

BACKUP POWER GENERATION BY CARBONIZING THE MEDICAL WASTE

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ABSTRACT: The ongoing COVID-19 disease significantly affects not only the human health but also the wealth of the country's economy, and this pandemic is contributing with the increased usage of face mask. People's are using use and throw mask for a particular time period in a day and that are not disposed in a proper manner. So, we planned to make an incinerator for the proper disposal of mask. In this project the disposal of waste (i.e, Surgical mask, Gloves) method is done in the proper manner. The incineration is the common method of waste disposal, here the biomedical waste like masks are disposed by proper incineration the automatic process of mask disposal is processed by means of return signal given through the waste heat energy produced during the incineration process is converted into electrical energy by means of peltier devices.

KEYWORDS: Mask, Incineration, Heat, Electricity, Peltier device.

1. INTRODUCTION:

The aim of the mission is to cover all the rural and urban areas of the country to this present this country as an ideal country before the world. One of the best methods of achieving this mission is by providing proper cleaning of waste and providing

hygienic cities in India. Major objective of this project is to solve the problem of mask disposal by installing low cost incinerators and converting waste heat to useful energy. It provides a hygienic disposal of waste which is due to reduced environmental pollution due to non-degradable waste. Incineration of waste materials converts the waste into flue gas and heat. Incineration has greater advantages in disposing clinical waste and hazardous waste which has to be destroyed at higher temperature. There are different waste methods are followed. In that incineration is one of the hygienic methods of waste disposal. In landfill, the volume can be reduced approximately by 70%. Incinerator is a heater for consuming waste. Incinerators reduce the solid mass of the original waste by 80 – 85% and volume by 95 – 96%.

2. EXISTING WORK:

In existing system, the waste disposal is of semi - automatic type in which the heating process is started by manual process. In semi - automatic system there is no monitoring process. The efficiency of system is reduced due to absence of additional process. The heat produced during incineration is also wasted by not proper usage. The operating power for the machine is also provided separately. The waste administration framework

presently utilized in urban communities actually follows an old and obsolete model. The practiced waste masks are non-biodegradable and it is more significant to environment to environmental damage practiced through large number of peoples nowadays. The waste masks are put into the two headed dustbins and it will sense and separate a biodegradable and non - biodegradable wastes. Also, these kind of medical usage masks are mostly not getting recycled because of the presence of some body tissues or the medicines used in operation theatres.

III. PROPOSED SYSTEM:

At first, the Microcontroller will give command to ultrasonic sensor to sense the height of the waste. Subsequent to getting wanted level which is detected by the ultrasonic sensor, the hand-off gets ON. The hand-off will make the warming curl to work which understudy heat the squanders. In the wake of arriving at 30 to 40 degree, which is the ideal temperature to make even high thickness plastics to drift. In this mode, electricity is generated from the waste heat from incinerator when below the set point of temperature.

4. BLOCK DIAGRAM:

Microcontroller used here is PIC 16f877a is a family of modified Harvard architecture made by microchip technology is used for controlling the operation. Heater is used for starting the burning process. The information for burning is transmitted through heating coil. The level of waste inside the boiler is determined by means of ultrasonic sensor which is used for initiating the incineration process. Power supply unit is used for providing supply that is required for operation of circuit. Relay is electrical operated switch that provides signal for the heater plugs. LCD screen is electronic display module which is used for displaying the operation performed. The waste heat energy produced during

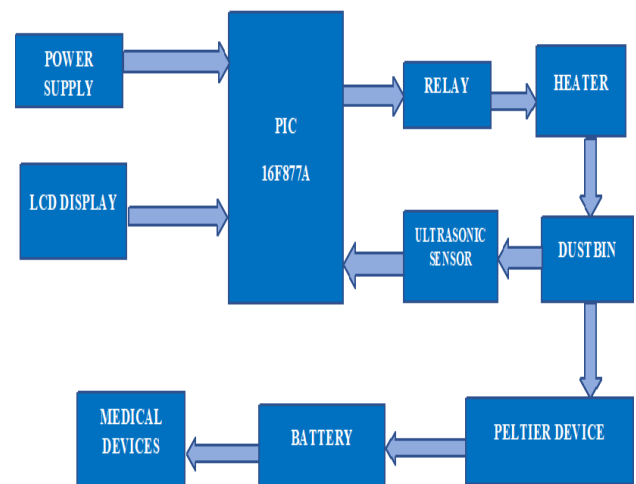


Figure 1. (Block diagram)

the incineration process is converted into electrical energy. Peltier device is used for converting the heat energy developed into electrical energy. The number of outputs can be increased by connecting number of peltier devices in parallel. The generated output power can be stored in battery. The generated power can also be further used for giving power supply.

5. METHODOLOGY:

A temperature difference causes diffusion of electrons from the hot side to the cold side of a conductor. The motion of electrons creates an electrical current. The voltage is proportional to the temperature difference. At the junction of two dissimilar metals the energy level of conducting electrons is forced to increment or diminishing. A lessening in the energy level transmits nuclear power, while an increment will retain nuclear power from its environmental factors. The temperature angle for divergent metals is very tiny.

6. WORKING AND RESULTS:

Initially power supply is provided for starting the operation. In manual mode after the level of bin is filled the return signal is given for starting the burning process. In auto mode, Level sensor is used for detecting the level of the bin. When the bin is filled, the signal is given for burning. The relay is operated depending on the return signal and the heater is given supply for heating.

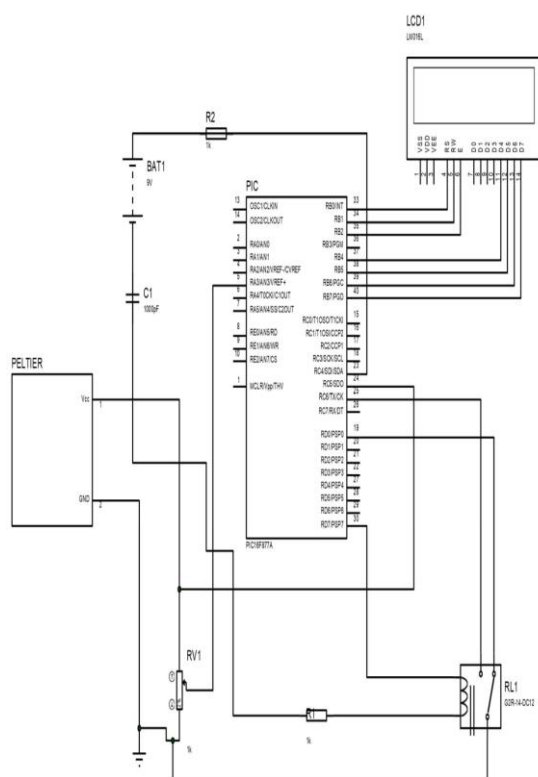


Figure 2. (Stimulation Diagram)

The heat produced the burning process is converted into electrical energy by means of peltier devices and electrical energy is used as a power backup.

7. OUTPUT:



8.FUTURE SCOPE:

This paper only the location of short circuit fault in underground cable line, and also detect location of open circuit fault, to detect the open fault capacitor is used in circuit which measure the change in resistance and calculate the distance of fault. For future research, the system would proceed with similar neural network structures for different types fault section and fault location estimation.

9. CONCLUSION:

The field of waste disposal very concentrate for maintaining hygienic environment and his is an attempt to monitor by the utility of microcontroller. The used waste placed in the bin in counted by means of sensor. The paper focusses on waste heat recovery. This task includes the electricity generator (see back effect). Heat can be a good source to produce power. These modules are associated in series and equal way, which are joined

at the hot intersection made by the hot waste emerging from the smokestack.

The burning process is started by means of sensor output. Advantages design of chimney increases the waste heat temperature, which helps for more power generation. Heat is converted into electricity. Which is valuable for driving any electronic management. The heat produced during the disposal of waste is converted to useful electrical energy by means of peltier devices. The problem of waste disposal by installing low cost incinerated and converting waste heat to useful energy was implanted in our system.

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