

AN APPROACH OF USING ROTATING OBJECTS FOR AUTOMATIC CHARGING SYSTEM OF BATTERIES

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Abstract—In day to day life man faces a lot of problems. One of the problems is shortage of charge in car or bike batteries while driving. By using his smart work and intelligence man has solved many problems. There are many solutions to overcome this problem. The proposed project is one of the solutions to this problem, which is of less cost. The main idea of this project is to generate electricity by using the principle of ELECTROMAGNETIC INDUCTION. A magnet(s) is placed inside the car tires which when in motion will produce an electromagnetic force in and thus the produced emf will be stored in the batteries and will be used whenever the current battery is dead or stops working. Therefore, a strategy for producing power by a wheel energy of an automobile and other moving framework is introduced. The created control either utilized or can be put away in a battery for driving some different gadgets.

Keywords— *Electro-magnetic Induction; e.m.f; dead battery; power charge.*

I. INTRODUCTION

Electricity generation is one of the most important factors in supporting 21st century society and economy. The world consumes over

23,000 TWhr of electricity every year and that number is only increasing. Much of this electricity is still generated with dangerous and outdated technologies centered on the burning of fossil fuels. The continued burning of fossil fuels will have catastrophic impacts on humanity

One process has been utilized in more ways than one is Faraday's law of induction shown in Figure 1-1. As the magnet is rotated, a Time-varying magnetic field is applied to the coil inducing a

voltage across the coil. This technique can also be reversed with the coil varying and the magnet being stationary.

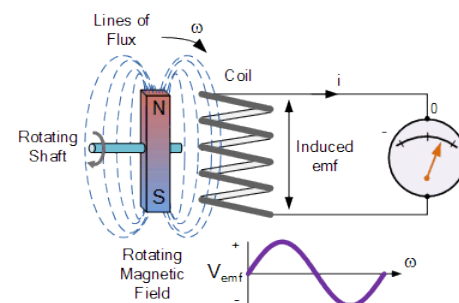


Fig.1.1 Faradays Law of EMI

When analyzing an ordinary stationary transformer, consisting of two separate electrical circuits linked together by a common magnetic circuit, it was seen that the energy losses due to opposition of primary and also due to hysteresis and eddy currents in the core. The basic laws applied are (A) Kirchhoff's second law states that the impressed voltage at every instance will be equal to the sum of the counter emf and the leakage impedance drop. (B) Primary and secondary are combine vectorilly to produce a resultant just sufficient to maintain the flux.

II. OBJECTIVES

The goal of this project is to design an environmentally friendly and user friendly portable rechargeable battery fit for interfacing with little electronic gadgets, for example, phones, mp3 players and tablets, through standard USB associations. The design of this project will be to build the most user friendly and intuitive product to minimize possible

user errors and make using our product as simple as tying your shoe.

The Faraday Rechargeable Battery, as stated in the name of the product, utilizes Faraday's Law of 10 Induction which states that by passing a magnet through a coil of wire, a small electrical current is created and then stored then used to power the USB device. The purpose here is to provide an innovative, user friendly, environmentally safe way to provide battery power for various devices.

III. LITERATURE SURVEY

[1] Ammeter is attached with a conducting loop that will register a current if the magnetic flux through the loop changes in time. Faraday noted that the emf induced in a loop is proportional to the rate of change of magnetic flux through it and is given by equation:
 $\epsilon = -N \frac{d\phi}{dt}$

Where ϵ is the electromotive force induced (measured in volts) and N is the number of turns of the coil. Provided each turn of the coil is sized and oriented like the others hence the coefficient N in front of the flux derivative.

[2] Magnets produce attractive power handle that are equipped for influencing different magnets and certain metals at a separation. This is a direct result of the way the molecules inside the magnets all line up in a similar introduction. Out of all the diverse kinds of magnets, none are more unique in relation to neodymium and hematite magnets.

[3] In this a coil is placed inside a tire. It is difficult to change tire when it got punctured. There is a chance for the coil to damage. [4] In this discs are placed inside fan which makes fan heavier. It is costly.

[5] A shock absorber is placed within the system which converts variable frequency into electricity. In case of induction brakes whole system can fail. It can affect the suspension of the vehicle.

[6] In this just a generator is made and it will generate electricity of low volts that is fewer amounts which is not more than 2 volts. [7] This is used on roads and railway tracks and in rotating objects. We cannot change battery whenever it is required.

[8] This is based on perpetual motion which is not efficient. Perpetual motion when combines with magnetic field it will produce electricity but transfer of this is an issue.

[9] The Electro Dynamic inductive effect is used which is based on resonance. By using this technique it is very difficult to produce electricity. Heat is generated rapidly. It is less efficient. Power transfer is a big problem in this technique.

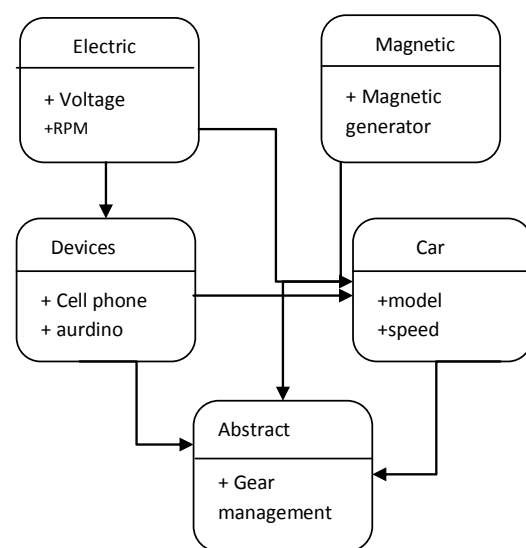


Figure 2.1 Class Diagram

IV. PROPOSED SYSTEM

This project relies on the principles of Faraday's law where the transformation of energy takes place between the objects. The designing methodology is to convert the frictional force in to electrical energy. Like the use of transformers make it conceivable to create control and no more prudent voltage, transmit control and no more conservative transmission voltage and use the power.

Since in the deployment part, a single-phase transformer comprises for the most part of an attractive center on which two windings are wound, called essential and optional. The essential winding is provided with an ac source of voltage v and

frequency f . The current flow in primary winding produces flux which varies with time. This flux links both the primary and secondary windings and induces EMF in them.

The EMF induced in primary winding is equal and opposite to the applied voltage, neglecting losses. The EMF initiated in essential and auxiliary windings is because of the common transition connecting both the circuits. The greatness of the EMF initiated in essential and optional windings relies upon the quantity of turns in the individual windings.

As the type of motor depends on how a particular type of combination of the shaft and coil. Generally the polyphase is on the stator while the coil winding is on rotor. The field obtained is the resultant of both the magnitude and also it depends on the strength of dc field and the frequency corresponding speed of rotating device like fan or a car tier.

The same functionality is also applied to oscillating devices pertaining the change of energy state. The cutting blade has specific edges. Generally, any of the principal polarizing curls is driven by the information voltage to build up an initiated magnetic field. The rotor is headed to pivot along gratefulness the stator and develop inactivity. Because of rotation, the rotor pivots and slices through the attractive lines. A back EMF is along these lines produced in the attractive field.

The power delivering the governing circuit is made to connect electrically along the illuminating unit at the downward of the blade frame. The electrical power output from the power delivers to the governing circuit can drive the illuminating unit at the downward of the blade frame. It must be described that the energy saving driver-governing circuit is able to convert external AC power into DC power, and neglect the power supply noise interference.

Amid the procedure, the administering circuit can discover the situation of the rotor in turning, and in this manner figure the electrical current part of individual initially polarizing loops. This can adequately raise the power creating proficiency. In the previously mentioned energy-saving governs means, the power conveying circuit and the vitality

sparing driver administering circuits need to participate intently in their signs.

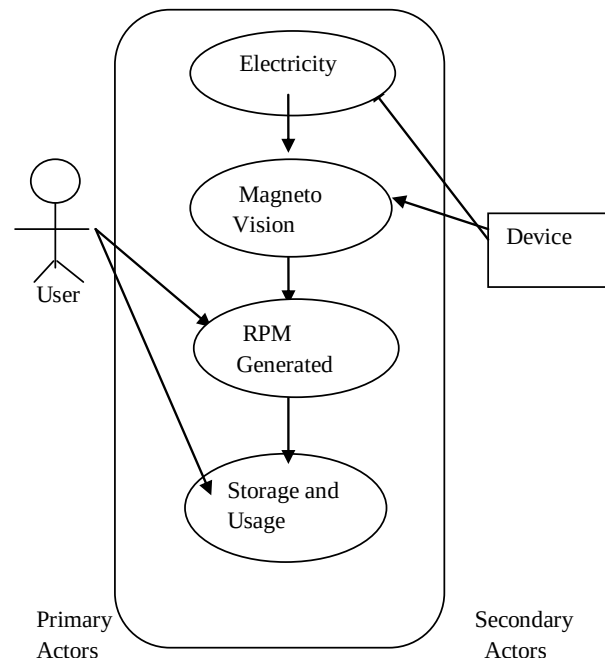


Figure 4.1 USE CASE

It contrasts from the past part in that the power dispersion representing circuit is electrically associated along a chargeable battery. The electrical power yield from the power conveying representing circuit charges the chargeable battery. The chargeable battery is specific electrically associated along the vitality sparing driver overseeing the circuit. At the point when the outside power supply quits providing power, the chargeable battery can even now supply energy to the vitality sparing driver overseeing circuit. The power conveying administering circuit is further electrically associated along a fluorescent unit and a chargeable battery.

The chargeable battery is electrically associated with the vitality sparing driver administering circuit. In this manner, the electrical power yield from the power conveying representing circuit can be utilized to drive the fluorescent unit at the base of the sharp edge outline and developed light. At the point when the electrical power creates by the power conveys administering circuit is more prominent than the power devoured by the fluorescent unit, the

additional power can be utilized to charge the chargeable battery.

When the external power supply stops supplying power, the energy-saving driver governing circuit can still operate normally under the power supply of the chargeable battery. When the external power supply stops supplying power, the chargeable battery can still supply power to the energy-saving driver governing circuit. The power delivering governing circuit is further electrically connected along an fluorescent unit and a chargeable battery.

V. CONCLUSION

An alternate way to generate power is presented in this paper. The rotational energy of the dynamo can be used to operate different small powered devices like A.C compressor. Both the dynamo and alternator can be used in this system. There are several applications where this power can be used. They are charging of laptops, magnetic braking system, cell phones, semi-electric cars etc. this system used in car to increase the efficiency of engine more than today vehicles.

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