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Design and Fabrication of Free Fly Wheel Power Generation

B. Sairamkrishna[1], N. Ramakrishna[2], V. Ganesh Mahesh subramanam[3], R. Durga Prasad[4], K. Subash[5]
[1, 2]*Assistant Professor, Department of Mechanical Engineering, Amrita Sai Institute of Science and Technology, Paritala ,A.P. India*
[3, 4, 5]*UG Students, Department of Mechanical Engineering, Amrita Sai Institute of Science and Technology, Paritala, A.P. India*

Abstract: ***Now a day's continuous use of non-conventional energies causes the depletion of non-conventional resources are estimated for the last few decades, there has been active search for alternate power generation .In this project we have to carry the design and fabrication of free fly wheel power generation experimental setup. The main aim of our project work is to produce free power from harness kinetic energy from rotating flywheel to generate electricity, which is obtained from self-sustaining flywheel mechanism that rotates perpetually driven by initial manual or mechanical inputs to obtain maximum free energy out of the system.***
Keywords: Motor, Flywheel, Bearings, Shafts, Pulleys, Belts, Generator.

I. INTRODUCTION

The energy which has no cost is called free energy the concept of project is explore the possibilities of combining three units .i.e. torsional vibration, flywheel and mechanical drive into a single unit, such that the device generates energy. Nikola Tesla once claimed that everyone should have access to free energy sources. There is unlimited electricity anywhere, and it can power the world's machinery without the use of gas, coal, or oil. Nikola Tesla once said that everyone should have access to free energy sources.

Electricity occurs in unlimited amounts anywhere and can fuel the world's machines without the use of gas, coal, or oil. The term "free energy" refers to energy that is provided at no cost. Other energies obtained include wind power, water power and telluric power. Mechanical energy powers windmills, and solar energy in solar cells transforms into DC current in solar cells. A mechanism for generating these forms of energy is known as a free energy generator. The idea of free energy suppression is that corporate energy interests deliberately suppress developments that could provide energy at a very low cost. Earth batteries, ambient energy, telluric currents, and pressure system shifts are some of the remaining untouched powers of nature that are well-known in the scientific literature.

Perpetual motion's energy is referred to as fantastical powers. These devices make use of quantum vacuum energy, quantum vacuum perturbation, spinning magnets, and other ostensibly hydrogen- cracking techniques. Free energy is a term that refers to a method of obtaining energy from the local environment without the use of fuel. There are several different ways to do this. These approaches span decades and continents. The amount of power that can be produced is often enormous, and the few kW necessary to power a household are well within reach. As a result, we can assume that energy can be produced in adequate amounts from the local environment to satisfy our basic needs. This fundamental truth is rejected at any opportunity by orthodox science, which remains adamant in its refusal to consider it. Given financial interests, it appears that the root cause of this inability to consider this fact is probable. The real scientific method is to improve scientific theory by observing facts and making new observations, but this method is not currently being used.

Electricity exists in infinite quantity anywhere and can power the world's machinery without the need of carbon, coal, or oil. The word "free electricity" refers to energy that is delivered at no cost. Other energies are derived from wind power, water power, and telluric power. Mechanical energy powers windmills, and solar energy in solar cells transforms to DC current in solar cells. A mechanism for generating these forms of energy is known as a free energy generator. The principle of free energy repression is that business energy interests actively block developments that might supply energy at a relatively low cost. Planet batteries, ambient voltage, telluric waves, and pressure field transitions are some of the few unexplored natural forces, according to science literature. Perpetual motion's energy is regarded as fantastical powers. Free Energy is a term that refers to a way of obtaining energy from the local atmosphere without the use of electricity.

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II. LITERATURE REVIEW

The concept of free energy generation has intrigued researchers, engineers, and scientists for centuries. A free energy generator is theoretically a device that can produce energy without requiring external input, effectively creating a perpetual motion machine. While such devices defy the well-established laws of physics, particularly the First and Second Laws of Thermodynamics, many alternative energy concepts and inventions attempt to harness unconventional methods to extract energy, often referred to as "zero-point energy" or "over unity" devices. This literature review explores the history, principles, and current research around free energy generators, with a particular focus on the role of mechanisms like flywheels and springs.

A. Background on Free Energy and Perpetual Motion

Perpetual Motion Machines: A perpetual motion machine is a hypothetical device that can do work indefinitely without an energy input. The most common classification is based on violating one of the laws of thermodynamics:

- First Law (Conservation of Energy): Energy cannot be created or destroyed, only transformed from one form to another.
- Second Law (Entropy): In any energy transfer or transformation, some energy will be lost to the surroundings as heat, and systems tend to move towards increased entropy or disorder.

Despite these laws, free energy generation has long been a topic of scientific curiosity. Historically, many inventors, such as Robert Boyle, Thomas Edison, and Nikola Tesla, were pioneers in harnessing and manipulating energy forms. Tesla, in particular, experimented with wireless energy transmission and believed in the potential of extracting free energy from the environment.

B. The Flywheel Principle in Energy Storage

The concept of using a flywheel for energy storage is well-established in mechanical engineering. A flywheel is a rotating mechanical device used to store energy through the principle of rotational inertia. The faster a flywheel spins the more energy it stores. The flywheel's resistance to changes in rotational speed means that energy can be stored for a considerable amount of time, provided that energy losses due to friction are minimized.

- Flywheel Energy Storage Systems (FESS): Flywheel technology has found practical applications in modern engineering, particularly in energy storage systems (ESS). The flywheel stores kinetic energy when the rotational speed is increased by an external source and this energy can be retrieved by extracting the mechanical rotational motion to do work. In electric power generation, flywheels are used to stabilize grid systems and smooth out fluctuations in energy supply.
- Research in Flywheel Energy Storage: A study conducted by Bianchi et al. (2016) highlighted the advancements in flywheel energy storage systems, especially focusing on high-efficiency, low-friction designs. While such flywheels are useful for short-term energy storage and regulation, they do not provide a practical solution for a true free energy generator.

C. Spring-Based Energy Storage

Springs are another mechanical component that has been used for storing energy, known as elastic potential energy. Springs store energy when compressed or stretched, and they release this energy when allowed to return to their original form. The spring's force is proportional to the displacement from its equilibrium position, following Hooke's Law.

In many free energy generator designs, springs have been incorporated to either maintain the motion of a system or to release stored energy at specific intervals. Springs can provide bursts of energy, which could theoretically assist in maintaining the rotational motion of a flywheel or another energy-conversion system. However, just like flywheels, springs are subject to inherent losses (e.g., friction, material fatigue, and imperfect mechanical linkages), preventing them from being truly "free" energy sources.

- Springs in Energy Harvesting: In mechanical energy harvesting, spring systems have been used to capture energy from periodic movements or vibrations, converting it into electrical energy. These systems have been successfully applied in low-power devices such as remote sensors or self-powered electronics. However, the energy extracted is still dependent on external mechanical motion.

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D. Zero-Point Energy and Over unity Devices

One of the more speculative areas in free energy research involves zero-point energy (ZPE), a quantum mechanical phenomenon that refers to the ground state energy present in a system even when it is at absolute zero temperature.ZPE has been proposed as a potential source of unlimited, free energy.

- Zero-Point Energy Theories: Theories such as Nikola Tesla's vision of tapping into the energy of the vacuum of space suggest that this energy could be harnessed to provide a virtually limitless supply of energy. Modern physicists like Harold Puthoff and others have worked on ZPE concepts in the context of quantum field theory. These theories have led to speculation about devices that could extract this energy, but practical implementation remains highly controversial and unproven.
- Over unity Devices: "Over unity" refers to a device that produces more energy than is input into the system, effectively violating the First Law of Thermodynamics. Claims of over unity devices, such as the Russell Generators or Papp Engines, have been made throughout history. However, none have been conclusively demonstrated in peer-reviewed scientific studies.

E. Current Trends and Research

Despite the challenges posed by the laws of thermodynamics, there are numerous ongoing projects exploring unconventional ways to harness energy. While no true free energy generators have been created, there is a growing interesting new able energy technologies that aim to optimize energy capture and reduce environmental impact. The development of more efficient solar panels, wind turbines, and geothermal systems are examples of this shift towards energy efficiency, as opposed to free energy.

- Quantum Technologies: Research in quantum technologies, particularly quantum mechanics and entanglement, has opened new avenues for energy research. While this does not directly relate to free energy, the exploration of quantum effect should lead to break troughs in energy conversion methods that are far more efficient than conventional systems.
- Magnetic Field Manipulation: Some researchers continue to explore magnetic fields and their potential for energy generation, such as in magnetic motors. These motors rely on the interaction of magnetic fields to produce motion, and they are sometimes touted as potential free energy devices. However, most of these systems are still limited by frictional losses and other inefficiencies.

F. Challenges and Criticisms

The main criticism of free energy devices is that they inherently violate the established laws of thermodynamics. No verified device has demonstrated over unity or perpetual motion in a scientifically rigorous manner. Furthermore, many inventions claiming to be free energy generators have been shown to lack reproducible results or to fail in long-term testing.

Additionally, there are significant ethical and financial challenges in pursuing free energy technologies. If a system could indeed generate "free" energy, it would disrupt established energy markets, which could lead to significant social and economic upheaval.

III. WORKING PRINPCLE

In the free energy generation process, a motor with a pulley drives a shaft onto which two pulleys are connected by a belt. With the support of a belt, the motor pulley is attached to a pulley that is fitted on one end of the shaft. The shaft1 rotates at the same speed as the engine.

The other end of the shaft1, which has a pulley, drives another shaft, shaft2, which has different-sized pulleys and a flywheel. With the support of a belt, this pulley is attached to a pulley that is fitted on one end of shaft2, doubling the speed of shaft2. The flywheel, which is mounted on the shaft, rotates at a high rate and stores the energy as a result. The alternator is driven by a pulley and belt on the other end of the shaft2, which has a pulley on it.

The flywheel's energy is used to power the alternator, which produces the maximum amount of current needed. When the alternator generates the full amount of current, the current is supplied to the motor through an electrical link to power the motor. The electric supply that was previously used to power the motor is disconnected, and the alternator's current is used to power the motor. The alternator now drives the motor and vice versa using a shaft, pulleys, and belts. As a result, free energy is produced.

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IV. COMPONENTS USED

1) Alternator: An alternator is a type of electrical generator that transforms mechanical energy into alternating current electricity. With the aid of flywheel stored energy, a alternator is used to produce electric current. The alternator's top Speed.
2) Flywheel: A flywheel is a rotating mechanical device that stores energy. The energy is stored in a diameter rib style flywheel. The stored energy is transferred to the alternator through belt drives, which generates electricity.
3) Shaft: A shaft is a rotating machine component that transmits power from one to another through transmission elements such as pulleys and gears. Two shafts with a length of 2 feet and used to transfer motion from the alternator to the flywheel.
4) Pulley: A pulley is a wheel on an axle or shaft that supports movement and direction shift of a taut cable or belt, as well as power transfer between the shaft and cable or belt. To relay motions.
5) Belt: A belt is a versatile material ring used to manually connect two or more spinning shafts, usually in parallel. Belts may be used as a source of motion, a means of efficiently transmitting electricity, or a means of tracking relative movement. Belts are looped over pulleys with a twist between them, and the shafts do not have to be parallel. Two shafts, an engine, a flywheel, and a generator are all connected by V-type belts of differing lengths.
6) Structural frame: A structural frame is used to transfer moving member loads and movements to the floors. All of the components are carried on a C-Channel frame. **Bearings:** A bearing is a machine component that eliminates friction between moving parts by restricting relative motion to only the desired motion. Shafts 1 and 2 are supported by eight journal bearings

V. CALCULATIONS

A. *Shaft Design*

Yield stress (бy) = 250N/mm^2, Length of the shaft (L) = 609.6mm,
Density of mild steel ρ =1.491kw
τ_{max} = 0.5 ×бy/fos = 0.5×250/3 = 41.66N/mm^2
Torque (Mt) = 60×10^6× ρ / 2πn = 60X10^6×1.491/2π × 720
Mt=19772.43Nmm
Bending Moment For pulley1:
(P_1−P_2) ×d_1 = Mt
(P_1− P_2) ×101.6 = 19772.43
P_1−P_2 = 194.67
We know that
P_1−P_2=e^ (μ α / sin θ/2)
For V-Belt, θ=40, μ = 0.2, α =180–2xsin^{-1}d_2−d_1x2c
C = (d_1+d_2) + 100
C= (101.6 + 203.2) +100
C =404.8
α = 180 – 2 x sin^{-1} 203.2 − 101.6 x 2 x 404.8
α =172.77
P_1 - P_2=e^ (0.2X172.77/ sin20) =2.203
P_1=356N
P_2=161.82N
P_1+P_2+W
=356+161.82+0.9x81
=527.20
MA=637.65x204.8–527.20x100
MA =130590.72–52720
MA=77870.72Nmm
α = 180.2 x sin−1345.6 X 6 X 101.62 X 556
α = 154.95

P_1P_2=e^ (0.2X154/sin20)=2.223
P_1=2.223$P_2$1.223P_2=111.206
P_1=202.134N
P_2=90.92N
P_1+P_2+W=90.92+202.134+0.9X9.81 =301.883N
MB=637.65X204.81–301.883X100
MB=130590.72−30188.3MB=100402.42Nmm
$\tau_{max}=16\pi d^3\sqrt{(100402.42)^2+(19772.43)^2}d^3$
$41.66=16\pi X41.66\sqrt{(100402.42)^2+(19772.43)^2}\ d^3$
$41.66=16\pi X41.66\sqrt{(10471594930)}\ d^3$
$41.66=39301.319\pi\ d^3$
$41.66=12508.377\ d^3$
d^3=23.213mm
d=50.8mm
SpeedofshaftN_2=720rpm L10h = 20000
P= ($P_1+P_2+W_1$) =527.2 N
Bearing Life
L10=60x N_2xL10hx106
L10=60x720x20000x106
L10=864
Dynamic Load Capacity
C=P (L10) ^3/1=527.2X (864) ^1/3
C=5021.26N
50 BC 02 or 55 BC 02
Selected as: C50=27070N, C55=33340N
Bearing no; ford=50.8mm Flywheel E = $12IW^2$ K
Input Rpm to Wheel $N_1N_2=d_2d_1$
1440N_2=54
N_2=1152rpm
$N_3N_4=d_4d_3$
1152N_4=516
N_4=3686.4
K=0.9 fly wheel with rim/ribm=60kg
$I=K\times m\times r^2$ $I = 0.9\times60\times9.81\times0.3048^2$
I = 49.214 Kg-m^2
W=2×n×60=2×3686.4×60=386.038
W=149025.337rad/sec
K.E= 12×49.214×149025.337
K.E=3667066.468N-M

VI. FUTURE SCOPE

The scope of this project encompasses various technical, practical, and theoretical dimensions. It covers the conceptual design, practical implementation, and performance analysis of a basic free energy generator. The following points describe the scope in detail:

A. Theoretical Research and Background Study

- Electromagnetic Induction: The working principle behind the free energy generator is based on Faraday's Law of Electromagnetic Induction, which states that a changing magnetic field within a coil induces an electromotive force (EMF).
- Magnetic Repulsion: By using permanent magnets and the irrepulsive forces, mechanical motion can be achieved without fuel.

- Conservation Laws: The project will be developed within the constraints of the law of conservation of energy. The aim is to harvest existing energy in the environment, not create energy from nothing.
- Energy Efficiency: Explore methods to reduce energy losses due to friction, resistance, and heat.

B. Design and Development of the Generator

- Component Selection: Selection of neodymium magnets, copper wire coils, bearings, rotors, and other structural materials needed for the assembly.
- Prototype Construction: Assembling a small-scale generator model using magnetic and mechanical components that rotate a rotor within a magnetic field to generate electricity.
- System Optimization: Tuning the distance between magnets and coils, optimizing rotor speed, and minimizing mechanical resistance for better output.

C. Electrical Output Measurement and Analysis

- Voltage and Current Testing: Using multi meters or sensors to measure the voltage and current output of the generator under various operational conditions.
- Load Testing: Connecting different types of loads (resistive like bulbs or capacitive like batteries) to test the generator's real-world applicability.
- Efficiency Calculation: Analyzing inputs. Output energy to calculate overall.

D. Environmental and Economic Impact

- Eco-Friendly Design: As the generator does not use fossil fuels or emit harmful gases, it contributes positively to the environment.
- Cost Analysis: A breakdown of the cost of materials and construction to evaluate economic feasibility for rural or off-grid users.
- Scalability: Study the possibility of scaling the design for larger energy requirements or integrating with renewable energy systems like solar panels or wind turbines.

VII. CONCLUSION

The Free Energy Generator using a flywheel and spring mechanism is an engaging and thought-provoking concept that explores the boundaries of mechanical energy storage and conversion. The project is designed to investigate whether mechanical components like springs and flywheels can be used to generate electricity continuously or with minimal external input, often under the umbrella of so-called "free energy." Through experimentation and analysis, it becomes clear that while energy can be stored and released effectively using these components, the concept of truly free or perpetual energy generation remains scientifically unfeasible under current physical laws.

In this setup, the spring stores potential energy when compressed or wound, and the flywheel is used to convert this energy into rotational motion. The rotational energy can then be connected to a generator or dynamo to produce electricity. Initially, the system works well, delivering a burst of electrical energy. However, this energy output quickly diminishes due to energy losses from friction, air resistance, heat, and inefficiencies in the mechanical and electrical components. These losses demonstrate that energy is not being created from nothing; instead, the system is simply converting one form of energy into another, with some energy always lost in the process.

This behavior aligns with the First Law of Thermodynamics, which states that energy cannot be created or destroyed, only transformed. Furthermore, the Second Law of Thermodynamics highlights that all energy systems tend toward increasing entropy, meaning that's energy will always be lost to the environment as unusable heat. These principles clearly show that a free energy generator in the true sense one that operates in definitely without input is not achievable with current technology or understanding of physics.

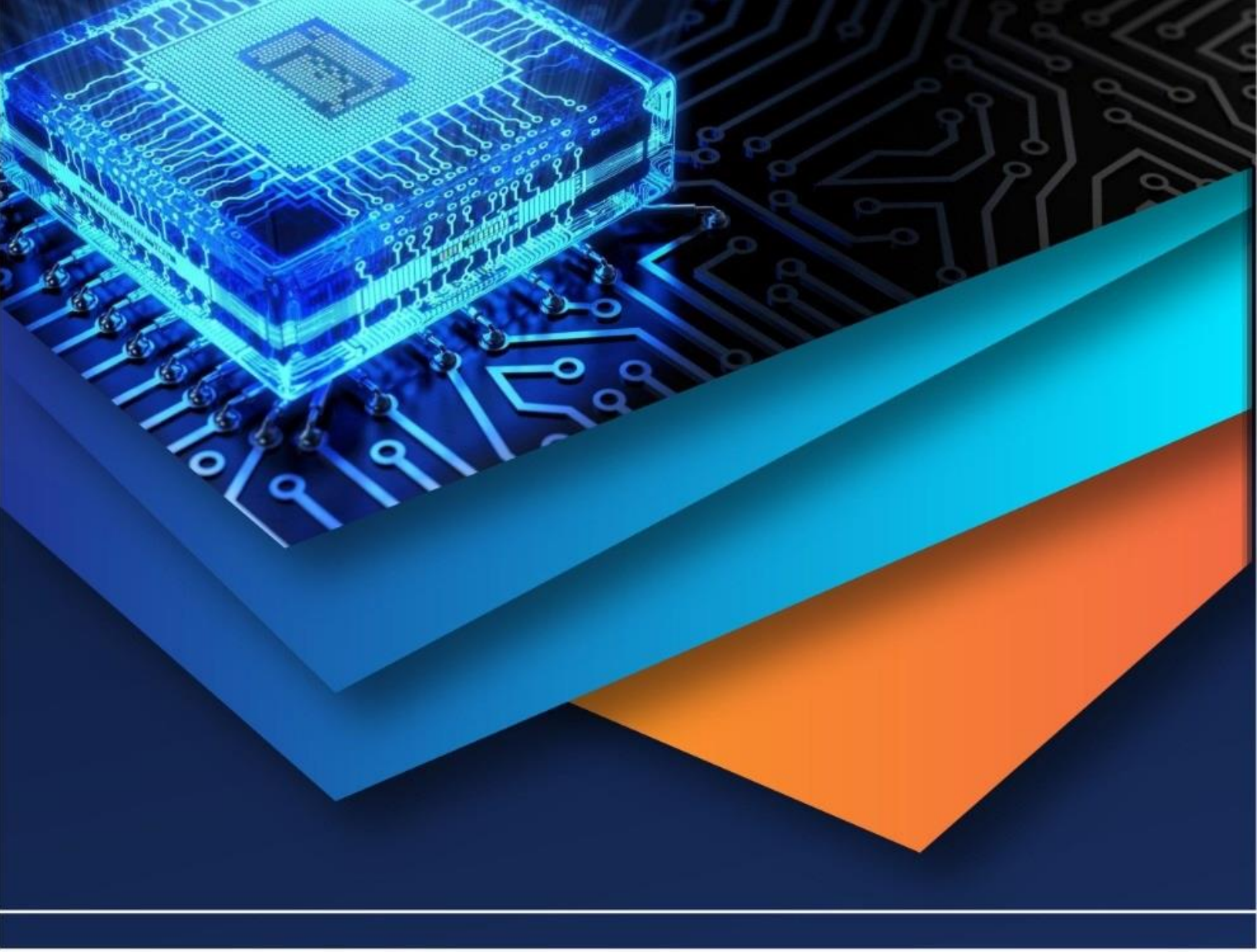
In conclusion, while the Free Energy Generator using a flywheel and spring cannot produce unlimited energy, it is a successful educational model .It demonstrates fundamental physics concepts and inspires ongoing exploration into more efficient and sustainable energy systems. Rather than proving the possibility of perpetual energy, it underscores the importance of working within the laws of physics to create better, more reliable technology for the future.

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