

ELECTRO MECHANICAL SPEED BREAKERS FOR PRODUCTION OF GREEN ENERGY

Submitted in partial fulfilment of the requirements for the award of
Bachelor of Technology degree in Biotechnology

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Accredited with Grade "A" by NAAC

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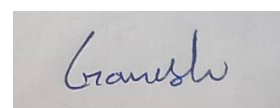
I wish to express my thanks to all Teaching and Non-teaching staff members of the Department of Biotechnology who were helpful in many ways for the completion of the project.

DECLARATION

I am GANESH.S hereby declare that the Project Report entitled ELECTRO MECHANICAL SPEED BREAKERS FOR PRODUCTION OF GREEN ENERGY done by me under the guidance of Dr.Bavanilatha is submitted in partial fulfilment of the requirements for the award of Bachelor of Technology degree in Biotechnology.

DATE: 29-04-2022

PLACE: CHENNAI

A rectangular box containing a handwritten signature in blue ink that reads "Ganesh".

SIGNATURE OF
CANDIDATE

ABSTRACT

- ❖ In present generation, our modern tech world requires massive electricity for the daily use of various Electrical based objects. But currently the energy we generate is not fully eco friendly and it includes solar power plants, nuclear power plants, dams (Hydroelectricity).
- ❖ But here we generate electricity from the pressure or force created by busy vehicles in our daily life. Where the vehicle tires crosses the speed breakers, they will be creating High pressure or force by rolling down from the top of the speed Breakers. And we collect that particular massive pressure and convert it into electricity by few mechanisms involved below the asphalt roads or concrete roads.
- ❖ In front of a speed breaker we fixed a clickable strong and light weighted bar. Where this bar is being connected to the crisscross Mechanism and in these mechanism two metallic bars will be creating certain movement in one direction. And the force created by metal bars is collected by a spring. Attached to the long toothed mechanical piston. Where the tooth of these piston will gently rotate the gear's interconnected with it and the gears increases the number of rotations created by the toothed piston and the rotational forces is being passed to the shaft of a generator (here we are using stepper motor) To generate high voltage with less no. of rotations of motor shaft. And this electricity produced will be collected into capacitors and sent to the nearby substation, where massive electricity production is done and sent to the different areas in which electricity is needed.
- ❖ By this mechanism, we can able to produce high electricity in an environmental friendly manner when it's being implemented in busy roads or highways

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INTRODUCTION:-

India has a high power generation capacity but lacks adequate fuel supply, transmission and distribution infrastructure. The average plant load factor of the thermal power plants is below 60% against the norm of 85%. India's electricity sector is dominated by fossil fuels, in particular coal, which produced about three-quarters of the country's electricity. But currently the energy we generate is not fully eco friendly. India's population increasing day by day but infrastructure to transmitting the electricity is still in average level. so many of the people like generate their need of electricity by using solar power, wind energy and etc....

Nowadays Technology is getting improved day by day, many power generating ideas as created and implemented by peoples for their independent life. Even though that is new idea but cost of that project may high to implement that social life.

We are creating a new prototype which generating electric with high efficiency rate. Even it may be simple but we done it with help of scientific laws to generate electric current in efficiency.

TRANSMISSION:-

Transmission is the transfer of electricity from one place to another place using cables and wires. Comparing AC and DC, AC current have less effective transmission cost and losses are high but In DC, there is no loss in current but cost of transmission cable are very high, so their using AC as Electricity. Even in houses may of the equipment are operates in DC like LED bulbs, TV's, Computer and Etc. Because DC products gives more life than AC products.



T&D LOSSES:-

TRANSMISSION AND DISTRIBUTION LOSSES is the major problem that India facing from the beginning of the modern era. Near 25% of production of electricity can loosed when transmitting and distributing the electric to consumer, this Major concern of problem can be solved by generating electricity near to required fields by using wind, solar and hydro power electricity according the sustainability of the environment.

POLLUTING ELECTRICITY:-

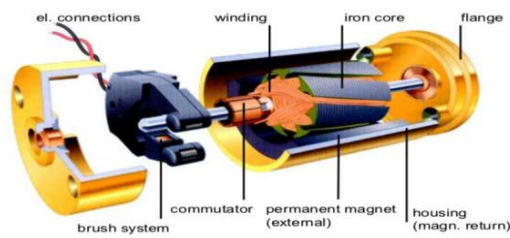
Energy which is created by thermal power, atomic power & etc... the are the major source of electric power generation but this are polluting the environment and made struggle to live in environment.

Coal mining is the major problem creating to environment and climatic changes occur. Electricity also plays a major role to global Warming, Ozone Depletion and Sea water level increase.

MOTOR:-

"The earth runs in motor"

From Beginning of era after inventing the motor, it is useful in all fields. Everything is runs in motor even fan, car, bike, Refrigerator and etc. Motor work in simply varying the magnetic field or rotating rotary which is able to produce energy.



AIM: ELECTRO MECHANICAL SPEED BREAKERS FOR ELECRCITY PRODUCTION

SCOPE: Speed breaker are modified to produce effective electricity at zero cost of wastage.

Converting pressure exerted by vehicle into pollution free energy by using small mechanisms...

EXPERIMENTAL OR MATERIALS AND METHODS:

Customized crisscross metallic suspension

Stepper motors

Gears with different sizes

Rack with suitable size

Acrylics Sheets

Lights

Spring

Round Piston

Rotational shaft

Placing 2 stepper motors on acrylic base and fix it with gear and interconnect large gear with 2 gears attached to stepper motors and make the large gear to stand with the help of shaft in its bottom. Now connect a rack gear to the piston on one side and interconnect the tooth of the rack with large gear and connect spring with shaft with stranded with vertical support. Now connect the piston to the criss-cross metallic suspension with accurate measurements and finally give output from the motors to the electric lights...

Now after building set up... just press top of the metallic suspension and you can able to observe the rotation in gears and shaft of the motor and the output power can be sent to lights in order to light them up.

RESULTS AND DISCUSSION, PERFORMANCE ANALYSIS

Result: Finally, the exerted pressure by vehicles has been converted to electricity.

Performance Analysis: the present model project can able to glow up around 50 led lights and each led requires around 3 volts of current and by this we can understand that it can able to produce massive electricity.

SUMMARY AND CONCLUSIONS:

- We generate electricity from the pressure or force created by busy vehicles in our daily life. Where the vehicle tires crosses the speed breakers, they will be creating High pressure or force by rolling down from the top of the speed Breakers. And we collect that particular massive pressure and convert it into electricity by few mechanisms involved below the asphalt roads or concrete roads.
- We generated electricity from Electro mechanical speed Breaker without causing Pollution in efficient method.

PROTOTYPE:-

