

Innovative Design and Fabrication of a Machine for Destroying Dry Waste

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ABSTRACT

The dry waste material is type of waste material, waste materials like solid waste, liquid waste in atmosphere leads to unhygienic situation which affects human health and chances of disease increases. In our project by burning the dry waste material we are trying to control the waste materials in atmosphere. By using heating coil we are going to burn the dry waste material and in this way we are eliminating the dry waste materials, the ash which will going to be formed after burning the dry waste material can be used in construction work, in making roads walls..

Keywords: Dry waste material, Heating coil, Solar plate, Disposing, Management, Waste, Landfill, Incineration etc.

I. INTRODUCTION

Wastes are unwanted or unusable materials. Waste is any substance which is discarded after primary use, or it is worthless, defective and of no use.

Examples include municipal solid waste, hazardous waste, radioactive waste and others

Americans alone are responsible for producing a hopping 220 million tons of waste a year. This number is far more than any other nation in the world. Because of this fact both the government and environmental associations have developed numerous method of dealing with the problem. Waste management is the solution, a rather complex issue that encompasses more than 20 different industries. Waste management is collection, transportation, and disposal of garbage, sewage and other waste products.

As the government and societies are applying effort towards waste material management our team has decided to make project regarding this topic, In our project we are going to burn dry waste material by using heating coil, in our project we are going to use solar plates to get energy from sun and this energy will be stored in batteries and this energy will be used to operate the heating coil, above the heating coil there will the base plate on which dry waste material will be kept for burning.

Although there are many methods available to dispose off waste, like Landfills, Incineration/Combustion, Recovery and Recycling, Plasma glasification etc.

Incineration or Combustion is a disposal method in which municipal solid wastes are burned at high temperature so as to convert them into residue and gaseous product. The biggest advantage of this type of method is that it can reduce the volume of solid waste to 20 to 30 percent of the original volume, decreases the space they take up and reduce the stress on landfills.

This process is also known as thermal treatment where solid waste materials are converted by incinerators into heat, gas, steam and ash.

1.1 Burning Waste Material

Dry waste material is going to burn by using heating coil, a heating coil or heating element converts electricity into heat through the process of resistive or joule heating. Electric current passes through the element encounters resistance, resulting in heating of the element. Unlike the peltier effect, this process is independent of the direction of current flow, as the heating coil will get heated the base plate temperature will increase as the base plate is placed above the coil and in this way the dry waste material will get burned which is placed on the base material.

Incineration is a waste treatment process that involves the combustion of organic substances contained in waste materials. Incineration and other high temperature waste treatment systems are described as thermal treatment. Incineration of waste materials converts the waste into ash, flue gas and heat. The ash is mostly formed by the inorganic constituents of the waste, and may take the form of solid lumps or particulates carried by the flue gas.

The flue gases must be cleaned of gaseous and particulate pollutants before they are dispersed into the atmosphere. In some cases, the heat generated by incineration can be used to generate electric power.

1.2 Literature Review

The abysmal state of and challenges in municipal solid waste management (MSWM) in urban India is the motivation of the present study. Urbanization contributes enhanced municipal solid waste (MSW) generation and unscientific handling of MSW degrades the urban environment and causes health hazards.

Energy comes in different forms. Light is a form of energy. So is heat. So is electricity. Often, one form of energy can be turned into another. This fact is very important because it explains how we get electricity, which we use in so many ways. Electricity is used to light streets and buildings, to run computers and TVs, and to run many other machines and appliances at home, at school, and at work.

At present, the generation of huge amount of solid wastes has become a growing case of concern in urban areas. The city of Guwahati is also facing a serious threat to its eco-friendly atmosphere due to the prevailing scenario of gradually increasing level of solid waste generation trend. A study was conducted to assess the seasonal variation in the quantity of generated municipal solid waste in Guwahati city. It revealed that food and vegetable waste is generated in higher quantity in Guwahati city than other components of solid wastes. Variation occurs in the type, nature and quantity of municipal solid wastes generated at different period of time in a year depending upon the seasonal and environmental impacts. Moreover, the amount of solid waste generation generally increases during festivals, fairs. Social and family parties and other special occasions.

II. CONCLUSIONS

In this project the heat is generated by using heating coil and this heat is used to burn the dry waste material, the dry waste material is passed through hopper on the base plate, the base plate is present on the coil, and as the coil heated by obtaining the current from the battery the base plate temperature increases and in this way the dry waste material is burning and the ash which is collecting after the burning process is going to be used in construction work.

III. REFERENCES

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