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Electricity generation from garbage

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Abstract - *Waste to energy challenging management in a developing countries. There are many different technologies to generate electricity or heat from wastage. However, reuse and recycling are first prioritized as left a fraction of waste can be used as energy recovery. The initial cost to generate electricity from solid waste incineration is prohibitively high due to its cost of advanced technology and the cost of equipment to control emissions. This research study in existing technologies in term of electricity generated from waste, long term government policy, carbon dioxide reduction, electricity cost production and incentive investment.*

Key Words: **MSW, Solid waste, Stirling engine, Thermometer, DC motor, Inverter, Batter**

1.INTRODUCTION

Waste management system have not received as much nation in the city planning process as other sectors such as water or energy. Therefore ,gaps can be observed in waste management in current city planning. Rapid industrialization and population explosion in India has led to the migration of people from villages to cities, which generates thousands of tons of MSW daily. The MSW amount is expected to increase significantly in the near future as the country strives to attain an industrialized nation status by the year 2020.Poor collection and inadequate transportation are responsible for the accumulation of MSW of every nook and corner. The management of MSW is going through a critical phase, due to the unavailability of suitable facilities to treat and dispose of the larger amount MSW generated daily metropolitan cities .Unscientific disposal causes an adverse.

2. DESIGN FOR ELECTRICITY GENERATING EQUIPMENT

2.1 Stirling Engine

Stirling engine works on stirling cycle which comprises of four process.

1) Isothermal compression
When the power piston travels inwards this stage occurs. In this stage gas is compressed and volume is reduced whin in turns raises the pressure. In isothermal compression process it is remove to the envorment by the cooled cylinder.

2) Isochoric heating
At this stage, the piston remains at its most inwards point and the volume is kept constant. Heat is added to the gas and its temperature is raised from cooling temperature to heated temperature. Gas pressure reaches maximum point. Maximum amount of energy is available in this stage to do work.

3) Isothermal expansion
The expanding heated gas pushes the power piston outwards. This increases the overall volume and lower the pressure.

4) Isochoric cooling
At this stage, the piston remains at its outermost point and the volume is kept constant. Heat is absorbed from the gas and its temperature is lessened from hot to cool. Gas pressure gets down to the minimum point.

2.2 DC Motor

A dc generator can be used as a dc motor without any constructional changes and vice versa is also possible. Thus, a dc generator or a dc motor can be broadly termed as a dc machine.These basic constructional details or also valid for the construction of a dc motor. Hence, let's call this point as construction of dc machine instead of just construction of dc generator.

Working Principle of DC generator

According to Faradays law of electromagnetic induction, whenever a conductor is placed in a varying magnetic field (OR a conductor is moved in a magnetic field), an emf (electromotive force) gets induced in the conductor. The magnitude of induced emf can be calculated from the emf equation of dc generator. If the conductor is provided with the closed path, the induced current will circulate within the part. In a dc generator, field coils produced an electromagnetic field an the armature conductor are rotated into the field . Thus, an electromagnetically induced emf is generated in the armature conductor. The direction of induced current is given by Fleming's right hand rule .

According to fleming right hand rule, the direction of induced current changes whenever the direction of motion of the conductor changes. Let's consider an armature rotating clockwise and a conductor at the left is moving upward. When the armature completes a half rotation, The

direction of motion of the particular conductor will be reverse to downward. Hence, the direction of current in every armature conductor will be alternating .if we look at the above figure , you will know how the direction of induce current is alternating in an armature conductor . But with a split ring commutator, connections of the armature conductors also gets reversed when the current reversal occurs . And therefore, we get unidirectional current at the terminals.

2.3 Inverter

This is the quite simple DC to AC inveter that provides 220 volt AC when a 12 volt DC power source is provided. It can be used to power very light loads, night lamps and codeless telephones, but can be modified into a powerfull inverter by adding MOSSFETS. It uses 2 power IRFZ44 MOSSFET for driving the output power and the 4047 IC as an astable multi vibrator operating at a frequency around 50Hz.

The output of transformer has 9volt, 2amp on the secondary and 230 volt on primary. Use suitable heat sinks in MOSSFETs.

2.4 Battery

Battery is simply used to stored generated energy from inverter.12volt,5amp battery is used for storing purpose.

3. REFERANCES

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