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# Fault Detection in Renewable Energy Source

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**Abstract:** *This paper introduces a new solar technology that describes us how solar trees can able to convert sunlight into energy. Solar tree is producing solar energy and electricity, the panels which it contain is used to form a shape of tree and generates electricity. Now a days with the growing population and energy demand we should take a renewable option of energy source ,which should not cause pollution and other natural hazards. In this case the solar energy is the best option for us. Hence we can say that it is a revolutionary idea to bring the lighting concept in the urban and the rural areas in a populated country like INDIA and these technologies lead to the development of high efficiency solar energy.*

## I. INTRODUCTION AND BACKGROUND

Energy consumption in the world particularly in the highly populated countries like INDIA has been growing at an higher rate .In all these alternatives solar energy has more advantages for the mankind for example Solar Energy is free, useful and non polluting. Solar energy is most advantageous for countries which was having very less space to produce energy efficiently and having very large population like India. Solar energy is the conversion of sunlight in to electricity using PHOTOVOLTAIC. In all these solar tree is the best option .Therefore it should be implemented. Solar energy is easily available in very large amount in India. The solar radiation can be directly converted into solar energy, solar thermal and solar architecture. The installation of large solar panels requires a very large space which is the main problem associated with the solar energy .The problem of the area can be avoided by installing a Solar Tree which requiring less space, less area instead of a large numbers of solar panels. To satisfy pressing environmental and social demands for urban lighting solar tree opens new prospects.

## II. SOLAR TREE

**SOLAR TREE :** It is a blends art and solar energy technology in a sculptural expression. It is a combination of artistic and technological things which present as a form of solar artwork ,network and hence known as a SOLAR TREE. This new technology relating to the absorption and use of solar power. A solar tree is a decorative means of producing solar energy and also electricity. It uses multiple numbers of solar panels which forms the shape of a tree. The panels are arranged in a tree fashion in a tall tower/pole.

**TREE :**

?T : Tree generating

?R : Renewable

?E : Energy

?E : Electricity Solar Trees are capable for capturing energy from sunlight and wind for producing energy as plants in nature. As we know trees are their in nature and can be able to produce their own food material by the process called PHOTOSYNTHESIS.

By this process they are indirectly providing food to the human society because we are depending on the green plants for our food directly or indirectly. In a tree, the stems connected acts as the branches of the tree and the solar panels are like the leaves Green leaves are producing food materials for human beings likewise this leaves a producing energy for the society. So it is very appropriate to called it as a tree

### A. Definition of Spiralling Phyllataxy

Spiralling Phyllataxy technique is used in designing of Solar Tree. For tracking maximum power from sun this Technique helps the lower panels from the shadow of upper ones. The efficiency of the plant can also be improved by this technology. It provides the way to help the lower panels from the shadow of upper ones, so that it can track maximum power from sun.

### *B. Applications Of Solar Tre*

eSolar tree can be applicable in following fields. In the field of Golf courses and resorts In Urban and Rural Areas Applicable in Recreational parks, city parks In Penthouses In balconies Private Gardens Applicable on Airports In Mountainous regions On Coastlines Applicable on Highways In Deserts Applicable New housing estates In Crop Protection In De-forested areas

### **III. CONSTRUCTION OF SOLAR TREE**

The solar tree consists of some important parts in its design. They are as follows.

Solar Panels Long tower LED Batteries Stem for connecting the panels.

### **IV. WORKING OF SOLAR TRE**

eStoring of electric energy is a major problem for all electric power system. Ways to eliminate solar cell output fluctuations caused by the day and night cycle and weather shifts. Despite of energy loss, which can be high as 50% with present batteries. Solar tree panels charge batteries during the day. At dusk the solar tree automatically switches on its led..The internal control can also regulates the amount of light produced on how much charge is left in the batteries. A sensor is used to measure the amount of light in atmosphere and triggers the solar lamps to switch ON automatically at sunset and OFF at sunset.



### **V. NEED OF SOLAR TREE**

Consumption of Land is Lesser : Solar tree requires a less land area. Therefore a solar tree can be able to generate maximum power while using NM,-generate energy very efficiently. It collect energy from wind. Solar tree stem part is enough flexible rotate in any direction by shaking the solar tree the solar tree can able to produce the wind energy like natural tree. Growing population and energy demand. Sun is a extreme source of energy by which solar energy can able to fulfill the needs.

### **VI. WHY IT IS BETTER THAN A TRADITIONAL SYSTEM**

India is a highly populated country, by which means we should take the advantage of such an energy which requires a very less space to produce energy efficiently. In this case solar tree could be the best one for us. It is much better than the traditional solar PV system in area point of view and also more efficient. So this will be a very good option and should be implemented. For the traditional system we require large size of land to generate a small amount of power . It required about 1% land as compare to the traditional system. Solar energy is available in abundance and considered as the easiest and cleanest means of tapping the renewable energy. For direct conversion of solar radiation into usable form, the routes are: solar thermal, solar photovoltaic and solar architecture. However the main problem associated with tapping solar energy is the requirement to install large solar collectors requires a very big space. To avoid this problem we can install a solar tree in spite of a no of solar panels which require a very small space. Example – To generate 2 MW power from a pv module we requires 10 -12 acres of land for housing of panels only but for the

same amount of energy we require only 0.10-0.12 acres of land in case of solar tree

#### **VII. ADVANTAGES OF SOLAR TREE**

It can be applied in street lightening system, industrial power supply etc. Helping reducing in carbon emission. It is much better than the traditional solar PV system in area point of view and also efficient . Both the role of Paying homage to photosynthesis and the Photosynthesis tree are gracefully plays by Solar tree. No air pollution source. Cost effective Less requirement of area. We wouldn't have to worry as much about future energy sources. Solar tree is the successful marriage of most advanced technology i.e., grabbing the electrical power or energy through a great ease.

#### **VIII. DISADVANTAGES OF SOLAR TREE**

Cost is high. Able to cause hazard to birds and insects. Hazardous for eyesight from solar reflectors. Sometimes, installation is quite complex and time consuming

#### **.IX. CONCLUSION**

To fulfill the requirements of increasing energy demand of the people, saving of land, cost effective way The solar tree concept is very successful and useful one and should be implemented in India to provide electricity without the problem of power cut and the extra energy can be provided to the grid. India is a youth dominating country so it is our responsibility to think smartly and taking the right decision in the right direction in a right manner. Everyone must start their co-operation in the mankin

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