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# Design and analysis of Free Energy Generator system by balancing of flywheel

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## Abstract

Energy is a natural demand and engineers are trying to come up with new ways to generate energy. Solar energy has made a big difference in the last decade. Now the struggle is to generate free energy through the use of magnetic attraction and repulsion. During studies on single magnets it is proven that 100 per cent free radicals cannot be produced although 40-60 per cent can be produced considering the data system with which the energy generated by the use of generator. The experiment was performed and after many refinements and experiments resulted in a experiment.

**Keywords:** Free energy, Renewable energy, Magnetic energy, Convertor system.

## Introduction

The electricity generated is based on Faraday's well-known electromagnetic import policy (Mayank Grover, 2014). An effective model developed after a series of experiments and validations based on another function is called a magnetic motor, which works in magnetic and magnetic fields. In this example, permanent magnets are used; a magnetic pair placed in the head of a 12V DC motor connected to a 12V battery. There are eight rotating magnets supported by bearings. The speed control circuit is inserted between the battery and the car to control the car's speed as desired. During this research work, it was noticed that drivers need a constant installation source; otherwise the rotor plate will stop due to the effect of measuring gravity and retraction, in order to reduce this opposing force using a battery source. 12V. which keeps the rotor in motion and the rotor speed and rpm are controlled by this cycle.

Therefore, the availability of sustainable development in Sub-Saharan Africa depends in large part on increasing access to affordable, reliable and clean energy for all. Fossil fuel is the most popular energy source for electricity generation in sub-Saharan Africa. Most of the grid's generating capacity comes from coal (mainly South Africa), water, oil and gas. Prolonged dependence on fossil fuels for power generation has had a profound effect on climate change, which has a devastating effect on global warming. Energy represents about 60 percent of total greenhouse gas emissions.

There is a campaign underway to significantly increase the proportion of renewable energy in the Earth's energy mixes. Renewable energy is another energy source that can be saved and replenished without any negative impact on Earth. Typical renewable energy sources in sub-Saharan Africa include solar, wind, water and biofuels. Altogether, solar energy has shown itself to be very promising due to its incomparable power to generate electricity. Sub-Saharan Africa has unlimited renewable resources, but bringing a large number of these resources into operation has been a

challenge. Home consumers and small businesses have started to use alternative energy to meet their energy needs. Solar energy appears to receive more support, but its performance is below expected climate and local limits. The durability of photovoltaic panels is insufficient to sustain it. Also, generating electricity using solar energy is often more expensive to work for long periods of time. Thus, low yields and high energy costs make energy inaccessible to citizens, despite the availability of resources.

## D C Motor

A 12 volt, 5 Amp brushless DC motor was used for this purpose. The DC motor converts the mechanical rotation of the blades, which is caused by the disgusting force between the magnets, into electrical energy. As the neodymium magnet surrounds the motor orifice, the rotor rotates and a magnetic field inside the motor is created by the stator, causing current to flow through the coil. When the loop cable rotates around the magnetic field generated by the stator, it produces a magnetic flux that passes through the loop and produces a voltage, which is pulled across all loop terminals. The generated voltage is collected by two commutator components and transmitted to a set of stationary brushes, connected to the motor terminals. When the loop rotates 180 degrees, the magnetic flux in the loop is transferred from negative to high. At this point, the connection of the conveyor parts and brushes is delayed. This goes on to reverse the connection between the motor terminals and the cable loop terminals.

## Working principles

The magnetic field in the rotor is made in such a way that if one magnet has a North Pole facing up and the other has a South Pole, then eight grains are attached to the rotor plate, similar to two magnets in a DC motor mounted. There is a gap of 50 mm between the two rotor magnets. This measurement is a key factor in the prototype's success. This space eliminates the balance effect between the magnets in the motor rotor. This measurement is obtained from the rotation of a part of the magnet in a motor. During this rotation, the vehicle's magnetic field is aligned with the rotating poles of the opposite pole, so it pulls the rotor and tends to rotate with great force and speed. Another magnetic polarity makes this system work. The objective of this program was to provide systematic efficiency and regular flow, since some magnetic poles operate on the principle of attraction and retraction conditions. In this way, the effect of measuring pulls and rejects that normally for the rotor is reduced.

## Operations

This system works when 12V DC from the battery is connected. The DC motor starts rotating when the controller is tuned to the speed control circuit. The speed control circuit is equipped with a motor-mounted magnetic field and a motor-mounted magnetic field. When the system is synchronized, vehicle speed can be gradually increased or decreased to achieve the desired output. Therefore, alignment of motor magnet and rotor magnet is important, if the grip maintains its attractiveness and gravity, the system will run smoothly without slipping.

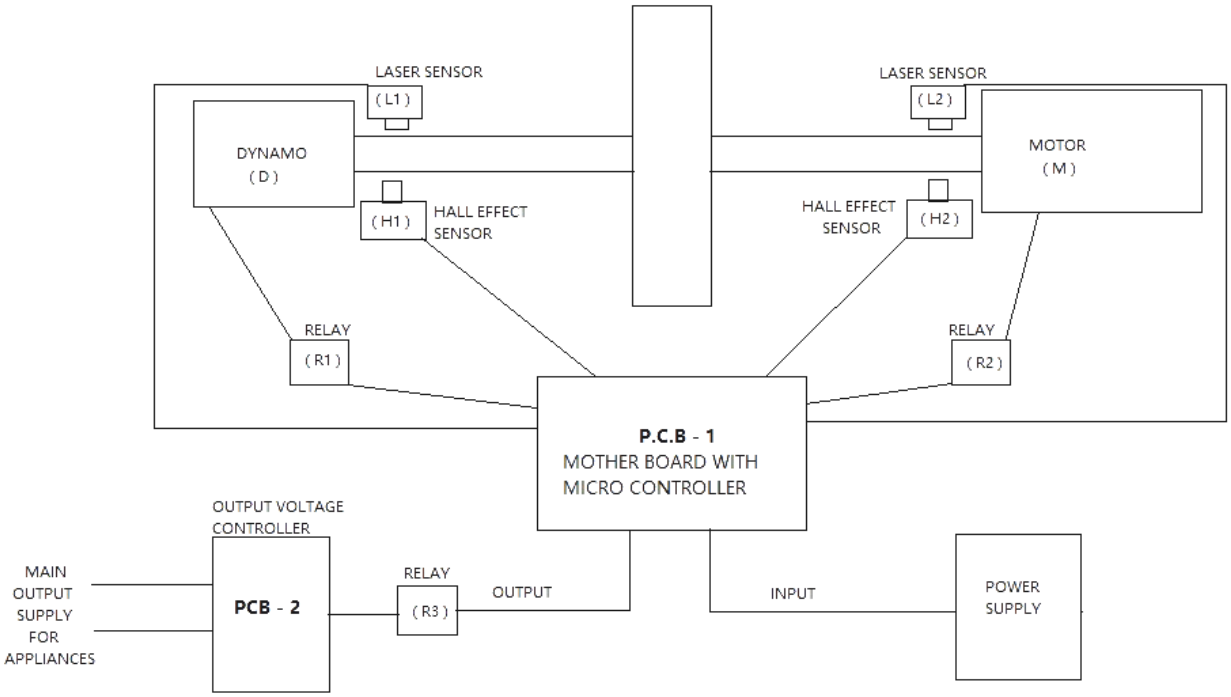


Figure 1. Single dynamo based power generation

- L1 and L2 = Laser speed Sensor ( 5 VDC, 300 mA)
- H1 and H2 = Hall Effect Sensor ( 5 VDC, 300 mA)
- R1,R2 and R3 = Relay ( 12 VDC, 500 mA)
- Q = Power Supply to start the device ( 12 VDC, 1000 mA)
- D = Dynamo ( 12 VDC, 1500 mA)
- M = Motor ( 12 VDC, 1500 mA)
- PCB = Mother Board with Micro controller ( 5 VDC, 500 mA)
- O = Output ( 220VAC, 50 Watts)
- PCB-2 = Output Voltage Controller board ( 5 VDC, 500 mA)

When the dynamo is connected in in-line method with the motor on a single shaft, when the motor starts to rotate, the dynamo also starts to rotate, the revolutionary weight that stores kinetic energy is placed between the shafts, which is basically used to store kinetic energy. During this process there will be two laser sensors and two Hall effect sensors being placed, one pair of sensors is placed on the motor shaft and one pair of sensors is placed on the dynamo shaft that detects the motor speed and one dynamo and one The name of the microcontroller board is PCB which is used to control the current and the amount of input current must be taken by the motherboard PCB to start the motor until the speed is gained by the motor as the motor speed becomes constant, then the motherboard PCB will change the current import source from the main source to the dynamo source and then the dynamo current source will act as a primary power input to the motor and the rest of the extra current

generated will be supplied by PCB to the output source through which we can run various electrical equipment of our household items.

Relay R1 and R2 are connected to the motor and dynamo supply because it is used to control the high voltage current in the circuit. Here we are using the relay to increase the circuit voltage so that when generating less voltage, the relay will control the voltage and current generated.

Relay R3 will be connected to the output power of the PCB which increases the voltage of the output power and this increased output voltage will go into the output voltage controller board which controls the voltage according to the machine which is directly connected to the board (Output voltage controller).

The output voltage controller board will have several sensors that supply the required voltage according to the connected device and then supply the controlled voltage to the connected device.

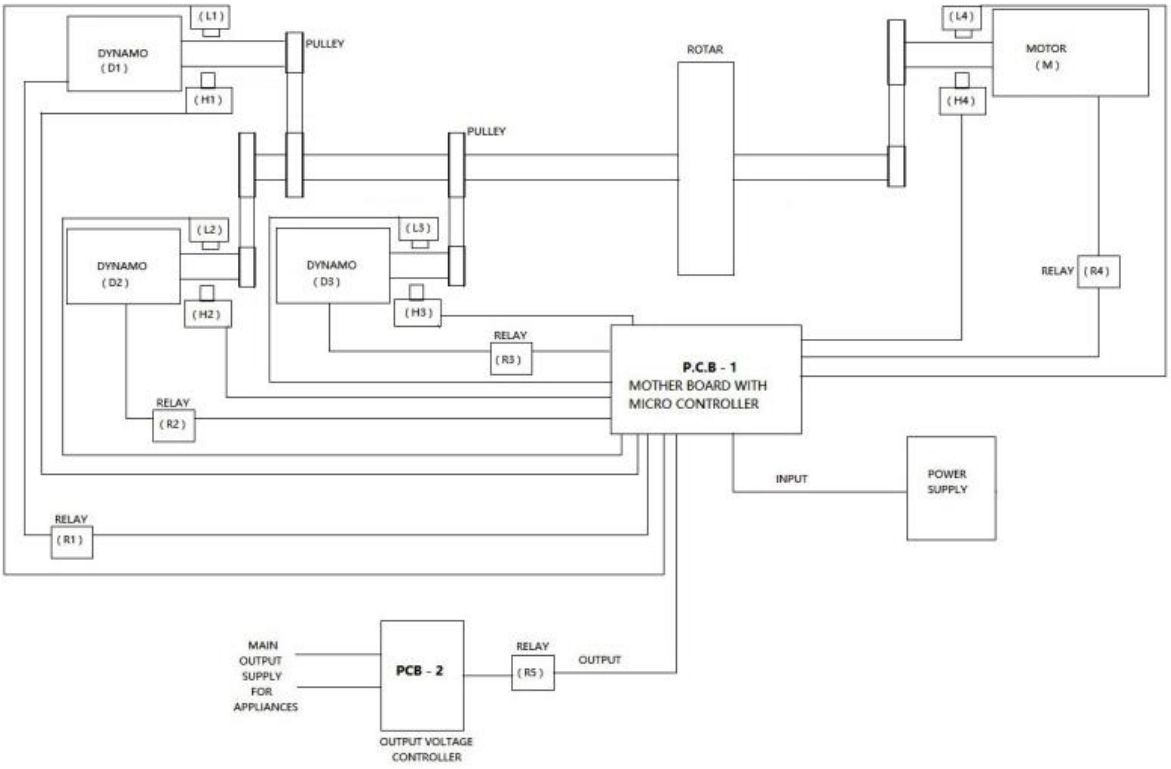


Figure 2. Three dynamo based power generation

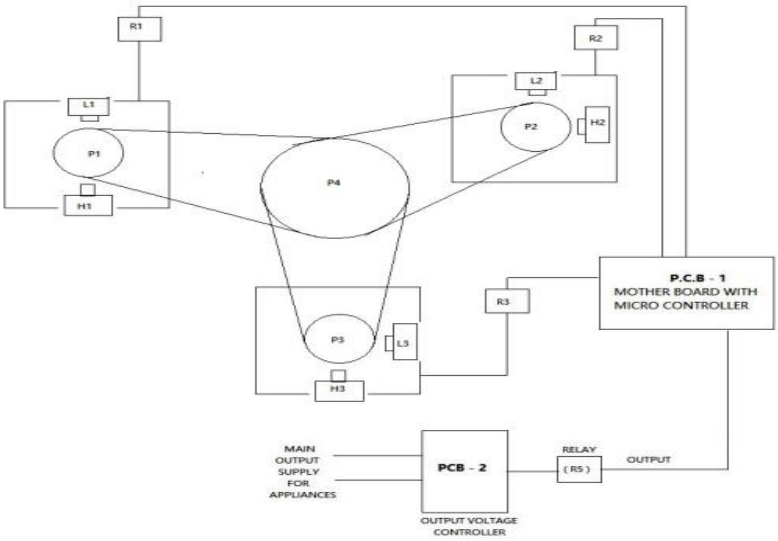


Figure 3. Four pulley arrangements

- L1 , L2 , L3 , L4 = Laser speed Sensor
- H1 , H2 , H3 , H4 = Hall Effect Sensor
- D1 , D2 , D3 , = Dynamo
- P1 , P2 , P3 , = Smaller dia pulley
- P4 = Larger dia pulley
- R1 , R2 , R3 , R4 , R5 = Relay
- PCB = Mother Board with Micro controller
- Q = Power Supply to start the device
- M = Motor
- PCB-2 = Output Voltage Controller board

In this one, the arrangement is changed to increase the dynamo's rotational speed and the motor will also be upgraded so that it can be able to run three dynamo's. At the same time, with the help of the belt drive system, the rotation speed will be increased and it becomes possible when the smaller diameter pulley is fixed to the dynamo shaft and the larger diameter pulley is fixed to the dynamo rotor shaft. So that the rotation speed of the dynamo is maintained. If there is little change, the smaller diameter pulley will be fixed on the rotor and the larger diameter pulley will be fixed on the motor, so the rotation speed will be high during less motor rotation.

All three dynamo output sources are connected with relay R1, R2, R3, whereby the current goes to the microcontroller PCB board, where relay R4 is connected to the motor input power.

H1 H2 H3 and H4 are Hall Effect sensors and L1 L2 L3 L4 is laser sensors. Which are connected to the entire dynamo shaft and also to the motor which are used to detect the rotation of the shaft through which the current is controlled by the microcontroller board PCB.

The Riley R5 is connected to the output of PCB1 and then the increased voltage supply is connected to PCB2, both PCB1 and PCB2 have microcontrollers that control the current supply.

The PCB2 controls the voltage that was increased by the Relay R5 and this PCB2 microcontroller will also have sensors that detect the necessary voltage of the devices so that the microcontroller is able to send the voltage necessary to operate the connected devices.

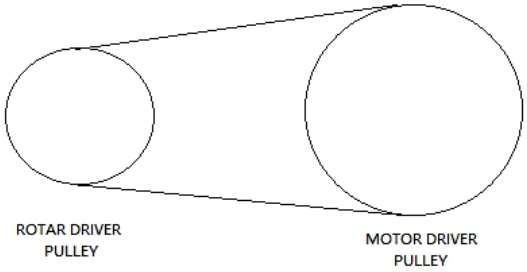


Figure 4. Two pulley arrangements

The motor drive pulley is larger in diameter because the larger diameter pulley will increase the main rotor rpm speed and the main rotor pulley will have fewer diameters to increase the shaft rpm so that the dynamo can be able to generate the amount of voltage to run the necessary applications and devices that are connected to PCB2.

The PCB1 will also be able to control the motor current supply and before the current goes to the motor a Relay is coupled which is used to increase the voltage so the motor can do its job and run without burning out and this motor must be able to maintain main rotor shaft RPM speed. For the rotation of the Rotor axis to be able to rotate the dynamo axis by which the dynamo will be able to do its work.

## Calculations

**For single dynamo based power generation system**

From One Dynamo

V= 12VAC

I= 5Amp.

P=V I

P= 12 X 5 =60 Watts.

Power passing through relay circuit System

Power consumption by PCB = 5 Watts

Final Power = 60-5 = 55 Watts

Power Consumptions by Motor running =60 Watts

Power (60 Watts) is generated by one dynamo permanently and after this driving motor is stop by automatically, then power is generated by single dynamo upto 300 seconds using flywheel arrangement system, which is stored the Moment of inertia, when rated speed (200 RPM) of dynamo is decreased, then motor is ON condition automatically by sencer PCB system.

For increasing the voltage, we are used the 12 VDC to 220 VAC convertor, which is used for as input for other appliances with 50 Watts because of 5 Watts is loss by convertor system Finally , We get 220VAC output with 50 watts.

**For single dynamo based power generation system**

$D_1$=50 Watts

$D_2$=50 Watts

$D_3$=50 Watts

$D=D_1+D_2+ D_3$ =150 Watts

165- 5 Watts =150 Watts

We can also get 220VAC output with 50 watts.

Designs and simulations

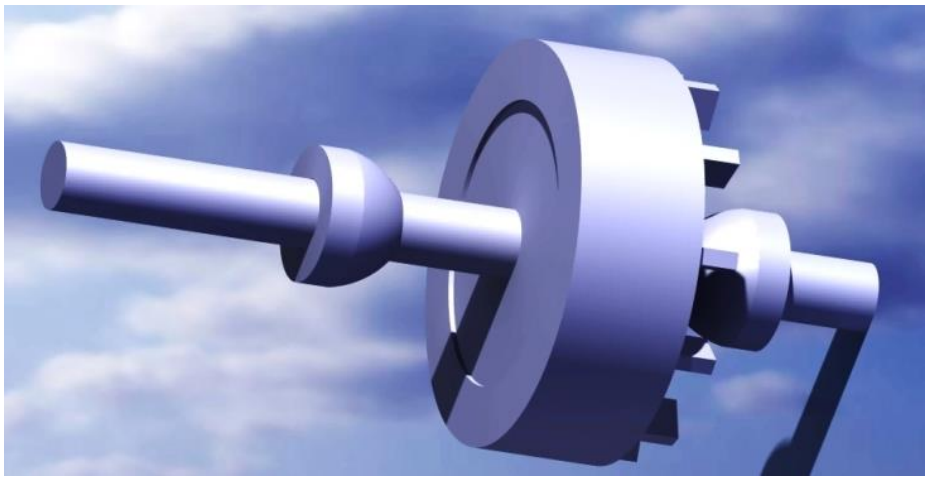

Figure 5. Modelling of rotor, shaft and bush assembly

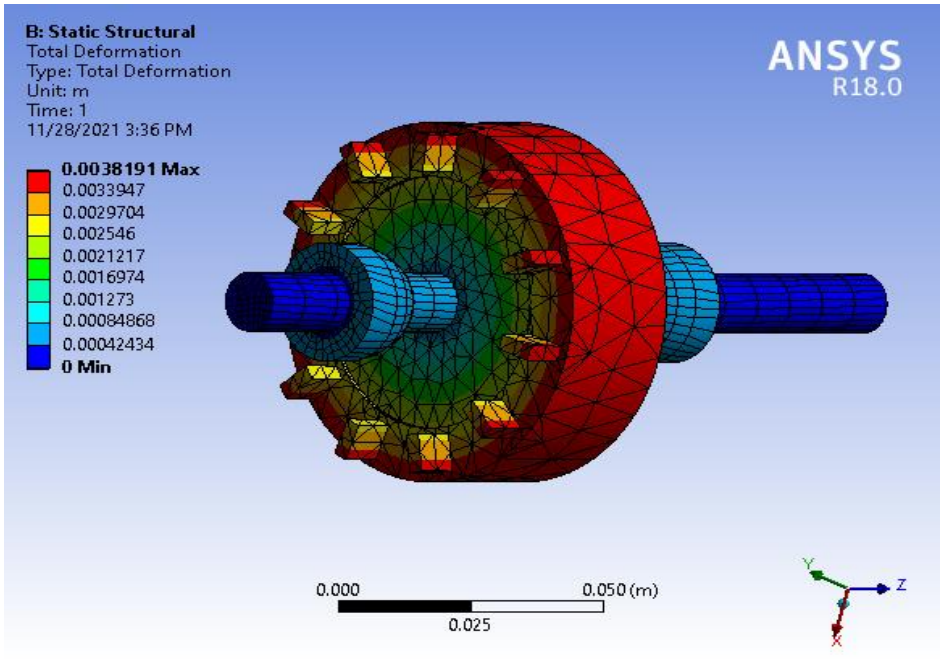


Figure 6. Total Deformation (0.0038191 m maximum)

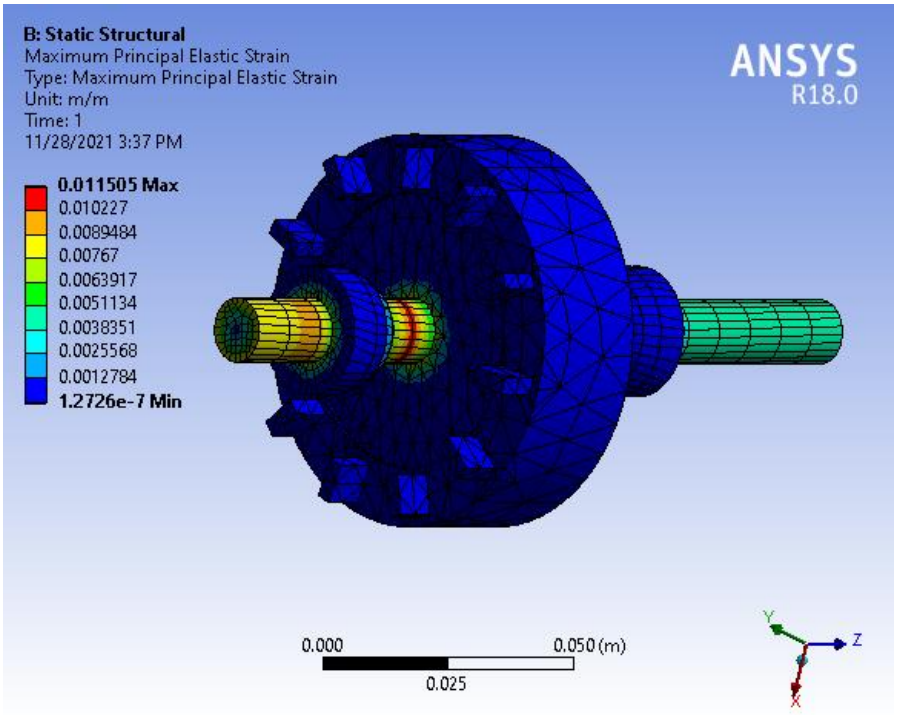


Figure 7. Maximum Principal Elastic Strain (0.011505 m/m Maximum)

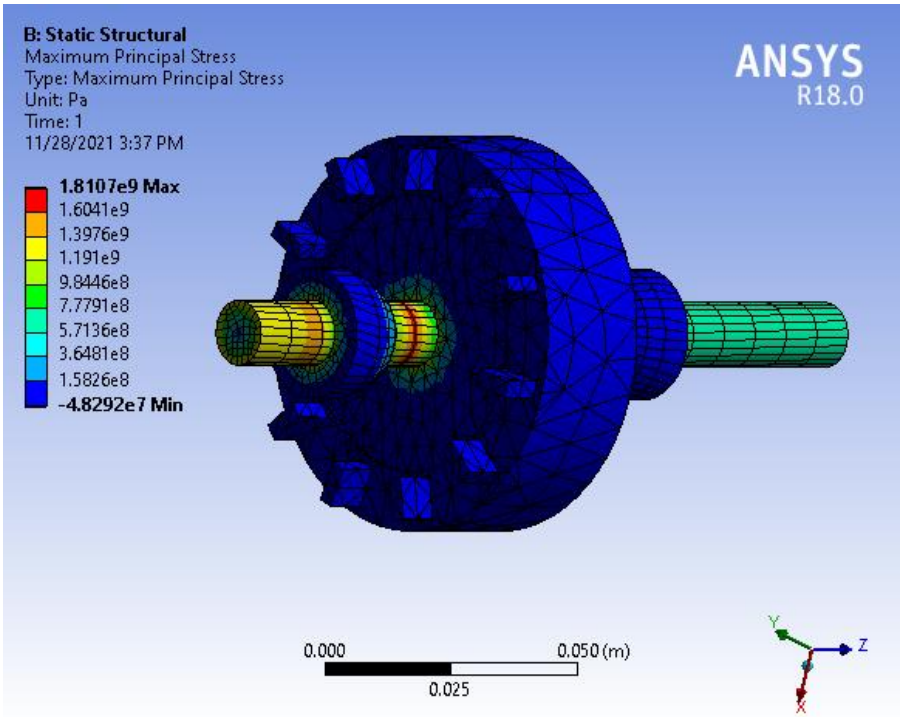


Figure 8. Maximum Principal Stress (1.8107 x $10^9$ Pa Maximum)

**Experimental setup**

Figure 9. Experimental Setup

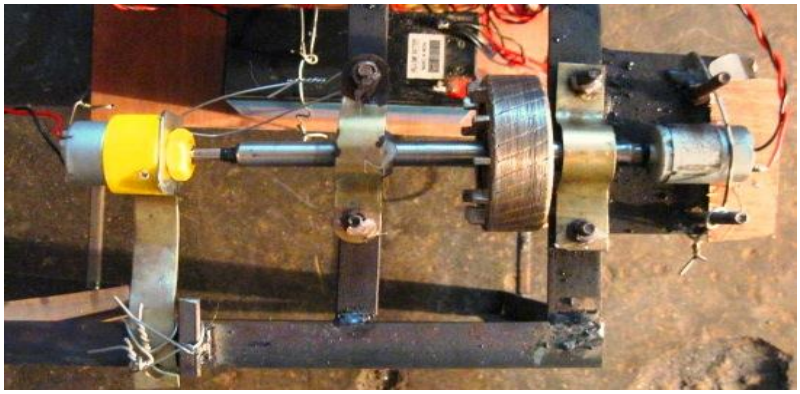

Figure 10. Rotor, shaft and bush assembly

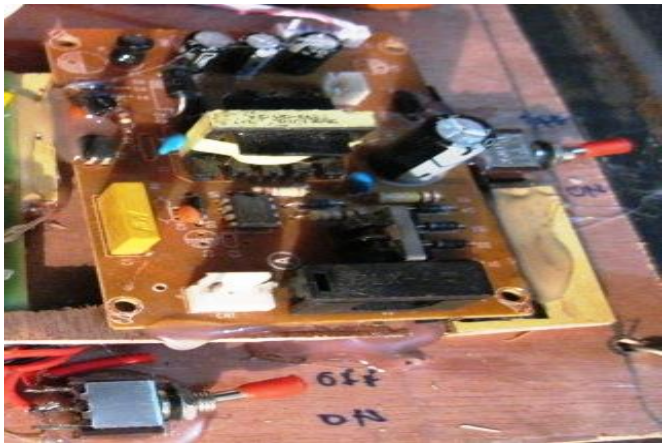

Figure 11. circuits

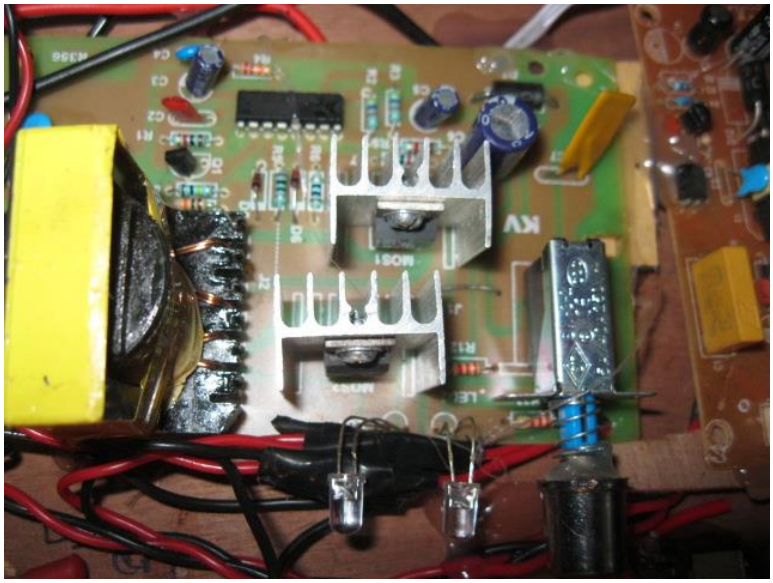

Figure 12. Convertor (12 VDC to 220 VAC )

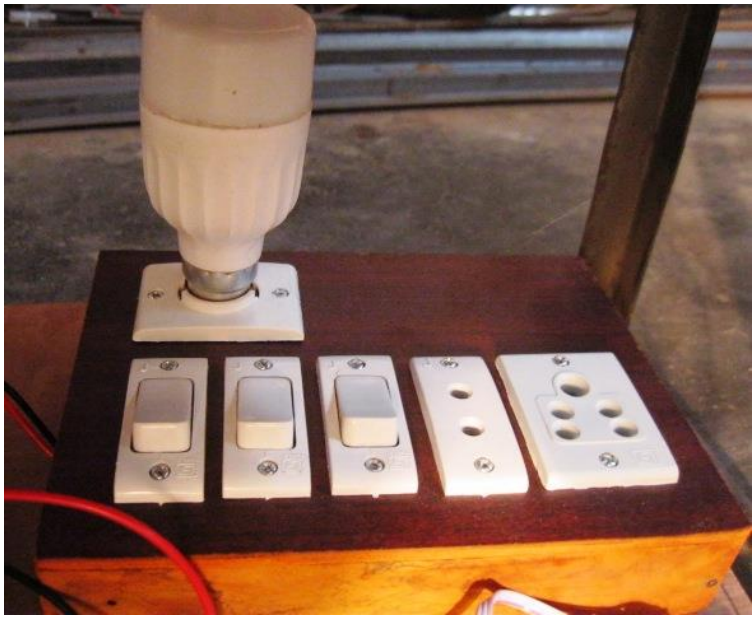

Figure 13. 220VAC Output for Appliances

## Results and discussion

The 12V DC motor is used to rotate heavy plates and eight heavy magnets are mounted on it, providing low input and high output. 12 V DC motor when connected directly to the same heavy rotor plates used. In this case, the rotor speed exceeds 100 RPM when operating at full motor speed. Table 1 shows the prototype results according to output voltages versus RPM.

Table 1

Output voltage with R.P.M.

| Sl. No. | R.P.M. | Output voltage using Generator system (V.D.C.) | Output voltage using Generator and convertor system (V.A.C.) |
|---|---|---|---|
| 1 | 20 | 6.2 | 220 |
| 2 | 40 | 7.5 | 220 |
| 3 | 60 | 8.9 | 220 |
| 4 | 80 | 11.8 | 220 |
| 5 | 100 | 12.0 | 220 |

## Conclusions

The prototype system works as long as the input source is available. When the input is off, the drivers behave like a break in the rotor magnets and the system usually stops immediately. Thereafter, the flywheel continues to operate due to the moment of its inertia, and the generator output power is continuously produced over time. It was found that an output voltage of 12 VDC using a generator system and 220 VAC with an output voltage of 100 watts using a generator and a convertor system.

## Future works

This will provide a strong thrust / force on the rotor. These electromagnets will be connected to infrared sensors and a microcontroller. The infrared sensors will serve as a switching point, which will turn the magnetic field on and off in response to a small rpm controller. Therefore, this smart program will improve system efficiency.

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