

# **GENERATE ELECTRICITY BY WASTE MATERIAL**

## **A PROJECT REPORT**

*Submitted by*

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*in partial fulfilment for the award of the degree*

*of*

**BACHELOR OF ENGINEERING**

*in*

**ELECTRICAL AND ELECTRONICS ENGINEERING**



**PANIMALAR ENGINEERING COLLEGE**

**(An Autonomous Institution, Affiliated to Anna University, Chennai)**

**MAY 2023**

# **PANIMALAR ENGINEERING COLLEGE**

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## **BONAFIDE CERTIFICATE**

Certified that this project report “**GENERATE ELECTRICITY BY WASTE MATERIAL**” is the bonafide work of “**YOGESH KUMAR.B(211420105341), AYAPPAN.J (211420105305),**” who carried out the project work under my supervision.

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Submitted for End Semester Project Viva Voce held on ..... at  
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## ACKNOWLEDGEMENT

We would like to express our sincere thanks to our respected Chairman and Chancellor, Sathyabama University **Dr. JEPPIAR M.A., B.L., Ph.D.**, for being in the vanguard of scientific progress in our college.

We would like to express our deep gratitude to our Beloved Secretary and Correspondent **Dr. P.CHINNADURAI M.A., Ph.D.**, for extending his never ending support to us.

We extend our sincere thanks to our Professor & Head of the Department, Electrical and Electronics Engineering, **Dr. S. SELVIM.E, Ph.D.** and a heartfelt thanks to our Professor **Dr. D. SILAS STEPHEN M.E, Ph.D.** for his timely guidance in technical front and for instilling immense confidence in us for completing our project successfully.

We are thankful and forever indebted to our Project Supervisor, **Dr. N. MANOJ KUMAR M.E, Ph.D.**, Professor for his insightful feedback and prompt assistance in completion our project.

We also extend our thanks to **All Staff Members** of Electrical and Electronics Engineering for their support and technical assistance. On a personal note, we would like to express our heartfelt thanks to our beloved **Parents** and our Friends, for their help and wishes in successfully completing this project. Thanks to **Almighty** for giving us the strength to do this project successfully.

## **ABSTRACT**

In the present world, electricity is very necessary. So, to generate electricity we use many fuels like coal, gas, diesel, uranium, etc. These all fuels are in limited quantity. Which, we could up to 70 to 80 years. These fuels are used in different power plants to generate electricity. EX. In thermal power plants - coal, nuclear power plants - uranium, gas power plants – gas, and in diesel power plants - diesel is used as fuel to generate electricity. In This Project when burning start then heating generate and heating penal start converting heat to electricity and that electricity, we can see on multi meter display, we can see how much voltage generate by waste materials and we Electricity generating perfectly then automatic heating sensor on the output power supply then Big LED Bub start glowing and our idea everyone can see in live working, Our Idea 100% work for generating electricity by waste materials. So, this is our best live working idea

***Keywords: Biodegradable Waste,Electricity India,Solid waste***

***management,Agricultural waste,calorific value.***

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## INTRODUCTION ;

The purpose of making this project is to generate electrical energy from bad materials like plastic, rubber, 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 controls pollution from energy production. In This Project when burning starts then heating generate and heating penal starts converting heat to electricity everyone can see in live working, Our Idea 100% work for generating electricity by waste materials and when we burn anything then pollution start generating so. So this is our best live working idea. Energy recovery from the combustion of municipal solid waste is a key part of the nonhazardous waste management hierarchy, which ranks various management strategies from most to least environmentally preferred. Using Jack, electricity generator, controlling switch, circuit for LED bulbs, heating sensors, battery and power supply circuit, we try to achieve electricity from solid waste.



## **LITERATURE SURVEY**

Waste to Energy generation is basically a form process for the generation of electricity directly or through heating first in both process we get Electricity as an output to use for the process. This process is basically completed in 3 steps and in last step we get the output All these steps involves firstly waste materials is been collected from door to door from every places which is been useful for a long time After which in second step this waste material is been purified according to their calorific values and then in third step this waste is been burrned out in a container where heat is been generated and in result we find to get Electricity as an output. Compared with other form of technology this is most attractive method of generation of electricity becaause of low cost,low pollution and easy way. This project has been carried out in some of the areas of bihar also by a small unit call "HUSK POWER SYSTEM"which is one of the worlds leading off grid utilities which provides 24 hours a day power in rural areas. When we start burning the waste material in the burning box the heating panels will start collecting the heat energy generated in the burning box by waste material. The heat energy collected by heating panel will be converted into the electrical energy. The generated electrical energy will be seen in circuit box with led glowing. The generated electrical energy will transfer to the batteries through the power boosters. The batteries will

not dissipate the energy back because a diode is connected to it. The batteries relate to the heat sensor and LED bulbs. Whenever the heat sensor will start conducting the batteries allow energy to flow will start conducting and LED bulbs will glow. Waste to energy generation is basically a form process for the generation of Electricity directly or through heating first in both process we get Electricity as an output to the use of process. This process is basically completed in 3 steps and in last step we get the output for all these steps involves firstly waste material is been collected from door to door from every place which is been purified according to their calorific values and then in third step this waste is been burned out in a container where heat is been generated and in result we find to get electricity as an output. Compared with other form of technology this is most attractive method of generation of electricity because of low cost, low pollution and easy way. This project has been carried out in some of the areas of Bihar also by a small unit call "HUSK POWER SYSTEM" which is the one of the world leading off grid utilities which provides 24 hours a day power in rural areas.



## WORKING

With world resources finite, and increasing public awareness of the harmful effects of our ‘throwaway culture’, a move towards what’s known as a circular economy seems a sensible option. In short, this means making products last longer, and recovering materials or other benefits from them when they can’t be fixed. Generating energy from waste – whether that’s electricity or heat – that can then be used in homes and businesses is a logical part of this move towards circular thinking.



*Fig. 2*

## HOW GREEN IS WASTE-TO-ENERGY

It's important to place the idea of generating energy from waste in its proper context – and the waste hierarchy does this best. The waste hierarchy tool indicates an order of preference for actions to reduce and manage waste. It places energy generation (recovery) below reducing waste, re-use, and recycling and composting, meaning it's those options that should be considered first when managing waste; but above waste disposal meaning that waste-to-energy is preferable to landfill. How truly 'green' waste-to-energy is depends on the efficiency of the plant turning the waste into energy, and the proportion of the waste that is biodegradable. This affects whether the approach is considered to be 'recovery' or simply 'disposal' of waste. There are number of ways of generating energy from waste. These include combustion, gasification, pyrolysis, anaerobic digestion and landfill gas recovery.



**Fig . 3**

## **COMBUSTION: BURNING UP WHAT'S LEFT BEHIND**

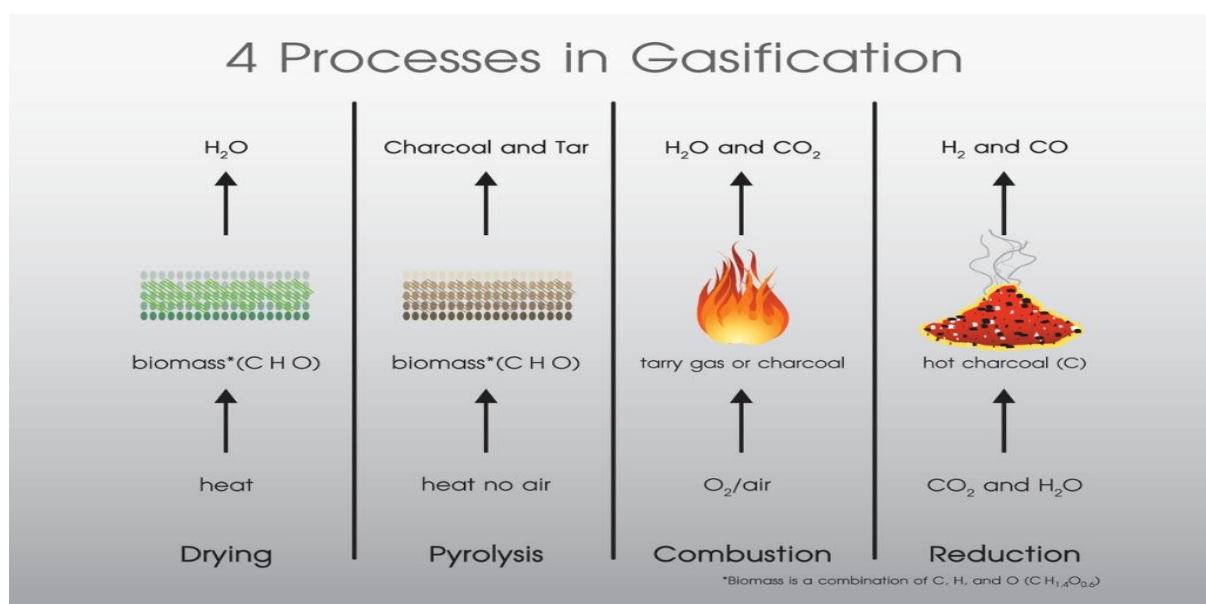
First up, combustion. This is where heat produced by burning waste produces heat, driving a turbine to generate electricity. This indirect approach to generation currently has an efficiency of around 15-27%, albeit with a lot of potential for improvements. Whether any approach to generating energy from waste can be considered sustainable depends on the 'net calorific value' of the waste going into the process. Where incineration of waste is concerned, that figure must be 7 MJ/kg, meaning the likes of paper, plastics and textiles are best suited to the combustion method of generating energy from waste. Of course, combustion produces emissions – 250-600 kg CO<sub>2</sub>/tonne of waste processed – but this is offset by the fact that fossil fuels don't need to be burned. There are, however, other pollutants emitted from combustion in the form of flue gas.

## **GASIFICATION: WASTE'S A GAS**

Gasification, rather than being the business of driving turbines directly, is about the production of gas from waste. Our everyday rubbish, consisting of product packaging, grass clippings, furniture, clothing, bottles, appliances and so on, is not a fuel as much as the feed for chemical conversion at very high temperature. The rubbish is combined with oxygen and/or steam to produce 'syngas' – synthesised gas which can then be used to make numerous useful products, from transport fuels to fertilisers or turned into electricity.

But a problem here is that gasification is often followed by combustion, leading to some of the same emissions issues as combustion. The same issue can apply to what happens after the pyrolysis of waste. Gasification is also not a particularly efficient mechanism of producing energy, as the pre-processing requires a lot of energy and the reactors need to be closed down for regular cleaning.

Whether any approach to generating energy from waste can be considered sustainable depends on the 'net calorific value' of the waste going into the process. Where incineration of waste is concerned, that figure must be 7 MJ/kg



## **PYROLYSIS: NO OXYGEN, NO TROUBLE**

Where pyrolysis is different from other methods listed so far is that decomposition of various solid wastes takes place at high temperature, but without oxygen or in an atmosphere of inert gases. This means the process requires lower temperatures, and has lower emissions of some of the air pollutants associated with combustion. It's worth noting, however that Friends of the Earth doesn't consider the energy generated through either gasification or pyrolysis as truly 'renewable' due to the fact that they release CO<sub>2</sub> from both fossil fuel origins such as plastics and synthetic textiles as well as biological materials.

## **TACKLING ORGANIC MATTER**

Anaerobic digestion can be used to generate energy from organic waste like food and animal products. In an oxygen-free tank, this material is broken down to biogas and fertiliser.

It's an approach with big potential. If we treated 5.5 million tonnes of food waste this way, we'd generate enough energy to serve around 164,000 households while saving between 0.22 and 0.35 million tonnes of CO<sub>2</sub>, in comparison to



composting. Extracting the biogas produced by biodegrading materials on landfill sites is another way of getting useful energy from waste. Although it's an approach that's in decline due to the reduction of the amount of organic matter going to landfill, it's making a notable contribution to UK energy supply: the source 3.04TWh of green electricity in the last year, in fact. This affects whether the approach is considered to be 'recovery' or simply 'disposal' of waste. There are number of ways of generating energy from waste. These include combustion, gasification, pyrolysis, anaerobic digestion and landfill gas recovery.



## TACKLING THE PLASTIC PROBLEM

Plastic waste has risen to significant levels of public consciousness in recent years, for its negative impact on habitats and species. In response, the UK Government's 25-year Environment Plan pledges to eliminate all 'avoidable' plastic waste by the end of 2042 – and it's not alone in making such political commitments. Can waste-to-energy step in here?

Converting plastic waste to energy certainly makes sense from a chemical perspective, given plastics come from the same origin as fossil fuels. We've already looked at the two main techniques involved: pyrolysis, where plastic is heated in the absence of oxygen, and gasification, where air or steam heats the waste, creating gases that either produce petrol or diesel, or are burned to generate electricity.

New techniques such as cold plasma pyrolysis, provide the potential to create fuels such as hydrogen and methane, as well as useful chemicals for industry.

But there are barriers in the way of wider uptake of plastic-to-energy techniques. Gasification of plastics requires significant investment, including advanced controls and pre-treatment facilities. Also, developing plastic-recycling plants presents a risk of limiting those facilities, when decision-makers may instinctively opt for waste strategies where general waste is processed together, rather than separating out different elements.

Novel approaches to waste management in the UK will surely rise in the coming years. Recycling rates seem to be plateauing, with only minor increases seen. While generating energy from waste has a lot of promise, we need to focus on making products last longer, and when they really can't be fixed, finding ways to recycle and reuse them. Only when those options are exhausted should we turn to waste-to-energy. We've already looked at the two main techniques involved: pyrolysis, where plastic is heated in the absence of oxygen, and gasification, where air or steam heats the waste, creating gases that either produce petrol or diesel, or are burned to generate electricity. New techniques such as cold plasma pyrolysis, provide the potential to create fuels such as hydrogen and methane, as well as useful chemicals for industry.

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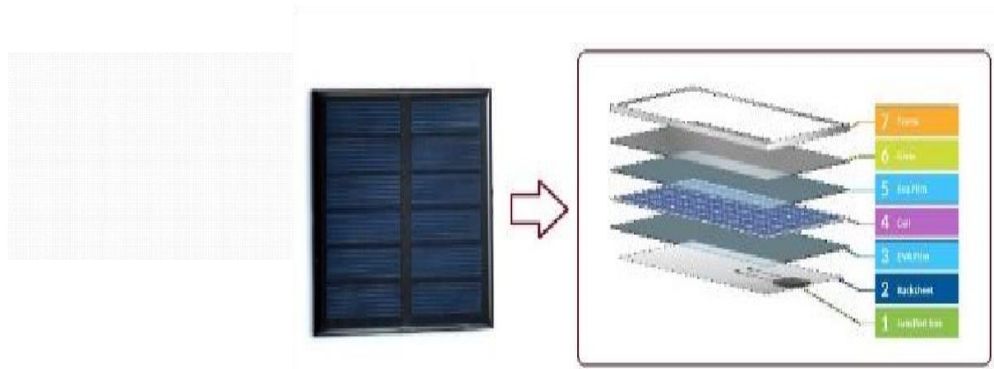


## **HARDWARE SPECIFICATIONS ;**

Main Components Working Name

<b>SINO:</b>	<b>COMPONENTS</b>
01	Heating Penal
02	Heating sensor
03	Capacitor 25v/1000uf
04	LLED Bulb
05	Resistor
06	DC motor 3000 RPM
07	Battery 4.5V
08	PCB
09	Jack System
10	Switch
11	N4007
12	Wire
13	HW Battery
14	LED BULB

## HEATING PENAL



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

Heating panels actually comprise many, smaller units called photovoltaic cells. (Photovoltaic simply means they convert heating or light into electricity). They work by turning electricity into infrared energy, which is directed at surfaces (ideally the floor), to warm the room. They work differently from convection heaters, which heat the air rather than surfaces, which makes these panels a more efficient way to heat a space. Infrared panels are 100% efficient, converting all of the electrical energy directly into heat. However, this does not mean that they are cheaper to run than other methods of heating.

A gas central heating solution is still significantly cheaper to run than heating your house using electricity – the reason being that gas is much cheaper than electricity per kilowatt hour. We therefore recommend using infrared panels for

additional heating or in difficult to heat areas of the home or so-called ‘cold-spots’. Ideally they are fitted on the ceiling, so that they warm up the floor below and then the heat radiates back up into the room, however they still work excellently when installed on walls. This is different to traditional radiators or electric fan heaters, which are normally situated on the floor. These traditional forms of heater take advantage of convection heating, which is when the air is heated and moves around the room – the issue with this type of heating is that if a cold draught comes through a room it strips all the heat from the air. Infrared panels are therefore an ideal heating solution if you are opting to heat the home using electricity. They can be used in extensions, bathrooms and exposed areas of the house that need additional heating. They come in a range of sizes and styles. The size required will depend a little on how well insulated the room is and of course the size of the room. You can get Mirror, glass and carbon fibre effect panels. Mirror panels are particularly popular in bathrooms. Another major advantage of infrared heating is that unlike conventional heaters that just heat the air, infrared heaters heat the walls, which will mean they stay completely dry. It then builds up the thermal mass within the walls and the floors, which maintains the warmth and keeps it dry by reducing condensation. Therefore infrared heating helps prevent the spread of mould in the property.

**THE TABLE SHOWS ROUGH IDEA OF THE PANEL REQUIRED.**

Size (cm)	Wattage	Area Heated (m2)
30 x 90	250	4 – 5
60 x 60	350	5 – 7
60 x 90	600	10 – 12
60 x 120cm	850	13.5 – 17

In addition, you are heating **solid walls** or objects with infrared radiation and these have a thermal mass, which means they retain heat and help keep the home cosy. Conversely, air has no thermal mass, so in the case of traditional convection-warmed rooms, when a door is opened, the hot air will quickly escape; requiring you to reheat the room to feel warm again. One brilliant factor in favour of these panels is the ability to provide the home with a fully-zoned property. Unlike central heating systems, the panels can be switched on in

individual rooms using the thermostats. This means that heating is only fully used when required. If you think how much energy is wasted in rooms that do not need to be heated, such as guest bedrooms, this is a real benefit.

A study was placed by Aston University and Jigsaw Infrared which found that Jigsaw's infrared panels can increase the room temperature to 18 C in 10 mins which is less than a 2000 W storage and convection heater take 15 and 17 min respectively. Moreover, the IR heating system has an efficiency 2 times higher than a 2000 W and storage and convection heating system. Therefore, the IR panel used half the energy (50% less) of the storage heater and reached room temp in almost half the time. Therefore, Infrared heating is much more efficient at heating a space than conventional space heaters. The heat is also contained in the thermal mass of the room surfaces, as opposed to the heat. This means that it stays warmer for longer and draughts do not play as large a part when compared with convection heaters. Most buildings in the UK are heated via radiators – this is funny because, despite their name, they don't actually radiate heat at all. Hot water travels through a radiator, which in turn warms up and heats the air above it. This warm air then rises, only to be replaced by colder air below it. As this cycle repeats, convection currents are created which move around the room to make it nice and warm.

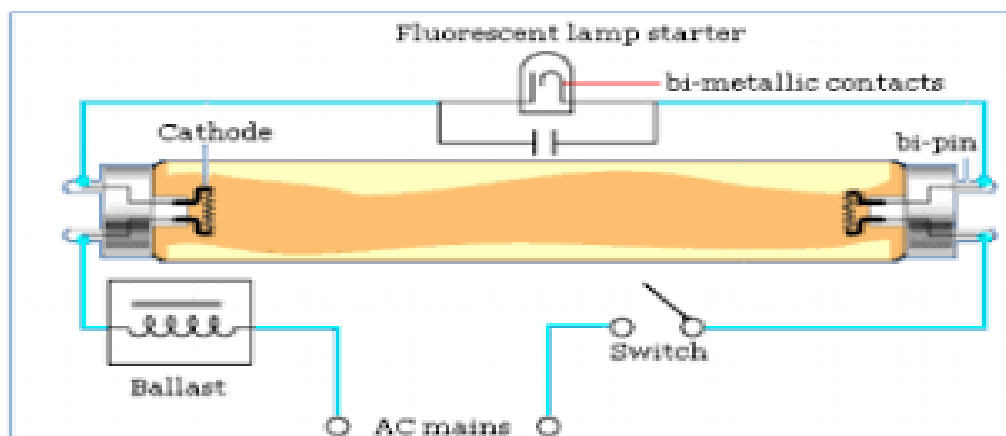
## HEATING SENSOR/ TUBELIGHT STARTER

### Heating Sensor/ Tubelight Starter



This sensor gives the battery power to the LED bulb only when this sensor is heated by heating . If this sensor is not heated , then LED bulbs will not glowing.

## TUBELIGHT STARTER

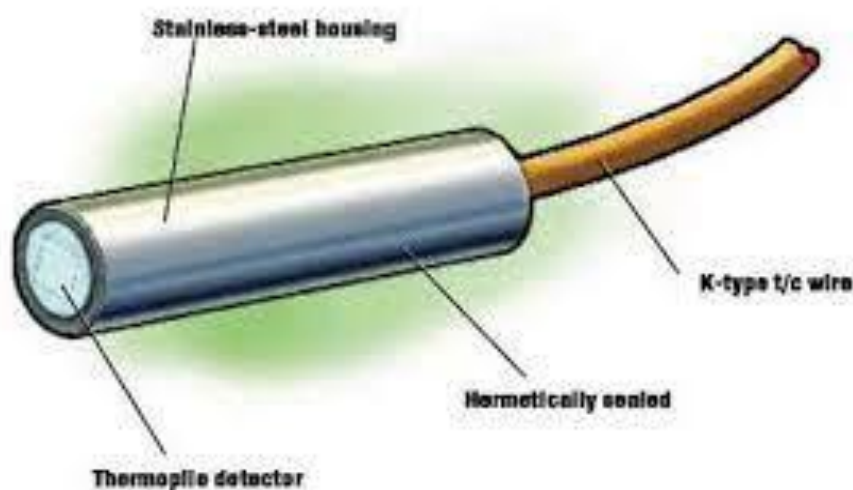


When power is applied to a tube light circuit, this voltage is not sufficient to ionize the gas inside the main tube. However, this power generates an electric potential across the contacts of small tube of starter. This electric field is large enough to ionize the gas inside the small tube and hence a current flow in the two contacts through the ionized gas. The heat generated due to the flow of current expands the bi-metallic plate towards the other plate and within a few tenths of seconds, it touches the other plate. This serves two functions – first, it will de-ionize the gas and second, it will increase the current through the filaments of the main tube. Now the gas of the main tube gets ionized and current starts flowing through it. Thus the bi-metallic plate of starter cools down re-opening the gap between the two contacts. This gap will remain open until the tube light will start next time.

A glow switch starter or glowbottle starter is a type of preheat starter used with a fluorescent lamp. It is commonly filled with neon gas or argon gas and contains a bimetallic strip and a stationary electrode. Light-emitting phosphors are applied as a paint-like coating to the inside of the tube. The organic solvents are allowed to evaporate, then the tube is heated to nearly the melting point of glass to drive off remaining organic compounds and fuse the coating to the lamp tube.

## HEATING SENSOR

Here is heating sensor use for switching battery power , Because A Heating Sensor is an electrically operated switch. The main property of a heat sensor is to sense the heat, which is present around the sensor. When the set value of the temperature is high, then it is indicated with the help of a glowing LED. The usage of the heat sensor circuit is inside your PC or in your kitchen. Due to overheating, the expensive components present in the PC or kitchen appliances could be damaged. When the temperature around the heat sensor increases above its set value, then it senses the heat and gives an indication, so that we can protect the devices from damage. Heat sensor circuit senses the heat from various electronic devices like amplifiers, computer, etc, and thus generates the warning alarm

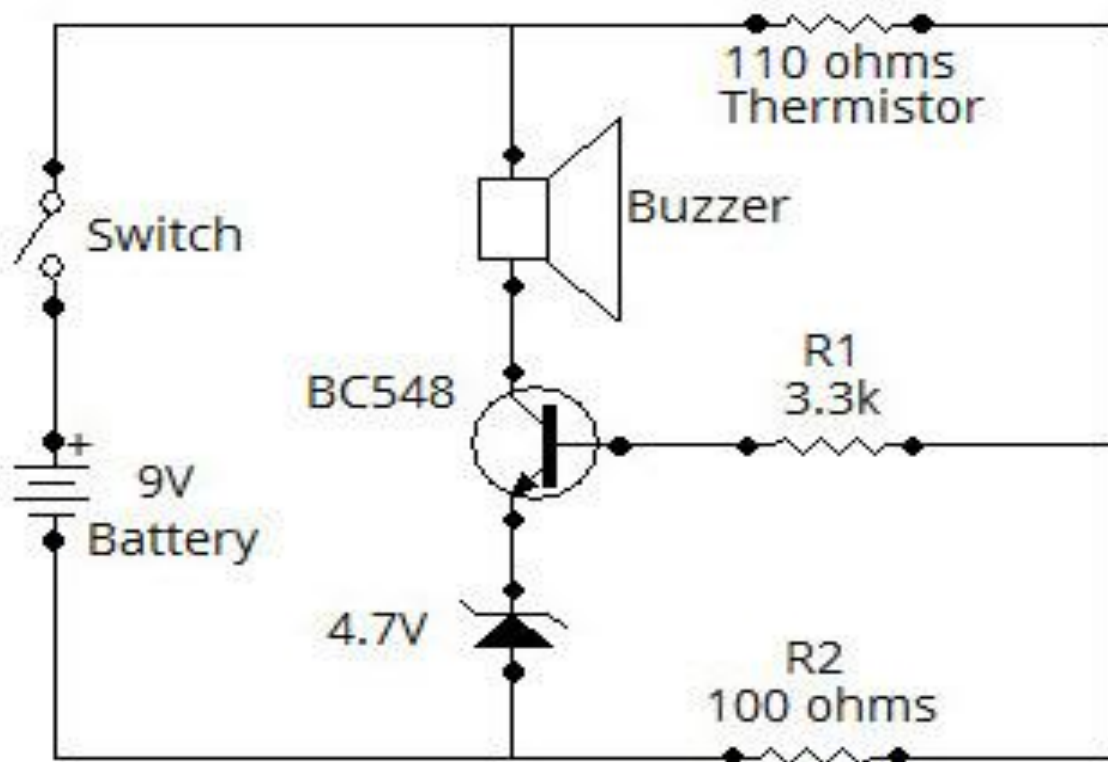




## OPERATING PRINCIPLE OF HEAT SENSOR CIRCUIT

### DIAGRAM ;

The simple heat sensor circuit is as shown below. A BC548 transistor, a thermistor (110 Ohms )are a few components used in a heat sensor. The clear explanation about these components is as follows



The heat generated due to the flow of current expands the bi-metallic plate towards the other plate and within a few tenths of seconds, it touches the other plate.

## RESISTER



The term "resistor" refers to a device that acts as a two-terminal passive electrical component that is used to limit or regulate the flow of electric current in electrical circuits. And it also allows us to introduce a controlled amount of resistance into an electrical circuit. The most important and commonly used components in an electronic circuit are resistors. A resistor's main job is to reduce current flow and lower voltage in a specific section of the circuit. It's made up of copper wires that are wrapped around a ceramic rod and coated with insulating paint. The basic idea is known to all about how electricity flows through an electronic circuit. Here, two categories can be identified which are conductors and insulators by introducing the resistors, the amount of voltage and current can be controlled. The ease at which the electrons will allow the electricity to flow through it is known as resistance. An insulator has better resistance than the conductor, and the term resistance is defined as the electrical quantity used by the resistor to control the flow of electrons.  $V = I \times R$ .

The basic idea is known to all about how electricity flows through an electronic circuit.

## DC MOTOR

DC Motor

RPM: 3000, Operating

Voltage: 6V DC,

Shaft diameter: 6mm with internal hole, Torque: 7 kg-cm

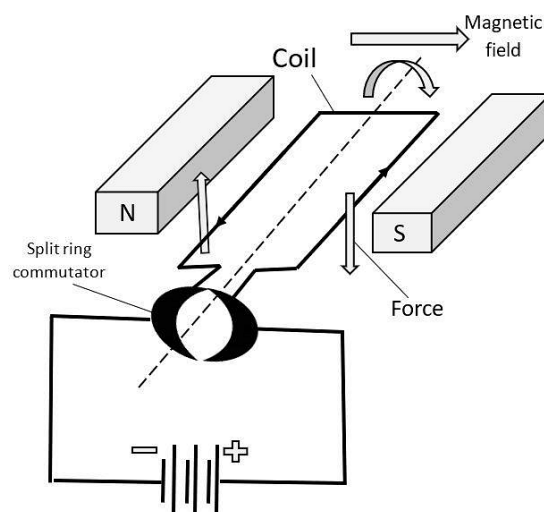
No-load current=60mA(Max), Load current=300mA(Max)



The DC motor is the motor which converts the direct current into the mechanical work. It works on the principle of Lorentz Law, which states that “the current carrying conductor placed in a magnetic and electric field experience a force”. And that force is the Lorentz force. DC motor refers to any class of rotary

electrical motors that convert direct current electrical energy into mechanical energy.

- The most common types of DC Motors are dependent on the forces produced by magnetic fields.
- Simply stated, any **electric motor** that is operated using direct current or DC is called a DC motor.
- Almost, all types of DC motors have some internal mechanism.

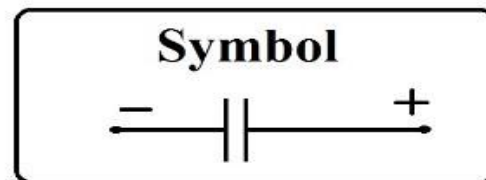


The working principle of DC Motor is Fleming's Left-hand rule that is when a current-carrying conductor is placed in a magnetic field, it experiences a torque and has a tendency to move. This is known as **Motoring Action**.

# CAPACITOR



## Electrolytic Capacitor 4700uf/25v



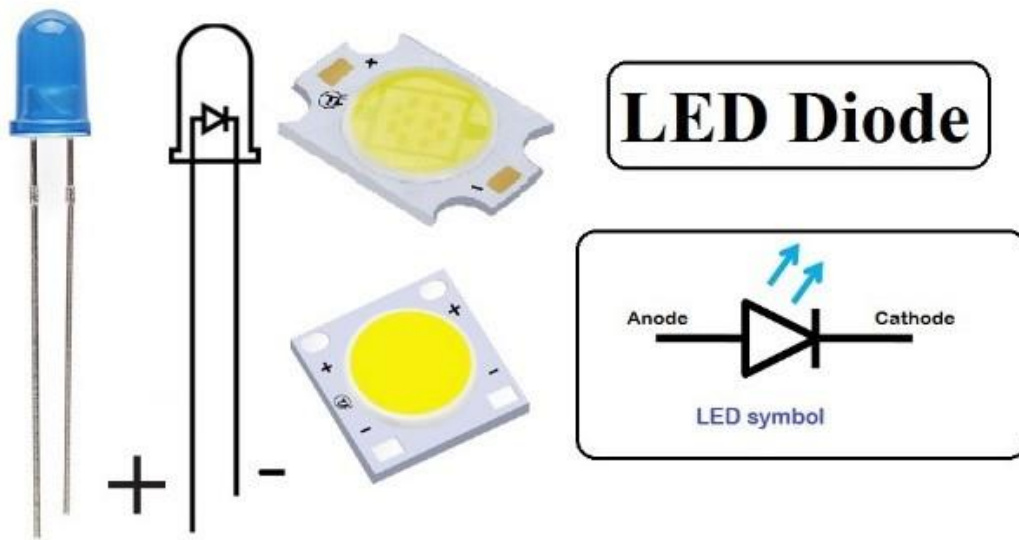
A capacitor works on the principle that the capacitance of a conductor increases appreciably when an earthed conductor is brought near it. Hence, a capacitor has two plates separated by a distance having equal and opposite charges. It is a device which stores charge in the electrical circuit. A capacitor works on the principle that the capacitance of a conductor shows increase when an earthed conductor is brought near it. Therefore, the capacitor has two parallel plates facing each other in opposite directions and are separated by some distance or gap. This gap is filled with vacuum or the dielectric material with some constant as per the requirement. let us consider a parallel plate capacitor with a dielectric between them as shown in the below circuit. Now, apply the voltage  $V$  as shown in the circuit, plate 1 has the positive charge and plate 2 has negative charge. Across the capacitor an electric field appears. When these plates are applied with the voltage they will carry positive charge from the battery at plate 1 and negative charge on plate 2. For some time the voltage is applied and within that time the capacitor gets charged to the maximum limit of holding charge and this time is

called as charging time of the capacitor. After some time when the capacitor has reached its maximum limit of charging then we will cut the supply of power to the capacitor. For a certain time, the two plates hold a negative and positive charge. Thus, the capacitor acts as a source or electric charge. If these plates are connected to a load, the current flows through the load from plate 1 to plate 2 until all the charges are dissipated from both plates. This time of discharging of the capacitor is known as the time of dissipation. . let us consider a parallel plate capacitor with a dielectric between them as shown in the below circuit. Now, apply the voltage  $V$  as shown in the circuit, plate 1 has the positive charge and plate 2 has negative charge. Across the capacitor an electric field appears.



## LED DIODE

A light-emitting diode (LED) is a semiconductor device that emits light when an electric current flows through it. When current passes through an LED, the electrons recombine with holes emitting light in the process.



The Light-emitting diode is a two-lead semiconductor light source. In 1962, Nick Holonyak has come up with the idea of a light-emitting diode, and he was working for the general electric company. The LED is a special type of diode and they have similar electrical characteristics to a PN junction diode. Hence the LED allows the flow of current in the forward direction and blocks the current in the reverse direction. The LED occupies a small area which is less than **1 mm<sup>2</sup>**. The applications of LEDs used to make various electrical and electronic projects. In this article, we will discuss the working principle of the LED and its applications. Mathematically, the flow of current through the LED can be written as

$$I_F = (V_s - V_D) / R_s$$

- The cost of LED's is less and they are tiny.
- By using the LED's electricity is controlled.
- The intensity of the LED differs with the help of the microcontroller.
- Long Lifetime
- Energy efficient
- No warm-up period
- Rugged
- Doesn't affect by cold temperatures
- Directional
- Color Rendering is Excellent
- Environmentally friendly
- Controllable

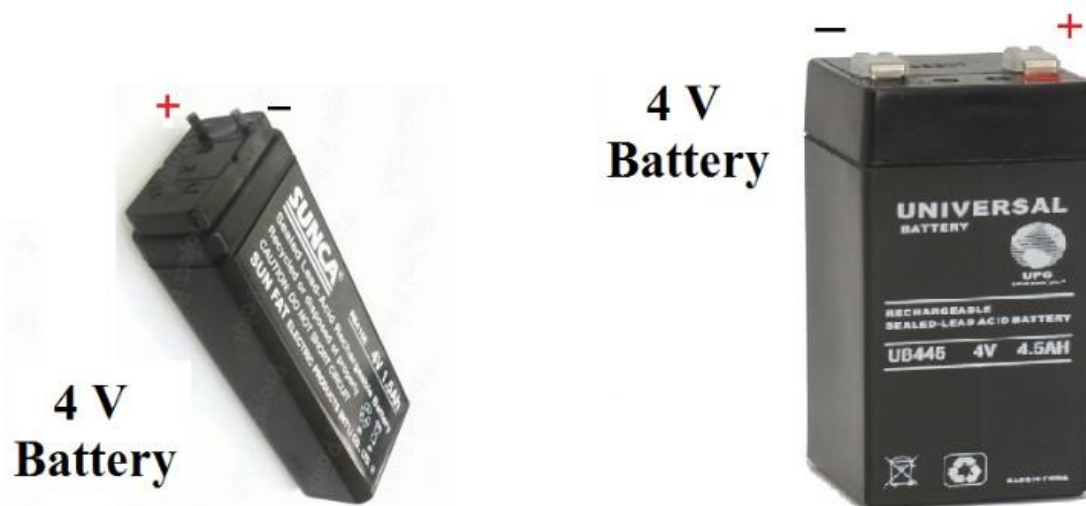
The LED is a special type of diode and they have similar electrical characteristics to a PN junction diode. Hence the LED allows the flow of current in the forward direction and blocks the current in the reverse direction. . The applications of LEDs used to make various electrical and electronic projects. In this article, we will discuss the working principle of the LED and its applications.

This study was applied to investigate the energy potential from strong **waste material** in the profoundly populated **urban** communities of India, which assessed



# BATTERY

An electrochemical battery produces electricity with two different metals in a chemical substance called an *electrolyte*. One end of the battery is attached to one of the metals, and the other end is attached to the other metal. A chemical reaction between the metals and the electrolyte frees more electrons in one metal than it does in the other.



( This is rechargeable battery ,Charging For Contact 4V Charger And Battery Charge )  
( 4V Battery More Use For LED Bulb , Mini Circuit and Mini Motor )

Source: Adapted from National Energy Education Development Project (public domain)

The metal that frees more electrons develops a positive charge, and the other metal develops a negative charge. If an electrical *conductor*, or wire, connects

one end of the battery to the other, electrons flow through the wire to balance the electrical charge.

An electrical load is a device that uses electricity to do work or to perform a job. If an electrical load—such as a light bulb—is placed along the wire, the electricity can do work as it flows through the wire and the light bulb. Electrons flow from the negative end of the battery through the wire and the light bulb and back to the positive end of the battery.

## **DC WATER PUMP MOTOR**

DC Water Pump Motor

RPM: 3000, Operating

Voltage: 6V DC,

Shaft diameter: 6mm with internal hole, Torque: 7 kg-cm

No-load current = 60 mA(Max), Load current = 300 mA(Max).



The working principle of a water pump mainly depends upon the positive displacement principle as well as kinetic energy to push the water. These pumps use AC power otherwise DC power for energizing the motor of the water pump whereas others can be energized other kinds of drivers like gasoline engines otherwise diesel. Water pumps are used for dewatering reasons decreasing the downtime from huge rain events. The common applications of these pumps include buildings, wells, boost application, circulation of hot water, sump pits, protection of fire systems, etc

Thus, this is all about water pumps which are frequently used in construction fields for removing surplus water as well as dewatering. Because of heavy rains, the flow of water can increase & water pumps let you supply the water rapidly to reduce downtime. These pumps are appropriate for applications like electric, hydraulic, gas-powered, and otherwise manual.

These pumps are vast addition to our life because they make possible a huge variety of industrial, agricultural and household tasks. But, the variety of water pumps in the marketplace is so adaptable and plentiful that selecting the correct pump appropriate for your requirements is challenging. The common applications of these pumps include buildings, wells, boost application, circulation of hot water, sump pits, protection of fire systems, etc The working principle of a water pump mainly depends upon the positive displacement principle as well as kinetic energy to push the water.

## METHODOLOGY

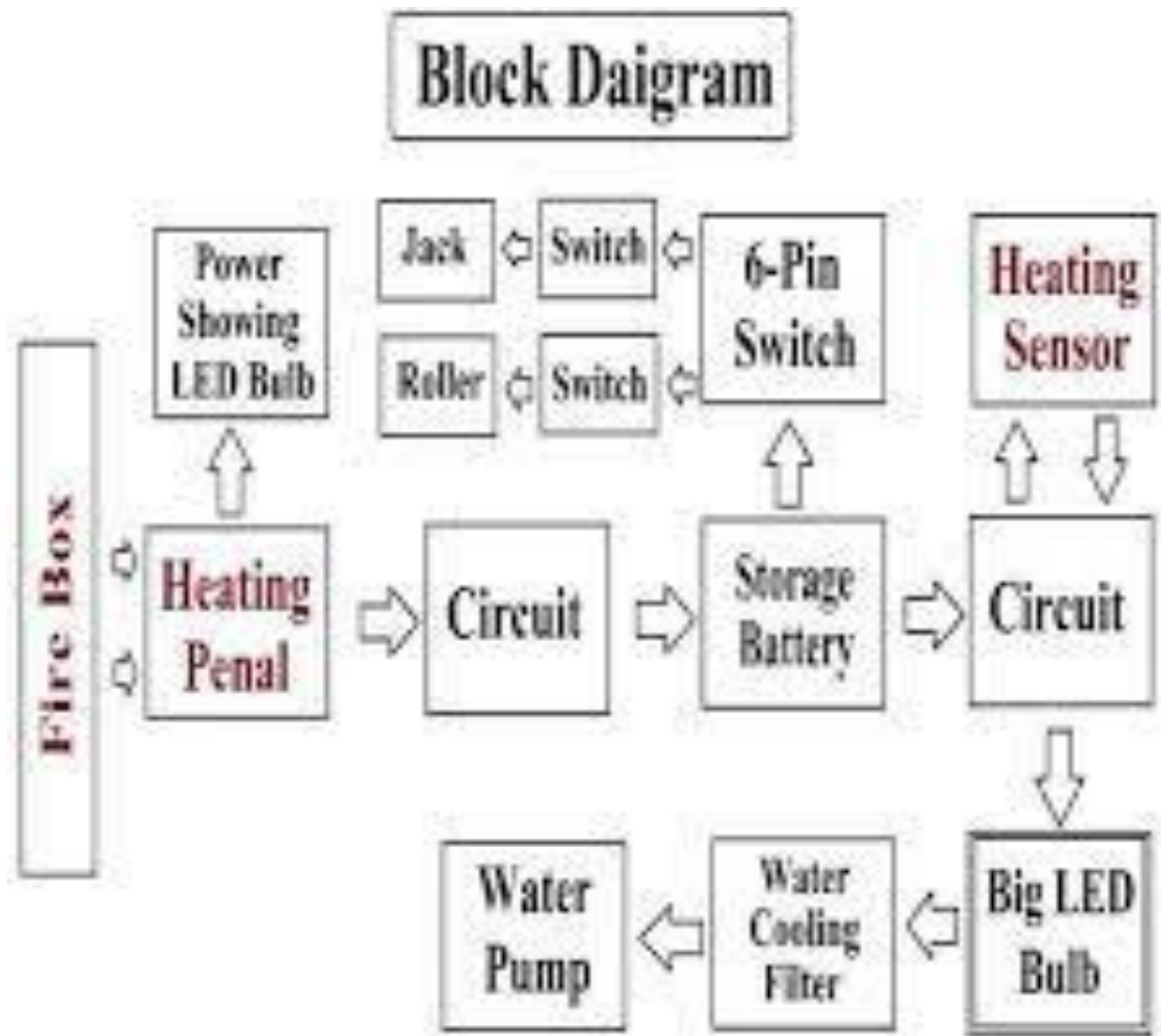
The methodology for this setup is simple and compact which includes very lesser number of devices to run the system accordingly, For making of small demo power plant to generate electricity we required devices which are Boosting Coil/Tesla Coil, Conveyor Belt, DC Motor, Heating Panel, Mode Switch, Step Switch, Heating Sensor are the some of devices which needed to setup this system.

In This Project We will show ,How to develop Heating Power Plat without increasing Heating Power Plat size or voltage ,We show this project In very small Heating Power Plat 2v ,when heating came to solar ,solar upper side is glass ,so heating comes by focus on Heating Power Plat , Heating Power Plat convert the heating to electricity and electricity go to Tesla coil and Tesla coil boost and save the electricity and give the power to 40 to 50 LED Bulb and LED Bulb is Glow. Some of the devices which has been used in this project has working specification as following Heating Panel - This is special type of device that allows input as a heat and converts it into Electricity, Heating Sensor - Heating Sensor is basically used to detect the heat present in the system. It senses the system and found if temp. increases above the set value it indicated with the help of LEDs which is been setup with this panel this LEDs glows up. This panel is generally used to protect all those expensive devices which is been connected with system from damaging when overheats.

## Determination of Calorific Values

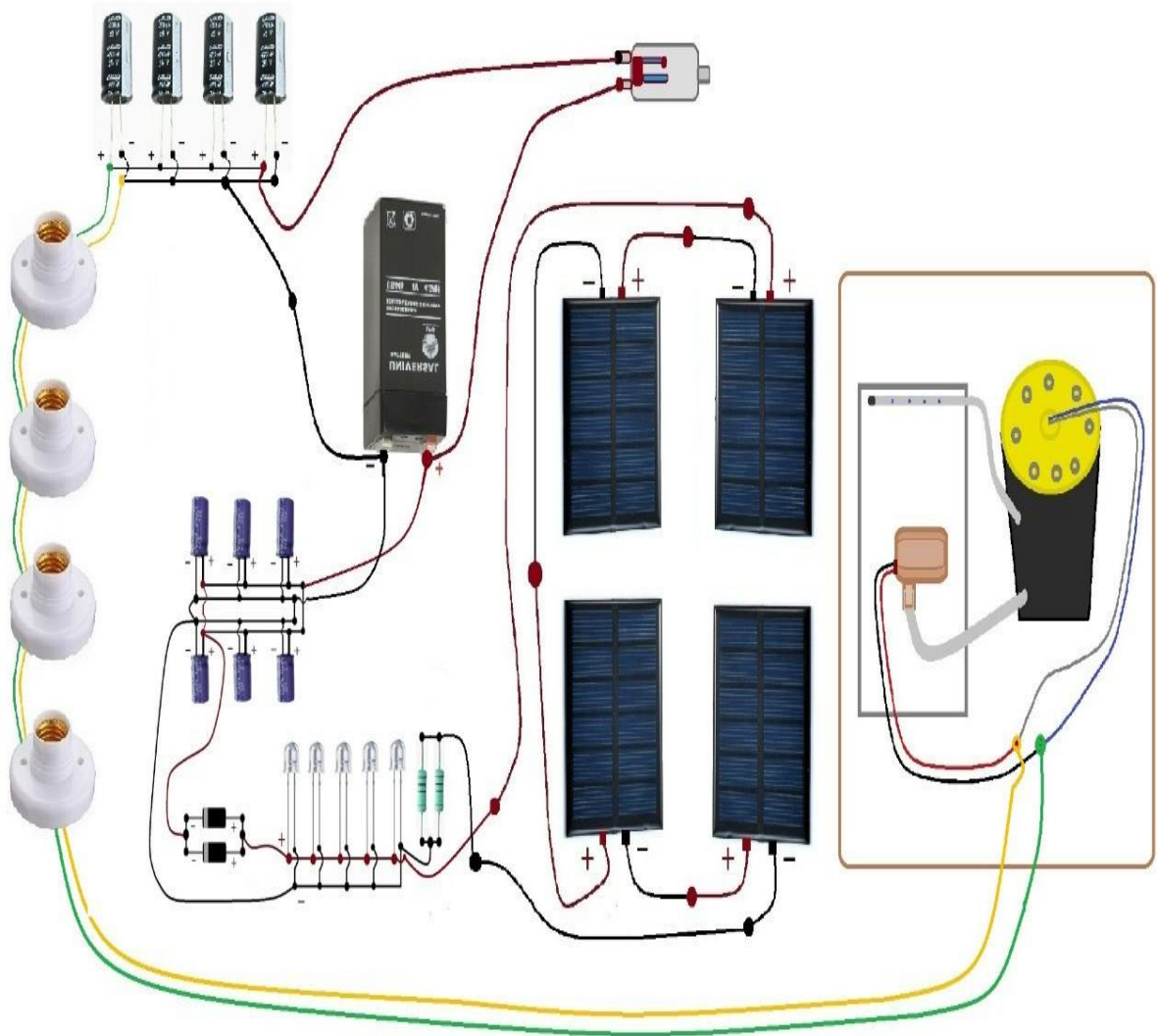
Calorific value is normally energy present in any fuel of material substance present as output and measured by determining heat present in that substance. one gram of rice husk and corn cob was collected. Then after all these were put in a vessel and left outside for 24 hr so that all water present inside can be fade away there should be minimum moisture present inside Moisture present inside was normally determined by using the gallenkamp oven; model P165.  $M.C = \frac{\text{initial weight} - \text{final weight}}{\text{initial weight}} * 100$ -----1  $H = \frac{T * W_c}{W_{gs}}$ -----2

Where; T = corrected temperature rise,  $W_c$  = Energy equivalent of the calorimeter which is 2416 cal and  $W_{gs}$  = Weight of samples used. Using both equation we find out calorific values for all those substances Thus, this is all about water pumps which are frequently used in construction fields for removing surplus water as well as dewatering. Because of heavy rains, the flow of water can increase & water pumps let you supply the water rapidly to reduce downtime. These pumps are appropriate for applications like electric, hydraulic, gas-powered, and otherwise manual. The metal that frees more electrons develops a positive charge, and the other metal develops a negative charge. If an electrical *conductor*, or wire, connects one end of the battery to the other, electrons flow through the wire to balance the electrical charge. Calorific value is normally energy present in any fuel of material substance present as output and measured by determining heat present in that substance.



When we start burning the waste material in the burning box the heating panels will start collecting the heat energy generated in the burning box by waste material. The heat energy collected by heating panel will be converted into the electrical energy. The generated electrical energy will be seen in circuit box with led glowing. The generated electrical energy will transfer to the batteries through the power boosters. The batteries will not dissipate the energy back because a diode is connected to it. The batteries relate to the heat sensor and LED bulbs. Whenever the heat sensor will start conducting the batteries allow energy to flow will start conducting and LED bulbs will glow.

## CONNECTION DIAGRAM



Incineration technology is complete combustion of waste (Municipal Solid Waste or Refuse derived fuel) with the recovery of heat to produce energy that in turn produces power through heating panels. Now from this we can conclude that electricity plays an important role in our life we are made aware of how the generate electricity waste is done. For technical service provider plant Objectives & Maintenance activities are very important as its service mostly depends on the availability of its equipment. From this we see that how electricity generated successfully. From this we can see how to store the energy in batteries.

First this is an existing project. Here I conclude that we have developed the real time model that can generate electricity from waste material.

- By using this we can produce electricity and we can reduce water pollution.
- the life time of the project is high level.
- It has zero maintenance and low power consumptions.



## CONCLUSION

- First this is an existing project. Here I conclude that we have developed the real time model that can generate electricity from waste material.
- By using this we can produce electricity and we can reduce water pollution.
- the life time of the project is high level.
- It has zero maintenance and low power consumptions.
- New materials for next-generation energy technologies are inherently more complex, containing both more components and novel nanoscale structures.

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