

Generation of Electricity by using Hybrid System

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Abstract – This Man has needed and used energy at an increasing rate for the sustenance and well-being since time immemorial. Due to this a lot of energy resources have been exhausted and wasted. Proposal for the utilization of waste energy sources: 1) Sound Energy 2) Light Energy Researchers are developing a new technique to convert mechanical energy into electricity. In the future walking around could produce enough energy to charge our portable devices. Sound energy to produce electricity at faster rate & find some other feasible method to produce electric energy. PV cell are devices that convert light into electricity. foot power with human locomotion is very much relevant and important for highly populated countries like India where the railway station, temples etc., is overcrowd all round the clock .When the flooring is engineered with piezoelectric technology, the electrical energy produced by the pressure is captured by floor sensors and converted to an electrical charge by piezotransducers, then stored and used as a power source. And this power source has many applications as in agriculture, home application and street lighting and as energy source for sensors in remote locations.

Key Words: Sound Energy, Light Energy, Piezotransducer, Street lighting

1. INTRODUCTION

We all know everywhere there is huge scarcity of energy and for running most of our appliances and to carry out daily work we need electricity. It is really very difficult to imagine our life without electricity, our life would really stop so there are high need, to produce electricity at faste rate and find some other feasible method to produce electric energy. On other hand we see that in this modern world there is lot of noise pollution in roads, airports, industries, etc

Besides all mention above these techniques, there are other methods for generating electricity, for which a lot of experiments are being conducted. These techniques are used on a relatively small scale as compared to the above describe method. Innovations in this field may lead to minimizing the use of non-renewable energy sources for electricity generation.

In our project we have decided to develop new method for generating electricity. That is generating electricity form sound. Sound is a mechanical form of energy which

travels in the form of waves. Also according to law of thermodynamics mechanical energy could be converted into electricity. Transducer is also used to convert Mechanical energy to electric energy i.e.it can convert sound energy to electric energy the simple example of use of transducer to convert sound to electric and vice versa is in speakers, headset also it could be converted into electric energy by other method.

2. INTRODUCTION TO SOUND SENSOR

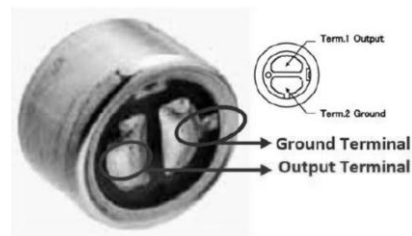


Fig -1 Sound Sensor

These sensor converts sound energy into electrical i.e. means acts as transducer. The nature of the piezoelectric effect is closely related to the occurrence of electric dipole moments in solids. The behavior of piezo electric elements as strain sensor. Strain is measured in terms of the charge generated by the element as a result of the direct piezoelectric effect.

3. WHERE TO USE ELECTRET MICROPHONE?

An electret condenser microphone is the most common type of transducer that is used to detect or measure sound signal. It functions exactly as opposite of a normal speaker, that is when a sound signal are detected it produces electrical signals. So if you are looking for the transducer to convert sound signals in your environment to electrical signals to detected sound, record voices then this is microphone could be the right choice for you.

4. HOW TO USE ELECTRET MICROPHONE?

The electret microphone has 2 plates inside it just liked a capacitor; the distance between the plates is directly proportional to sound present in the environment. A very basic circuit to get started with microphone are shown below. The recommended operating voltage is 2V but it can withstand up to 10v so you can even use a 9V battery,

in the circuit below we have used 5v to operate in our microphone.

Always remember that microphone has polarity to make sure you connect the positive output terminal to supply through the resistor and the ground terminal to the ground as shown in the circuit below.

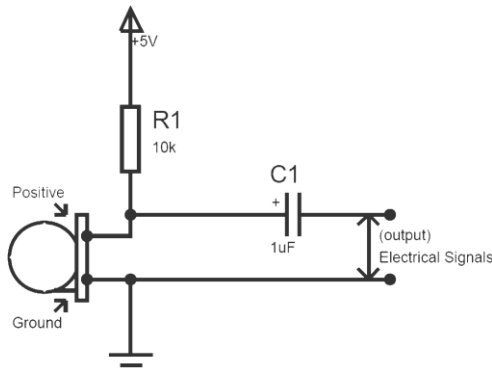


Fig -2 Electret Microphone Circuit Diagram

5. PIEZOELECTRIC SENSOR

The ability of a piezoelectric material to convert a mechanical stress into electrical charge is called a piezoelectric effect. The word Piezoelectric derived from the Greek word 'piezein' which means to push, press and squeeze. Piezoelectric effect is reversible effect means when we applied mechanical stress to the piezoelectric material we get some electrical charge at output. Same as when we feed electrical charge to the sensor it gets stretch or compresses.

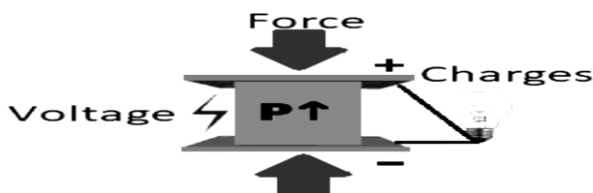


Fig -3 Piezoelectric Sensor

6. HOW TO USE A PIEZOELECTRIC SENSOR?

To use a piezoelectric sensor are the easiest task, just connect the positive and negative terminal to your circuit and press the top of sensor. By pressing due to mechanical pressure it creates voltage at output which is further feed to the circuit. You can simply connect a LED to the piezoelectric sensor. Whenever you press the sensor the LED will give a flash.

7. FUTURE SCOPE

Our vision is high. The size and cost of the device will be low as possible and every person of India can afford our device easily. The capability of our sensor will be increased and with low

8. CONCLUSION

According to this project working here we concluded that we can generate electricity by using hybrid system like sound sensor, piezoelectric sensor. We can use waste sound energy as an input energy for generation of electric energy. The use of transducer is to convert sound waves (noise pollution) into energy demonstrates that noise can act as an alternative source of energy.

The result shows that as the noise level increases, the corresponding voltage that was measured at the multi meter also increased. This shows that through a sustainable amount of time, the methods adopted can be used to create sufficient electrical energy that can be successfully stored in a DC battery.

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