

DESIGN AND DEVELOPMENT OF CHEST BUTTERFLY MACHINE FOR POWER GENERATION

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Abstract: *Today among the scientific community field of energy conservation has become an increasingly notable subject. As we know major part of production of electricity done by thermal power plant, hydro power plant, nuclear power plant which provide power to all sector. But they have some drawback also such as high initial cost, high maintenance cost, environmental pollution. So there is need for saving energy and requirement an alternate energy source which is cheap, proposal for the utilization of waste energy of power generation by gym equipment is very much relevant and important for highly populated countries like India the people are crazy about gym. Natural fuel used is increased due to industrial development and these sources oils, coal, Natural gas reservoirs are limited. The resulting direct current is converting into the AC level, it will use to light bulb, laptop and mobile charging, musical system and other application. In Different Type of Gym equipment use for human fitness and human loss energy to use in the different type to convert in to electricity.*

Keywords— Energy Conservation, Gym Equipment, Quick Return Mechanism

I. INTRODUCTION

Human power is the most sustainable power source on earth. Unlike solar and wind energy, human power is always available, no matter the season or time of day. As we know human body is store house of energy. Here these activities will be utilized to generate energy. Outer body exercise such as high rate to lift dead weight or various other physical activities by gymnasium equipment. In this project we need to develop such mechanism which convert this type of energy into electricity. There should be required to developed effective transmission system which consists of sub assembly as followed. As modern world depends on fully electrical energy. They were continuously moving towards to meet energy demand of population. As we know major part of Production of electricity done by thermal power plant, hydro power plant, nuclear power plant which are to all sectors, industries, defence and domestic demand. But they are some drawback also such as high initial cost, high maintenance, large land required, less required, environmental pollution and global warming. So there should be alternate way i.e. renewable energy resources, but past data signifies that converged usage of renewable energy resources leads to high initial cost with less efficiency and required specific location. But it is particularly insignificant for small scale utilization and small time usage of power.

II. ALTERNATIVE ENERGY

The power Produced by the human energy is a human power; in the project Chest Butterfly Machine is used to generate power as an alternative energy some of alternative energy sources like solar energy, geothermal energy etc. are also very useful.

Advantages of Chest Butterfly Machine

- Renewable Sources
- Low Cost
- We can generate power easily

III. LITERATURE REVIEW

- **Himanshu Gaurav (2015):** The various methods of generating electricity discussed in this paper are eco-friendly and cause no pollution. They are easy to install and utilizes the human bio-energy in the most efficient way. These energy conversion methods convert a traditional gym into a 'Smart Gym'. Despite of limitation that its installation cost is higher, the concept of Smart Gym' has great scope in developing countries where youths are becoming more fitness conscious. Government can also ensure maximum energy harvesting by encouraging investors and providing the gym facility to a large number of people at reasonable price.
- **Bushra Chalermthai (2015)** In this study we look into options of improving an energy consuming gym to an energy-producing one, thereby promoting the sustainability of the recreation and health facilities. It was found that the energy-producing equipment in the gym not only benefit environmentally but also economically in the long run.
- **Mathusubash, S parthiban (2016)** In this project the conceptual model is drawn and analysed by using solid modelling software. The fabricated model is tested in the practical condition and the corresponding graph is shown. If

all the equipment in the fitness centre are fabricated with power generating unit, we can generate more power. Lat pull down machine aims at harnessing the mechanical energy of machine and converted into electrical energy using generator based system and to use it to power light bulbs, cell phone and other small appliances. Lat pull down machine usually consists of machine, chain, free wheel, fly wheel, gears, battery, dc generator, and inverter. The kinetic energy from the flywheel is supplied to the dc generator by means of gears.

- **RamakrishanaAnam (2016)** Total material cost of conventional gym cycle is more than the developed cycle without any provision for the comfort of gym user. Total operating cost of conventional gym cycle increases with time while no operating cost in developed gym cycle energy which is being wasted can be utilized optimally. After workout for a while being, a user requires more comfort to reduce the tiredness from fatigue. Hence extra provision needs to be included in conventional gym equipment.

IV. AIM AND OBJECTIVE

To generate the power by using human energy and conduct the fitness test by using chest butterfly machine and analysis test results.

Objectives

- To generate the power from human energy
- To Reduce power demand by natural method
- Day to day fitness monitoring is possible
- To see the present healthiness quality
- To charge smart phones, digital camera, handheld ratio, rechargeable light, mp3 player.

V. Figure



VI. MATERIAL

In this project the material use is the mechanism, gears, and model is the **cast iron**. And their different properties are strength, rigidity, resistance shock loads.

VII. APPLICATIONS

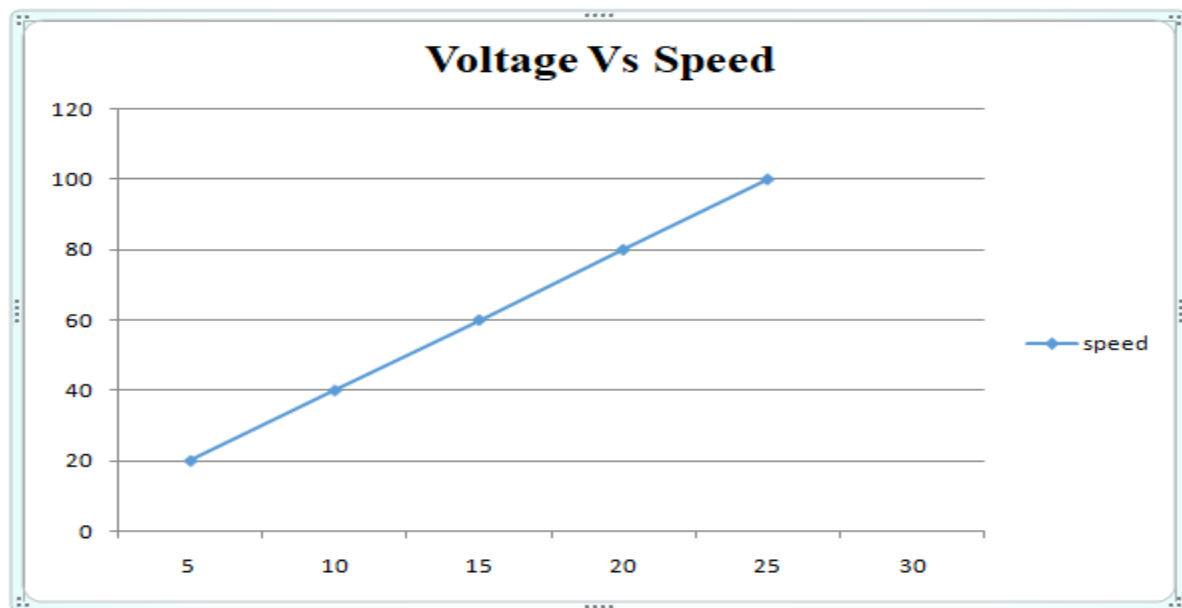
Power generation using chest butterfly machine can be used most of place such as

- Colleges
- Schools
- Gym centre

VIII. CALCULATION

Gear	Teeth	RPM	Diameter
A	51	30	175mm
B	36	42.5	122mm
C	46	42.5	160mm
D	22	88.82	74mm

IX. GRAPH



- As the Rotation speed of the gear increases the output voltage also increases.

X. CONCLUSIONS

In present work we have considered chest butterfly machine. The objective functions are to generate electricity by means of strokes made by trainee during workout.

Designing of many different components considered namely quick return mechanism. It is found that output of transmission system in form of rotational motion is objective.

The output torque and revolution is considered taking normal weight stacks lifted by trainee during his workout, taking single lever in consideration.

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