Electricity generation by plastic and waste material

Mrs. S. S. PATIL
Professor, Electrical Dept. RIT, Rajaramnagar.

HAKE ONKAR PRAKASH,
AKSHAY UDAYSING PATIL,
JADHAV RUSHIKESH ANIL,
FAKIR ROTIWALE SUHEL SAJID,
Student, Electrical Dept., RIT, Rajaramnagar.

Abstract

The rising population's high standard of living has resulted in an increase in the quantity and variety of solid waste generated. It has now been recognised that if waste continues to be generated in an orderly fashion, it will soon be beyond repair. As a result, solid waste management has become critical. Environmental consequences of municipal solid waste. Solid waste is defined as waste that is not liquid or gaseous. Municipal, industrial, agricultural, medicinal, and sewage sludge are all types of waste. Solid waste is another possibility. Waste, waste, pathological waste, industrial waste, and agricultural trash are all types of waste. Referenced garbage Solid waste generated during the preparation of meat, fruits, and vegetables. It contains humidity.

This project's goal is to create electricity from waste. Electrical energy circuits store materials like plastics, rubber, waste, and waste materials in batteries and use them to operate electrical energy. The entire undertaking. Its utility is demonstrated by the use of LED bulb filters to reduce pollution from energy production. So here we are in our project, demonstrating effectively how to create electricity from waste materials and store it in a battery.

Introduction

The goal of this project is to generate electrical energy from waste materials such as plastic, rubber, rubbish, and other undesirable things, store it in a battery via a circuit, and then use that electrical energy to power the entire project. The usage of filters to control pollutants from energy generation is also illustrated, as well as the LED lamp being turned on. So, in
this project, we successfully demonstrate how to generate electricity from waste materials and store it in a battery.

Block Diagram:

Hardware Specification:

- Heating penal
- 4 Red LED Bulb
- Powerless Storage Battery
- Boosting Call
- Circuit
- Heating Sensor
- Fire Controlling fan
• Jack Box
• DC motor

Working:-

[Image of the setup: A small setup with a green panel and a DC motor, with a red LED bulb indicating operation.

Fig.no 1

When we burn waste materials, heating panels convert heat to electricity, and a red LED bulb glows by electricity to show electricity power.
After that, the circuit takes the electricity and feeds it to the battery for charging, and waste materials burn in a burning box with a heating sensor, which turns on the LED bulb when the heating sensor is heated by the heat. After that, you may see how to generate electricity from waste materials completely.
Fig. No. 4
In this project, we want to show how to develop Heating Power Plat without increasing its size or voltage. In this project, we show a very small Heating Power Plat 2v, when heating comes from solar, the upper side of the solar is glass, so heating comes by

Fig. no. 5
focusing on Heating Power Plant, Heating Power Plant converts the heating to electricity, and electricity goes to Tesla coil, which boosts and saves the electricity and gives the power to 40 to 50 LED Bulb and LED lights

Results:-

Waste to Energy is a process where different types of waste is converted into usable form. This paper was focused on producing electricity of around 12MW calculated by proper formula. Also after burning of waste the landfilling space is reduced hence good initiative for our environment. A practical survey data is shown for Rajshahi region that calculates the sum of all dumped waste and amount of energy produced from it. There are several factors influencing the choice and economic viability of WtE technology for a given location such as types of waste, moisture content, generation efficiency, plant capacity factor, waste collection efficiency and population growth rate [13]. Energy recovery from MSW requires major capital investment together with long term planning and sufficient resources for continuous operation and maintenance of the plant [21]. The techniques for energy recovery can be mainly classified into thermochemical and bio-chemical processes. The thermochemical process is the thermal decomposition of organic matter to produce heat energy, bio oil or gas. This process is basically used to convert less dense wastes with high percentage of organic non-biodegradable matter and low moisture content into energy. Examples of technologies under this category are: the incineration, pyrolysis and gasification. On the other hand, the bio-chemical conversion process is the microbial decomposition of waste in the presence of oxygen to produce compost or biogas. This kind of process is mainly useful for organic waste with high moisture content. Example of such technology includes the anaerobic digestion and Landfill Gas to Energy techniques. The advantages and disadvantages of various WtE technologies are depicted

Conclusion:-

The only way this mechanism will work is by combustion for the plastic or paper waste to generate electricity, which is not the most eco friendly but can be rectified using air filters or air purifiers to make it more eco friendly. We make electricity from plastic and paper waste as a result of our effort Lesotho people. Policy vision also stipulates that energy shall be universally accessible and affordable in a sustainable manner with minimal negative impact on environment [28]. This cannot be realized with the present reliance on electricity importation. In an effort to achieve the objectives stated in the policy, government of Lesotho is trying all possible options to break the reliance on electricity imports. Waste to energy technology is a potential option which could ameliorate the electricity need of the country while solving environmental challenge. In this way, the goal of mitigating the
effects of climate change through the access to modern clean energy sources in order to reduce carbon emissions and increase electricity affordability could be achieved thus improve economy and health of the population of Lesotho.

Most of the available research studies on solid waste composition of Lesotho found that organic waste owns the largest percentage of the waste composition (59%) followed by plastic (12%) and then paper (9%). This suggests that anaerobic digestions, landfill gas to energy and incineration technologies are likely to be eligible WtE technologies of interest in Lesotho. Motivated by this assertion, the future study will focus on the feasibility study and viability assessment of waste to energy technologies using the three technologies (i.e. the anaerobic digestion, landfill to gas and incineration technologies) identified in this paper. We would also look into the life cycle assessment of these technologies taking into consideration the global warming potential, acidification potential as well as the dioxins potential of the three technologies.

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