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Rotational Energy Conversion Using Magnetic Field

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Abstract— It is clear that society worldwide must start to mitigate its environmental damage instantly in order to sustain life on Earth. In this regard, researchers all over the globe are exploring new energy efficient alternatives to power everything from harmless source. The energy consumption rate around the world is rising day by day. On the other hand, conventional sources of energy are finishing at a fast rate. There is an uncertainty about the energy security around the world. The crisis of energy can be minimized by utilizing the renewable sources of energy in a decent way. In these thesis concept, electricity can be produced only using magnetic field. However, proposed thesis concept needs some sophisticated material which is unavailable in Bangladesh now. And it is also a new in the field of renewable energy. That's why it is important to minimize cost by using the material which is available in Bangladesh. The thesis paper gives a clear idea about the impact of proposed concept on renewable energy and its effectiveness.

Index Terms—Conceptual Methodology, Proposed Concept, Working Principle, Flow Chart of Proposed Concept, Future Analysis.

I. INTRODUCTION

This Around 86% of vitality era today keeps on being founded on petroleum derivative assets however the exhaustion of non-renewable energy sources and the foreboding natural impacts because of the outflow of CO2 amid non-renewable energy source ignition have brought real worries up in the society [1]. It will extensively build the aggregation of CO2 in the earth, quickening an Earth-wide temperature boost and environmental change if noteworthy changes in show vitality generation strategies are not executed in the current future [2]. The continuous utilization of these rare normal assets can lead us into a vitality emergency. Subsequently, finding maintainable, carbon-nonpartisan and financially savvy elective vitality assets is a basic necessity in meeting the quickly expanding vitality requests. The need of option wellsprings of vitality is extremely intense because of the coming up short on regular wellsprings of vitality in created and creating nations [3,4]. It is particularly critical to discover a reasonable clean vitality source with most reduced discharge of carbon because of worldwide ecological concerns [5,6]. Renewable energies are more popular, and its popularity increase day by day. Rotational energy using magnetic field this concept is one of the members of the of renewable energy family which draws the attention of the researchers. By magnetic force turbine starts rotating, when turbine starts alternator also starts and produce electricity.

II. CONCEPTUAL METHODOLOGY

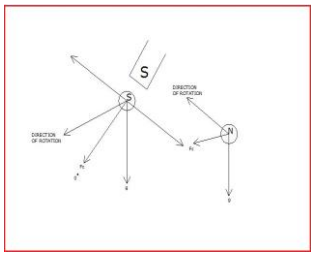

Fig.1. Example of Repulsion of Magnet

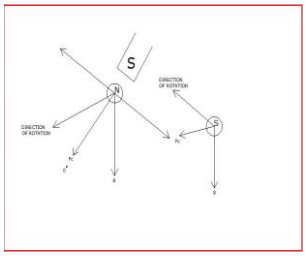

Fig.2. Example of Attraction of Magnet

Magnet of a stator has 45^o angle with the ground. It must be fixed. It, cannot be varied Two types of force is working here. One is central force which is represented by F_c and another one is gravitational force which is represented by F_g. The rotor rotates anti clock wise as. The magnet repelled to positive direction. The positive direction is perpendicular to the gravitational force F_g. The magnet is used in rotor blade at 45$^{o\ angle}$ the stator magnets. which placed at a, b, c, d is at an angle of 90$^{o\ with}$ rotor magnet. Again, the magnet is placed horizontally A, B, C, D corner at 60$^{o\ angle}$ with rotor blade. According to the projectiles maximum distance law. Same role of magnet repelled one another by strong force. Like-wise N-N and S-S repelled are another. The opposite role of magnet attracts to each other strongly. Like-wise. N-S, S-N attracts are another. At first when a magnet placed at 90^o angle towards the rotor magnet which is fixed at 45^o angle. The stator magnet become of similar pole. And the opposite magnet as negative projectiles. so the opposite stator magnetic pole attracts the rotor magnet. The attractive forward speed is less than the repelled part. So there is a speed difference of the turbine. The rotor blade distance must be same so that the rotor magnetic flux does not

overlap and their must not remain any gap. The stator magnet should be place in such a way so that it covers three rotor blade.

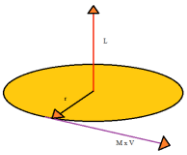

Fig. 3. Planar Motion

The movement of a molecule under a focal compel F dependably stays in the plane characterized by its underlying position and velocity [7]. This might be seen by symmetry. Since the position r, speed v and drive F all lie in a similar plane.

$$L = r \times p = r \times mv$$

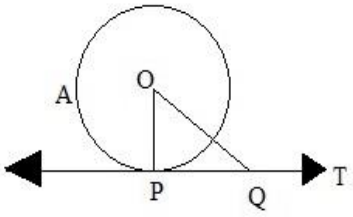

Fig.4. Vertical tangent lines

OP is minimum direction from the circular center O on tangent PT. OP is tangent on horizontal line PT. So PT ⊥OP [8].

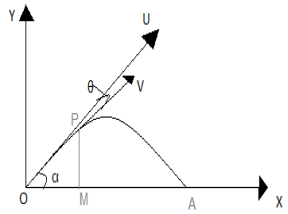

Fig.5. Stator Position

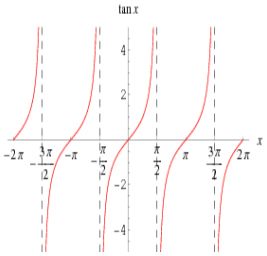

Fig.6. Tangent Wave

$$\theta = \tan^{-1}\left(\frac{usin\alpha - gt}{ucos\alpha}\right) + K$$

Here, K is constant. The equation of K is a hyperbolic equation. Because when a rotor magnet is resided any stator magnet then it will be maximum repelled or attracted. When, it goes tends to the last point its force will be decreased. As, this concept will be hyperbola graph will can be achieved [9].

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III. Proposed Concept

The advancement of technology, power is most essential. The conventional power source has some drawbacks so the world tries to depend on renewable energy. The proposed concept of this thesis meet these demand. The proposed concept works as follow,

Fig.7. Block Diagram of Propoesd Concept.

(5.1)

A. Working principal

Magnetic field is used as fuel. It rotates turbine by using magnetic field.The turbine produce work which is used to rotate the alternator.The alternator produced electrical energy from mechanical energy supplied by turbine.This electrical energy goes to the starting motor.

B. Flow Chart of Proposed Concept

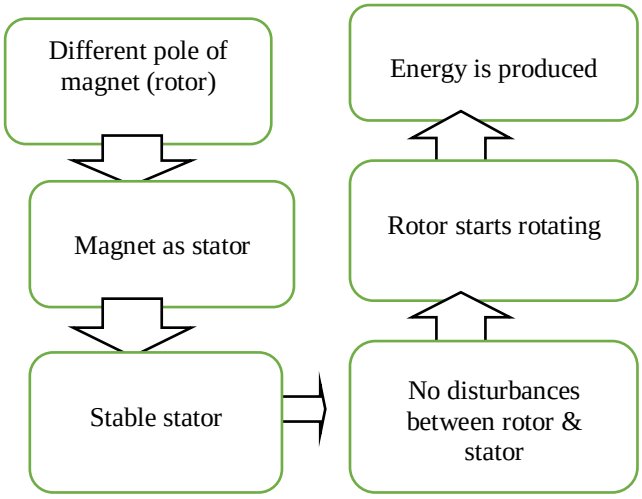

Fig.8. Flow Chart of Proposed Concept.

Conjugate different pole magnet will be placed in rotor. A powerful magnet used as stator. It should be at a stable position otherwise it will move away. It should be kept in mind that there will be no disturbance between rotor and stator. As there is no disturbance, the rotor which is consider as turbine will be started rotating because of being attraction and repelled of stator and rotor. Rotor is connected with alternator. When alternator rotates, energy is produced. Here, Motor is used as load.

IV. Future analysis

In the new era, the world faces several problems. The advancement of technology, power is most essential. The conventional power source such as hydro, thermal, solar, tidal, biomass, wave etc. But this type of power plant has several disadvantages. They emit harmful smoke which pollutes air as well as environment.

As a part of future work, the system design is not implemented practically. So it can be implemented in near future. Solenoid process can be used to create magnetic field which would be minimized the cost. The number of turns of copper wire can be increased which increases the excitation of copper core. Lots of thing can be modified with magnetic type and medium.

V. Conclusion

Now a day's power generation is become so costly. The main target of thesis is to produce power with less cost. The reduction of conventional energy sources forces the researchers to think such kind of renewable energy source This concept developed a prototype model of "Rotational energy using magnetic field which uses inexpensive materials available in local market. The performance of conceptual prototype for different types of magnet, different angle. The power obtained from prototype is very low as well as its output voltage is not stable. Actually the performance of prototype for different practical set ups were observed in very small scale throughout the work. But one day it can be very effective on the sector of power production. At this moment the unavailability of material it is not significant yet. But with running out of gas and oil, costs soon the world will need another source of energy. This concept will play a vital role in that time. It's a matter of time to implement this prototype in large scale if these challenges can be overcome quickly.

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