International Journal of Engineering Applied Sciences and Technology, 2021
Vol. 6, Issue 6, ISSN No. 2455-2143, Pages 282-284
Published Online October 2021 in IJEAST (http://www.ijeast.com)

SELF EMF GENERATOR

Yellapu chandra mouli
Department of mechanical engineering
Mvgr college of engineering, Vizianagaram, Andhra Pradesh, India

Abstract— **Electricity is the basic essential need in current trend of world. Each and everything need power in order to run. Technology is directly proportion to the usage of electricity. The more the advancement in technology is the more the usage of electricity is. The basic sources of electricity are powerplants, there are various types of powerplants like hydroelectric power plant, thermal power plant, nuclear power plant etc….. each and every electricity generating plant uses turbines which work on the principle of electro-magnetic induction. So instead of using different energies to generate electricity, why can't we use its own reverse principal in generation of electricity. In this paper we can see about theoretical emf generation concepts which can be used to generate electricity without the use of external source.**

Keywords—**electricity, wireless, electro-magnetic, induction**

I. INTRODUCTION

The main principle behind generation of electricity in electric motors is electro-magnetic induction. That's based on Faraday's law. Faraday's law states that The electromotive force around a closed path is equal to the negative of the time rate of change of the magnetic flux enclosed by the path. It can be also stated as: The rate of change of magnetic flux enclosed by a path induces electromotive force around a closed path.

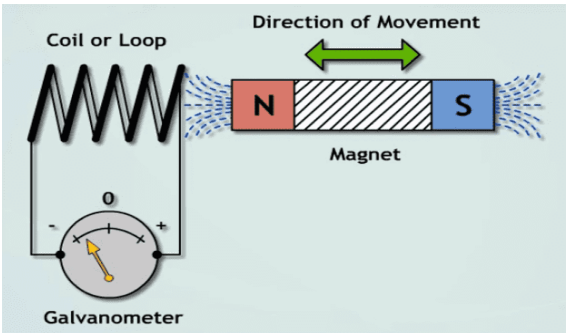

Fig 1

Electric motor will work through the principal of electromagnetic induction.
"Whenever the electricity is provided, magnetic field is induced and the polarity developed in the rotor will be exactly opposite to that of the polarity provided by the magnetic stator. This causes repulsion and make the rotor to produce mechanical energy"

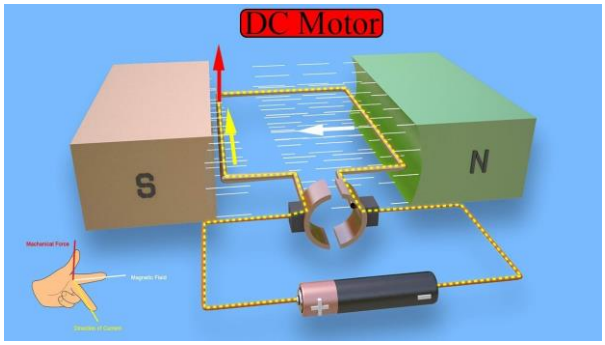

Fig 2

Vice versa to that is the working principle of electric generator.
"when the rotor is rotated with highspeed that induces magnetic field and hence produces electrical field. Which can be used as electric energy"
Generally electrical generators are provided the mechanical energy through the fuel engines which later produce required electric current.
In the typical house hold generators fuel engines are used, and in power generating plants, various types of energies like hydraulic, steam are used to rotate the rotor and to generate electrical energy.

The rest of the paper is organized as follows. Objectives in section II. Theoretical working principles in section III. Setbacks and limitations in section IV. Solutions and methodology in section V. applications in section VI and finally conclusion in VII.

II. OBJECTIVES

The main objective here is to create a device that produces emf without any external supports just nu using the basic and fundamental principles of electromagnetic induction.

III. WORKING PRINCIPLE OF SELF EMF GENERATOR

The principle behind this self emf generator is simple and also based on electro magnetic induction. It is the resultant couple of both electric motor and generator which induces electricity

International Journal of Engineering Applied Sciences and Technology, 2021
Vol. 6, Issue 6, ISSN No. 2455-2143, Pages 282-284
Published Online October 2021 in IJEAST (http://www.ijeast.com)

that is provided to motor, and that motor provides mechanical energy to the generator. This cycle repeats and then produce continuous emf.

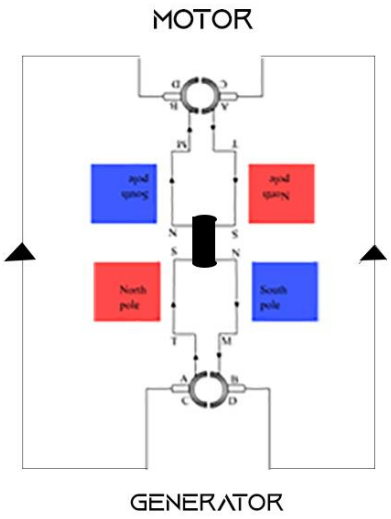

Fig. 1. DWT Decomposition model

That is the pictorial representation of the construction of device. In figure 3 you can see both electric motor and generator are coupled with a shaft.
We know that motor will rotate with some speed when it is provided with electricity. And when the rotor of generator is rotated with some speed it generates electricity.
In the above figure 3. Both are coupled, so the speed with which motor rotates is equal to the speed which is provided to the generator. And generator will induce electricity that is utilized by motor.
Theoretically.
Say the motor is provided with X volts of electricity, it produces Y rpm.
Now generator rotates with Y rpm and it induces X volts.

IV. SETBACKS AND LIMITATIONS

- Frictional losses
- Entropy

Frictional losses
Friction is the opposing force. It opposes the motion. Which decreases the overall efficiency of any machine. Basically motor is made up ofrotor and stator. Which are metals and magnets. Metals of course has friction when they are in close contact.

Entropy
Entropy is the disorderness of a body. it states that no body will work with 1005 efficiency, there must be some losses into the universe that causes machine to reduce its efficiency.
Based on both the factors:

So as stated earlier, theoretically motor provided with X volts produce Y rpm but it doesn't provide Y rpm to the generator due to frictional losses at the coupling of shaft. That leads to decrease in electricity generation in generator. Definitely it produces emf less than X volts.
In 2nd cycle, X1 emf is provided to motor that leads motor to rotate with speed less than Y.
This continues throughout and finally this cycle stops at some point where emf generation will be zero. In this way net loss will be 100% and this device will not work.

The main objective here is to create a device that produces emf without any external supports just by using the basic and fundamental principles of electromagnetic induction.

V. SOLUTIONS / METHODOLOGY

The main objective here is to create a device that produces emf without any external supports just nu using the basic and fundamental principles of electromagnetic induction.

If we observe figure 3 again. We cans ay that the main losses that occur are at the point of contact between the motor and generator, that means the mechanical coupling is the most important factor that is leading to the net loss of device.
In order to rectify the problem there are 2 methods.

1. Using gears
2. Providing additional EMF to recover the loss.

Using gears
Gear: gear is a mechanical component that transmits power from one shaft to the other

Fig 1
Gear is a simple mechanical component that either increases or decreases the speed by using different mechanisms.
There are different types of gears

- Spur gear
- Bevel gear
- Helical gear
- Worm gear

The type of gear we use in our design is spur gear.

International Journal of Engineering Applied Sciences and Technology, 2021
Vol. 6, Issue 6, ISSN No. 2455-2143, Pages 282-284
Published Online October 2021 in IJEAST (http://www.ijeast.com)

Fig
Gears used in this device looks exactly like the one shown in figure 5.
Initially motor is connected to the gear with larger diameter and generator is connected to the gear with smaller diameter.
Larger gear will have 2N teeth and smaller gare will have N teeth.
So one rotation of larger gear will leads to 2 rotations of smaller gear.
Now if we look into the theoretical part of our device.
Motor provided with X emf will produce Y rpm , it causes larger gear to rotate with Y rpm. That leads smaller gear to rotate with 2Y rpm, leading generator to produce 2X emf.
Again considering frictional losses, amount of energy transferred from motor to generator will definitely more than that of motor. So this cycle continues. And it runs itself without any external support.
Initially a small thrust is needed to set device into motion later it runs on itself.

By providing additional EMF to the circuit
as per our initial discussion it was concluded that loss at each cycle will lead to the net loss of 0 and the device stops working. So if we
Provide additional EMF to the the circuit which generates X emf then the system will be in balance and still it works as usual without any change.
Equations are
X emf = Y rpm

(Y1<Y & X1<X)

Y1 rpm = X1 emf
X1 emf + Additional emf > X emf
Loss is +ve and cycle continues.
This method is not completely self-generative but it is approximately 80% - 90% self-generative and 10% - 20% additional support is needed.

VI. APPLICATIONS

- This device can make automobiles to move from one place to other at low / minimal cost.
- Next generation electric vehicles are mostly benefitted by this idea.
- Electricity can be generated instantly and can be used for various purposes.

VII. CONCLUSION

Energy can neither be created nor destroyed but can be transferred from one form to another
In that process if losses were minimized as much as possible then there is almost 100% efficiency for any machine or device. So by providing external means and support this self EMF generator can be a revolutionary and game changing idea.

VIII. REFERENCE

[1] Venkat Sai kumar and Navin Kumar 2021 *J. Phys.: Conf. Ser.* **1964** 062100 ”Design and Analysis of Composite Spur Gear “

[2] ShukangChengCuipingLifengChaiHailongGong 2012,” **Research on Induction Motor for Mini Electric Vehicles” ,** Department of Electrical Engineering Harbin Institute of Technology Harbin, China.

[3] Albert Patrick David, 2019, “ Electro-magnetic induction: free electricity generator” Bachelor of Industrial Technology Department Bulacan State University – Meneses Campus Albertpatrick.david@bulsu.edu.ph

[4] https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.explainthatstuff.com%2Fgears.html&psig=AOvVaw3McXnaEABGdf8TSxgzwWcE&ust=1633978350385000&source=images&cd=vfe&ved=0CAsQjRxqFwoTCLD16OvBwPMCFQAAAAAdAAAAABAD