SELF-POWER GENERATION USING GRAVITY WHEEL

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Abstract - The goal of this project is to create overabundance energy by utilizing the gravity energy with the assistance of the gravity wheel, which helps to deliver excess abundance energy. This framework helps to generate with the assistance of input power supply as it doubles the energy used to run. The input source drives the system to run the gravity wheel. The gravity wheel uses the input and acquires the additional power by the revolution of gravity wheel with gravitational power. It causes the framework to gain more yield than the given power.

Keywords – **energy, gravity wheel, framework, gravitational power.**

I. INTRODUCTION

Now- a day's interest in vitality persistently increments with the quick development of industrialization and urbanization. It causes contamination and an Earth-wide temperature boost while fulfilling the interest of vitality. For that, we are presenting the creative strategy for producing power by the gravity of the earth, which is available at any place on the earth. Gravity is one such source which can fill our need. Gravitational power is the power that draws in any particle with mass. The essential target is to give a gravity power by using the system change over gravity potential vitality into active vitality. This movement is changed over into roundabout movement and is then changed over into power derived from the generator with the addition of input vital from the motor. The energy from the gravity wheel and motor combined output are enhanced than the input.

II. LITERATURE REVIEW

1. Maximo Gomez-Nacer have structured an arrangement of acquiring power by methods for utilization of the power of gravity, by consolidating pendulums whose weight and speed give power.

This is a mechanical device which uses the flywheel to store energy in the form of inertia. Let us explain all the system. In this system we apply extra energy source to start the main motor like electricity or by applying the mechanical energy. In this system a main motor is used to drive a series of pulley and belt arrangement which forms a gear train arrangement which produce a twice/ thrice speed at the shaft of generator. The intriguing thing about this system is that grater electrical can be drawn from the output generator than appears to be drawn from the input drive to the motor. The inertia of flywheel can be increase by increasing the radius of flywheel, weight of flywheel.

2. Chun-Cho Wang and Yuh-suiang has unequivocally executed the possibility of gravity powered component, according to their origination for the power, increasingly improved instrument gave. The essential goal behind the innovation is to execution of gravity power age component is to give proceeds and adjusted activity to constantly switch over sort gravitational potential vitality into the dynamic vitality into electrical vitality, in order to perform for some time, successful and adjusted vitality increased energy.

III. METHODOLOGY
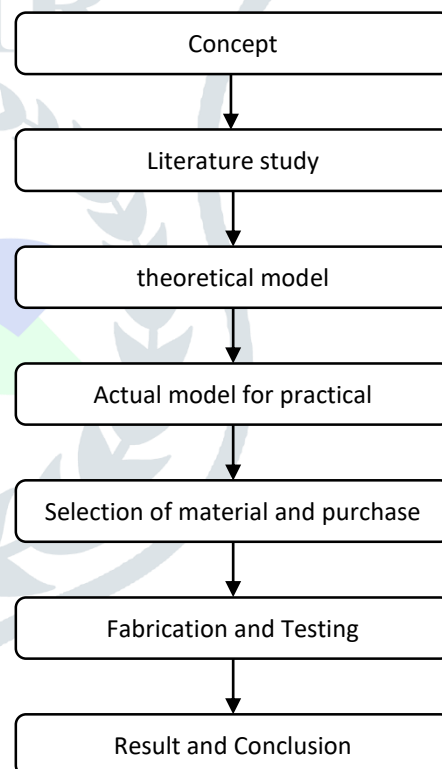
IV. WORKING

The gravity wheel act as energy recovery equipment. Utilizing gravitation energy and motor by combining the two-energy source the output energy is higher than the input energy, as it generates energy utilized by the framework with additional energy to run excess applications. The Single-stage acceptance system is an AC motor were electrical vitality is changed over to mechanical vitality to do some physical work. This engine requires just one force stage for their appropriate activity. They are usually utilized in low force applications, in local and modern use. Basic development, modest cost, better dependability, facilitates to fix and better support is a portion of its noteworthy focal

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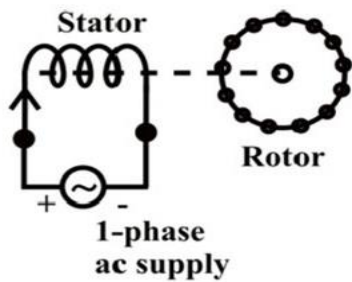

Figure 1 Symmetric diagram of AC motor winding

In all alternators, voltage might be created by pivoting a loop wire in the attractive field or by turning an attractive field inside a stationary curl wire. It doesn't make a difference whether the loop is moving or the attractive field is moving. Either design works similarly well and both are utilized independently or in blend contingent upon mechanical, electrical and different destinations. On account of a brushless alternator, the two blends are utilized together in one machine. Before setting off to the clarification part, you should think about stator, rotor, field windings, and armature. The stationary piece of an alternator is known as the stator and the pivoting part is known as the rotor. The loops of wire used to deliver an attractive field are known as the field winding and the curls that the force is known as the armature winding. Where the shaft is a stationary piece and the outer case is a rotating piece. It helps to build a gravity wheel around the brushless generator.

Figure 2 Brushless alternator

The gravity power instrument we designed utilizes the power from motor through v-belt drive for minimum rotational energy as required due to gravity pull can stop the spinning so it's essential to give continuous energy for keeping the gravity wheel in a continuous motion. For that reason of power transmission, we use V-belt drive. Small pulley on motor to the large pulley on gravity wheel. In our equipment there is only one transmission rather than traditional two-line transmission from motor to wheel and wheel to alternator.

Figure 3 V-Belt drive

when an item is set on a more significant level than the ground because of the gravitational power it encounters a draw towards the lower level and increases kinetic energy. This further used increase output of electrical energy. The fundamental thought utilized from that perpetual motion which channels the movement of gravitational force into a rotation that improves output vitality. The ceaseless movement is the arrangement like a propeller which rotates constantly with a motor to prevent termination of rotation. Right now, attempt to accomplish never-ending movement utilizing gravitational vitality.

V.   CALCULATION

V-BELT DRIVE CALCULATION:

Speed ratio = D/d= N1/N2

=1440/720

Speed ratio = 2

Smaller pulley diameter, d= 50 mm

Larger pulley diameter D = 2*d = 2*50

=100 mm

C_{max} = 2*(D + d)

= 2*(100+50)

= 300mm

Selected belt nominal pitch length, L=152 cm

Length correction factor, Fc = 0.82

Arc of contact = 180-(D-d/c) * 60

= 170

Correction factor for arc of contact, Fd =0.98

Maximum power capacity,

KW= (0.45S$^{-0.09}$- 19.62/de – 0.765*10^{-4}S^2) S

S, belt speed = πdN1/60

=3.76 m/s

Power,

kW = (0.45*3.76$^{-0.09}$-19.62/56.5- 0.765*10^{-4}*(3.66)^2) 3.66

= 0.190 kw

No. of belt required,

$$nb = \frac{P*Fa}{Kw*Fc*Fd}$$

$$=\frac{0.2*1.2}{0.190*0.82*0.98}$$

= 1.07(approximately)

= 1 belt.

Actual center distance,

C_{actual} =A+$\sqrt{A^2}$-B

A = L/4- π (D + d /8)

= 19.26 mm

B = (D-d)^2/8

= 312.5 mm

$C_{actual} = 268.6mm$

Table 1 materials and specifications

Materials	Specifications
Single phase AC Motor	1420 rpm, 185 watts
Three phase AC alternator	720 rpm 250 watts
Gravity wheel radius	0.27 meter
Gravity wheel weight with added weight	6 kilograms
Small pulley diameter	50 millimeters
Large pulley diameter	100 millimeters

V-BELT SPECIFICATION:

1. Selection of belt selection: A582
2. Selection of pulley diameters:
   d=50mm; D=100mm
3. Selection of center distance:
   c=300mm
4. Nominal pitch length: L=152cm
5. Various modification factors:
   (a) Length correction factor = 0.82
   (b) Correction factor for arc of contact = 0.98
   (c) Service factor = 1.2
6. Maximum power capacity:
   P=0.192kw
7. Selection of number of belts: n=1
8. Actual center length: L=268.6mm

POWER CALCULATION:

Input power, P = V * I
= 244 * 0.77
= 187.88 watts

Where, P – power
V – volt
I – current
Speed of motor, N = 1420 rpm
Torque, T = 1.21 Nm

Mechanical power in gravity wheel
Force, F = m*a = 0.8 * 9.81
= 7.95 N
Torque, T = F * r
= 7.95 * 0.27
T = 2.11 Nm
Mechanical power, Pm = (F *r) * (2 * π * N) / 60
Pm = 156.87 watts
Where, Pm – mechanical power
F – force
m – mass
a – acceleration
r – radius of wheel
T – torque

Total power output
P = 156.87 + 166.32
P = 323.19 watts

Figure 4 Final setup

VI. RESULT

Input reading

Figure 5 Input voltage

Output reading

Figure 6 Output voltage

Figure 7 Input current
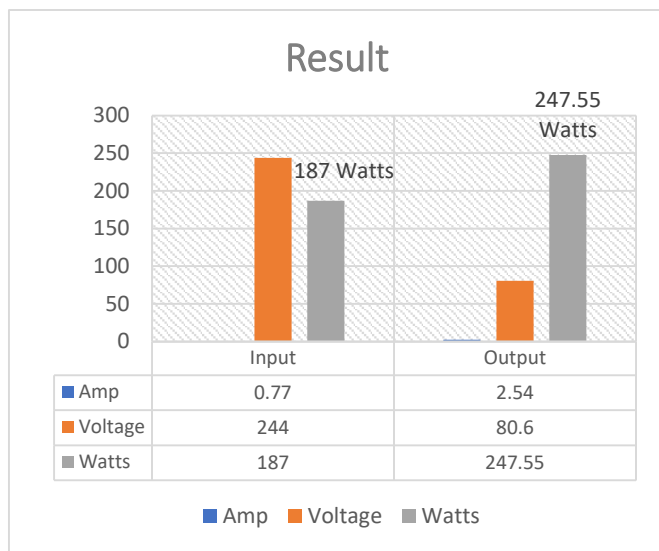

Figure 8 Output current

Figure 9 Result

Thus, the result shows the input with 244v, 0.77Amps motor takes 187 watts and at other end alternator delivers output by combining motor input and gravity wheel energy it delivers 247.55 watts.

VII.   CONCLUSION

The gravity power instrument we designed utilizes the power from motor through v-belt drive for minimum rotational energy as required due to gravity pull can stop the spinning so it's essential to give continuous energy for keeping the gravity wheel in a continuous motion. The gravity wheel gain energy using the energy recovery method. The weight attached on wheel dragged down when it reaches high altitude than other weight which makes gravity wheel to gain force acted on it that creates excess torque. The power is calculated by the product of voltage times current in electrical term and when comes to mechanical power it uses torque and speed of equipment to define power. Where the framework delivers the enhanced output by combining electrical input of motor and mechanical energy recovered from gravitational pull, with this gave higher output energy than input as energy utilized for the framework and also to run excess equipment's. Where we can use different input source like wind, solar, and so on.

VIII.   REFERENCES

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