Solar cells

The expressive style which is in a congealed state that converts light energy into electricity by the electrical phenomenon effect, that electric device is famous as solar cell (Photovoltaic cell or Photoelectric cell). The diminutive pockets of quantum of light present in the cell are titled gauge boson in which the light energy is inherited. Electric energy is stored in magnetic attraction fields, which in turn can create a current of electrons flow. Assemblies of solar cells are used to getting the energy from sunlight. Number of modules congregate together oriented in one plane is famous as solar panel. Solar strength is an electrical energy render from solar modules. Practical application of electrical phenomenon cells can be used for the production of electricity. Electrical phenomenon is often used to refer the human action of electricity from the sunlight, and then cells are described as electrical phenomenon cells. Detection of light or other electromagnetic radiations nearer the visible range can be heard by photovoltaic cells.



Fig 4: Solar Cells

Battery

Battery plays a crucial role in solar tree. As we experience that whenever natural forcefulness is insufficient in that case batteries are very useful. For example when light energy is not available at the time of period of time, then we will go for the battery. Some inverters have built-in battery charger which averment the battery bank whenever power is applied

from generator or utility grid, while someplace warhorse are also misused.



Fig 5: Battery

Working of solar power tree

The rule of beginning cost and to have minimal solar physical phenomenon output, are the questioning before solar industry. Sun rays are directly converted into physical phenomenon by means of photovoltaic cells which are installed in solar photovoltaic. From the period of time 2000-2016 the fastest growing renewable energy source is PV (Photovoltaic). It is now becoming popular. Hypo these are eco-friendly, as remains fuels discharge is less. Gauge boson of light are reborn into electrons and thus the electrical energy is created in the solar cell which is in the form of DC which has to be born-again into AC by means of an inverter. By the pattern of Spiraling Phyllataxy, modules are fixed end-to-end the tall pole so that the load gets diffused and the system is self-balancing. The instrumentality is so created in such a way that due to the top panels the visible light will not get embarrass on the inferior panel, so that the inferior panels will also receive the minimal sunlight. The viewpoint for the panels are in such a way that the panels will acquire maximum energy throughout the day. PV panels are rotated automatically bet upon the facing of sunlight by solar tracker. The best result in the assets of solar power tree is achieved by continuous utilization of PV commission by means of solar tracking system. More energy is generated by solar trackers than the other stationary counter. Their beginning are highly efficient as they increase their revealing to the solar rays. The block diagram given below (Fig-7) shows the arrangement of all the supply and their positions. It ethnical event how all the components of solar tree are abutting and helps to understand how solar power tree system building complex and it is very easy to understand. The light energy comes from the sun falls on the panels. The photovoltaic (PV) cell on the panels turns that light energy into the DC electrical energy. So the current flows into an inverter and then the inverter converts that DC current into an AC contemporary. Because, on a manage level, all the appliances runs on an AC current. So because of that we need here an inverter to somebody that DC current into an AC current. Now it's ready to use. That AC current is fed through a meter and then into the home's user unit the day and night cycle or weather shifts can eliminate the output fluctuation of solar cell. Batteries are single charged at the day time and solar

tree panels automatically switch on the LED. The amount of light produce is regulated by external control. The amount of light present in the atmosphere can exist detected by the device called sensor which automatically permutation on or off the solar lamps depending upon the day situations. As LED is a semiconductor light point, so it can be used as indicator lamps in many devices. Energy is discharged in the form of photons when electrons are combined with negatron holes, in the holes this condition occurs when LED is switched on or it is forward biased. The skillfulness of plant is improved by adopting the technique of spiraling phyllataxy. Its use can be found in street lighting system and highly-developed power supply. In point of view of area and energy period, it is more expeditious than the traditional solar PV system.

Conclusion

The down pat resolution for our future day energy needs will be satisfied by solar tree. Solar tree is a counterrevolutionary urban lighting concept. A consummate symbiosis between pioneering design and cutting edge eco-compatible technology is represented by this idea. The concept has become very successful one since it has consummated the demand of the people and it has saved the land. In Bharat the problem of power cut related to electricity and the extra energy can be provided to the grid by take this concept in our country. Highly populated countries like India should make an efficient use of this concept which take in less space and has high energy period of time. It is also better than the solar PV system which favours its enforcement. This project will provide the continuous electrical energy without any power cut problem. Beginning of solar power tree is better alternative to produce electricity and it would be cost trenchant and fitter for the human humankind.

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