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Power Genration Using By Peltier Module

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Abstract: Purpose of making this project is to generate electrical energy from bad materials cow dung , dry paddy fields, dry leaf and bad stuff etc. and store that electrical energy in the battery through the circuit and use that electrical energy to operate the whole project. And the LED bulb is shown to be turned on and the use of filters to control pollution from energy production .So in this our Project we show successfully How to generate electricity by Waste Materials And Store electricity in Battery successfully. The main aim behind this project is to reduce the pollution, and recycle the wastage and reuse them and finally to produce the electricity from waste. Energy harvesting is the main focus of the researchers all over the world. It is because of deployment of million sensor nodes and bottleneck of battery. This method avails various methods like piezoelectric, electromagnetic, solar and thermoelectric.

Keywords: LED (Light emitting diode), Electromagnetic, Thermoelectric, Voltage, Sag, Piezoelectric, Power Quality

I. INTRODUCTION

The Purpose of making this project is to generate electrical energy from bad materials like cowdung, garbage and bad stuff etc. and store that electrical energy in the battery through the circuit and use that electrical energy to operate the whole project. And the LED bulb is shown to be turned on and the use of filters to control pollution from energy production. To burn the waste material and to use that heat power generation we are using Peltier plates so by heating it the plates generate the voltage and that voltage is used to charge the battery

So in this our Project we show successfully How to generate electricity by Waste Materials And Store electricity in Battery successfully.

II. LITERATURE REVIEW

Method for generating power such as burning of wood, petrol, diesel, coal, is continuously depleting with nature, so that exceeded usage of electricity according to the consumer demand. Global warming is the increase in the average measured temperature of the Earth's near surface air and Oceans since the mid-20th century, and its projected continuation. Global surface temperature increased 0.74 ± 0.18 °C (1.33 ± 0.32 °F) during the Thomas Jon Seebeck (1934) invented that a temperature formed between two dissimilar conductors produces a voltage and current. At the heart of the thermoelectric generator effect is the fact that a temperature difference in a conducting material results in heat flow between one side to another side.

A thermoelectric device is a solid-state semiconductor based electronic component capable of converting a voltage input into a temperature difference

which can be used for either heating or cooling. Conversely, when a temperature difference is applied to the device, it has the capability of producing DC electrical power. Ceramic substrate is made of Alumina, Beryllium Oxide or Aluminium Nitride. Diffusion barrier is layered on the ends of each element. Copper interconnects are given on ceramic to let the current flow from each couple through links.

Thermoelectric generators directly convert a very small part of the heat going through them into electricity. They are composed of three parts: two heat exchangers and a TE module. The efficiency of the TE module depends on the properties of the materials used for the thermocouples. For the moment semiconductors offer the best efficiency. The only couple of materials available on the market at a reasonable price are Bismuth Telluride (Bi2Te3). These materials can work at a temperature as high as 260°C continuously and intermittently up to 380°C.

III. SCOPE

The system has following features scope which make system more reliable and effective.

1) In this study advantages of the proposed heating system can be considered in two main aspects; saving energy resources and reducing environmental impacts. In the first aspect use of cow dungs as a renewable fuel source saves the fossils fuels from exploitation.

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2) It also assists the government to avoid unnecessary investment to install fuel pipeline in outlying areas. Fuel is currently transported to these areas by truck. Therefore by implementation of this project the cost of fuel transportation is also reduced.

3) Reduction of Waste Going to Landfill Sites, The waste to energy reduces the expense of trash transportation and landfilling, while at the exact same time, it produces power that has monetary value. It reduces the amount of waste going to landfill sites as well as could conserve the considerable expense of transporting waste to landfills as a lot of significant landfills are fairly distant from the primary town hall.

4) It is Environment-friendly Electricity and heat can be generated from waste, which provides an alternative and more environment-friendly source of energy Waste to energy is an emerging innovative set of technologies aimed at better sustenance of the environment, with minimum damage to the ecosystems. With these technologies developing by day and their acceptance increasing amongst households and industrial set-ups worldwide, waste to energy is seen as a development tool for emerging countries.

IV. WORKING PRINCIPLE

When we burn waste materials , then heating panels convert heat to electricity and Red LED bulb glowing by electricity for showing electricity power ,After that circuit take electricity and give to battery for Battery Charging , And waste materials burning running in burning box , and there is heating sensor and when heating sensor is heated by heating ,Then Heating sensor turn On the LED bulb, (Because Heating sensor work as a on/off switch). After that we can See Full successfully Generating Electricity by Waste Materials

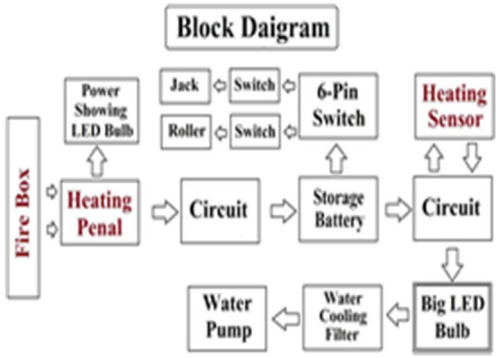


Fig.A: Block Diagram

A. Working of Heating Plate

Simply put, a Heating panel works by allowing photons, or particles of light orheat , to knock electrons free from atoms, generating a flow of electricity.

Heating panels actually comprise many,smaller units called photovoltaic cells

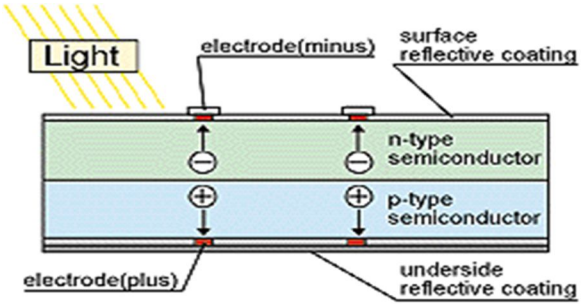


Fig.B: Heating Plate

A p-n junction is formed by placing p-type and n-typesemiconductors next to one another. The p-type, withone less electron, attracts the surplus electron from the n-type to stabilize itself. Thus the electricity is displaced and generates a flow of electrons, otherwise known as electricity

When heat hits the semiconductor, an electron springs up and is attracted toward the n-type semiconductor

This causes more negatives in the n-type semiconductors and more positives in the p-type, thus generating a higher flow of electricity.This is the photovoltaic effect.

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V. SET UP OF PROJECT



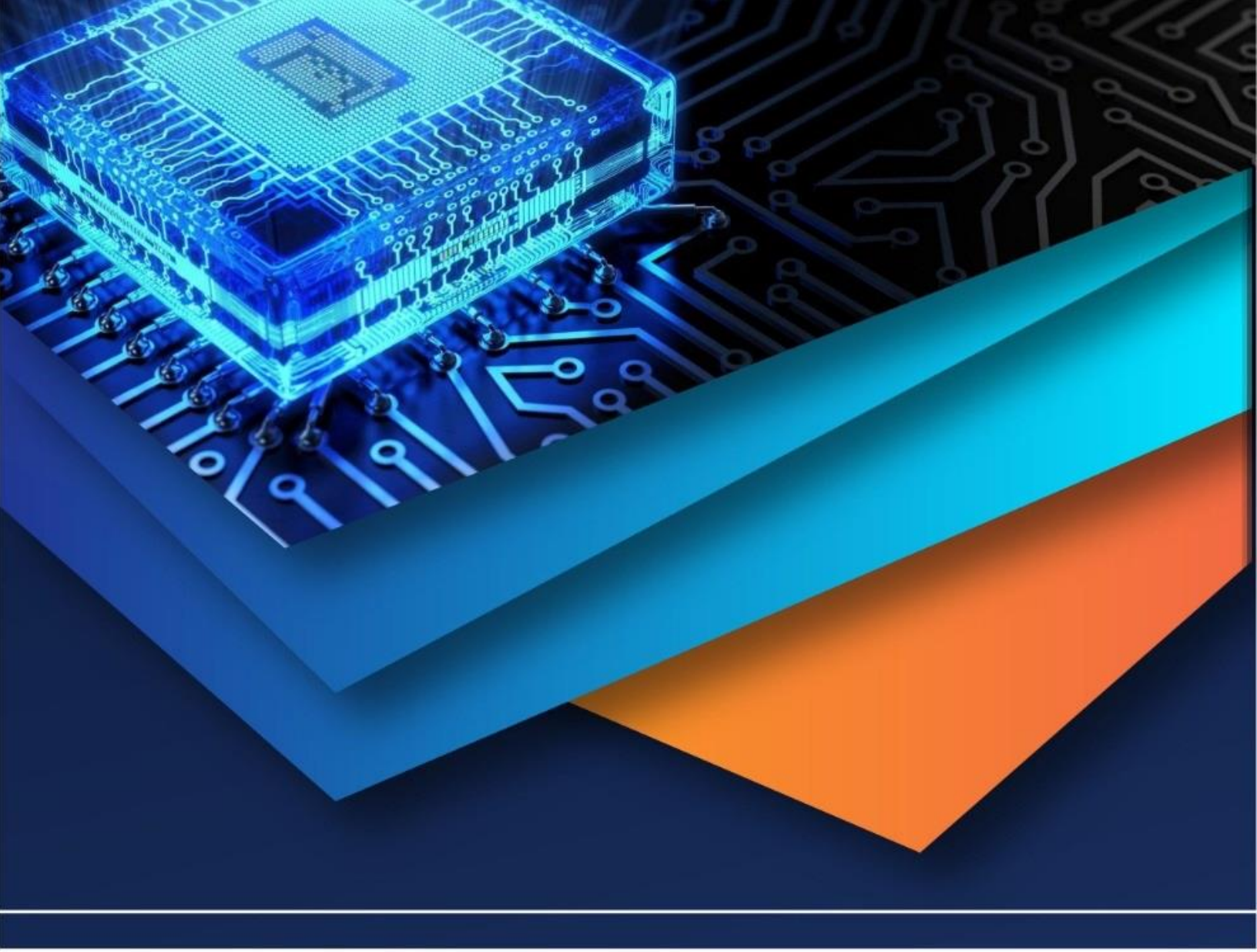
VI. CONCLUSION

In This Project we show How to Generate Electricity by waste materials is successfully and we show in project how to control pollution by Pollution control filter , When we making complete our project then we check it's full working ,that time he's working is very good without any problem So our Project is best for working and Showing , How to Generate Electricity by Waste materials.

REFERENCES

[1] Suresh S.Balpande, Rajesh S.Pande, Rajendra M.Patrikar, Design and Low Cost Fabrication of Green Vibration Energy Harvestor, Elsevier, Sensors and Actuators, A: Physical, Volume 251, 1 November 2016, Pages 134-141, ISSN 0924-4247 , http://dx.doi.org/10.1016/j.sna.2016.10.012
[2] Surash Balpande, Manish Bhaiyya, Dr, Rajesh S. Pande, Low Cost Fabrication of Polymer Substrate Based Piezoelectric MicroGenerator With PPE,IDE and ME, Accepted Manuscript, IET Electronics Letter, ISSN 1350-911XPrint ISSN 0013-5194 DOI: 10.1049/el.2016.4099
[3] Sarinee Ouitrakul, Preliminary Experiment for Electricity Generation using Peltier Modules, 78-1-4799-2993-1/14/$31.00 ©2014 IEEE
[4] WebSource:www.reuk.co.uk/wordpress/thermoelectric/what-isa-peltier-cooler/

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