

Electricity Generation By Noise

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ABSTRACT

This paper explores a relatively less popular source of clean energy. Noise (sound) energy can be converted into viable source of electric power by using a suitable transducer. This can be done by using a transducer by converting vibrations caused by noise into electrical energy. An application is proposed for the same, in which a speaker and a transformer are used to convert noise produced by car horn into electrical energy. The vibrations created by noise can be converted into electrical energy through the principle of electromagnetic induction. The received signal was stepped up using a transformer. A similar setup was placed at distance of 1 meter from the exhaust pipe of a 350 cubic centimeter engine of a motorbike. The demonstrated ideas probe into a clean and readily available source of energy.

Keywords : Noise, Pollution, Transducers, Magnetic , fields, Vibrations, Conductors

I. INTRODUCTION

According to the law of energy can neither be created nor be destroyed it can be converted from one form of energy into any other form of energy . Production of electricity is done in a number of ways electricity can be produced from various sources such as wind energy, tidal energy ,solar energy etc. The wheel of the Greek engineer Heron of Alexandria in the 1st century ad is the earliest known instance of using a wind driven wheel to power a machine. The history of solar energy begin with Leonardo Da Vinci whose sketches dating back to the 15th century show that he had been designing ways to harness solar energy. Scientist over the ages have been working to find established renewable sources to produce electricity that would be cost effective tool in the long run.

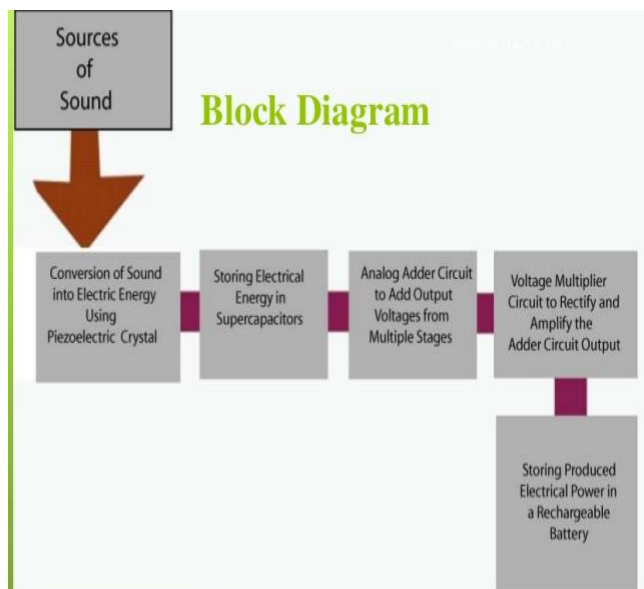
II. SYSTEM COMPONENT AND BLOCK DIAGRAM

2.1 SYSTEM COMPONENT

- ✓ TRANSISTOR
- ✓ 555TIMER
- ✓ COMPARATOR

- ✓ SUPER CAPACITOR
- ✓ RESISTOR
- ✓ CAPACITOR
- ✓ CERAMIC CAPACITOR
- ✓ CONDENSOR MIC
- ✓ LED

2.2 BASIC BLOCK DIAGRAM OF ELECTRICITY GENERATION FROM NOISE



Sound energy is a mechanical energy which travel in the form of wave , mechanical wave that is an oscillation of pressure which need medium of travel. As sound wave is a mechanical wave when it travel is through a medium it disturbs the particle of the medium these disturbance created by sound could be used to produced electricity by the law of Thermodynamics.

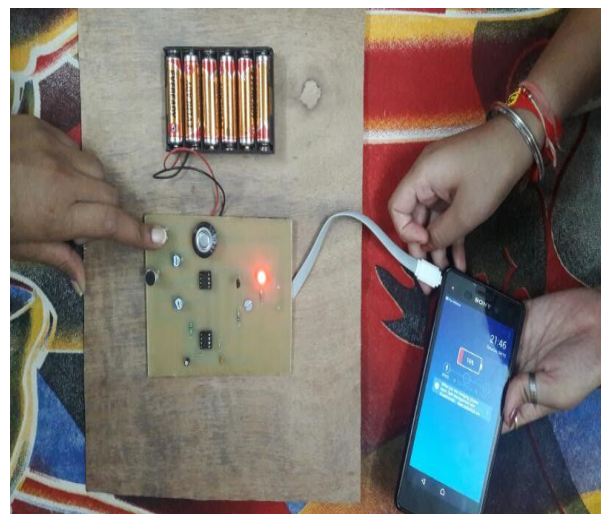
III. 3. IMPLEMENTATION

Firstly the sound energy which is produced as input is passed through „n directions to enter into the „n different hollow cones of the closed vessel. Here for example we take $n=4$. So the sound energy enters into the closed vessel from 4 different directions. A closed vessel is one which is airtight, but enables the sound to enter, as sound can propagate through solids, liquids and gases respectively.

The sound that is generated as input is made to pass through the hollow cones in such a way that the sound propagated through the vibration of the molecules is „pin-pointed“ over to the wings of the turbine. The vessel is filled with a very stable gas like helium gas in order to have a very low pressure inside the vessel. We choose this as the speed of sound is higher in the helium gas. Sound energy flows into the vessel as the pressure inside the vessel is much lower than the outside pressure. Due to this pressure difference the sound energy flows from outside to inside the vessel. The sound energy in the form of vibration of molecules is pin-pointed on to the wings of the turbine as shown in the diagram below. This sound energy on rotating the first wing of turbine moves towards second wing. Similarly, the sound energy in the form of vibration of molecules entering through the successive hollow cone gets pin pointed on to the second wing of the turbine. This sound energy moves towards the third successive wing of the turbine and the process continues, thereby leading to the continuous process of rotation of the turbine. Here, the frequency of the sound which is produced from one opening of the hollow cone with the sound being produced from the successive hollow cone is equated, thereby, creating „resonance“. Resonance is produced when the natural frequency is matched with the frequency of the sound that is produced. This resonance which is produced leads to increase in the amount of the energy produced to propel the wings of the turbine. This thrust enables the wings of the turbine

to rotate. Therefore, the wings of the turbine start rotating and continue to rotate as the pressure inside the vessel is quite less due to the presence of the stable helium gas that is present in the closed vessel. The rotation of the wings of the turbine produces mechanical energy which can be converted into the electrical energy using a „dynamo“ thereby satisfying the function of the “transducer”. This leads to perfect alignment of the process-continuous movement of the wings of the turbine lead to the continuous production of the electricity. Finally, electricity produced can be put to use in various fields as and when required. This kind of electricity can be produced mainly from the source of energy that is emitted out as useless form of energy in various places. So this is a boon to the production of electricity and to overcome the acute shortages.

IV. RESULT



V. ADVANTAGES

- 1.Sound is a RENEWABLE source of energy. It leads to pollution free environment.
- 2.There is no deficiency in the input as there is ample sound in everyday life and environment.
- 3.It can be used in industries, where a lot of sound is produced from the machines and generate the electricity, may be to run the same machine.
- 4.It can be used at heavy traffic junctions where a lot of sound is produced from the honking of vehicles and can be used in traffic lights.
- 5.It can be used in stadiums where a lot of sound is produced from the cheering crowd.

- 6.It can be used in water bodies also as sound can propagate through water.
- 7.It can also be used in theatres where a lot of sound is produced.
- 8.It is compatible in nature as its size can be varied.

VI. ACKNOWLEDGMENT

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VII. CONCLUSION

As sound is an abundant source of energy, we need to use it in an efficient manner. At this point of time, the production of sound may be an expensive process but the production of electricity from sound becomes a vital source of supply of input energy in the near future. The fuels being used to produce electricity today are „Non-Renewable“ in nature. Hence, the proposed idea is a ray of hope for the generations to come that alternate sources of energy are on the anvil. Yet another striking feature of the proposed idea is that it does not create any pollution or generates residual bi-products which would open up a Pandora Box of related issue.

VIII. FURUTE SCOPE

In near if we are able to use this kind of energy then it will cause revolution in the field of renewable source of energy. Due to development of new sources like sound we can overcome the deficiency of electricity that we are facing in the developing countries across the world.

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