



STUDY ON POWER GENERATION USING SPEED BREAKER

Jugendra Singh	Department of Mechanical Engineering, IIMT College of Engineering, Greater Noida, UP, India.
Raju Raman	Department of Mechanical Engineering, IIMT College of Engineering, Greater Noida, UP, India.
Tufail Abbas	Department of Mechanical Engineering, IIMT College of Engineering, Greater Noida, UP, India.
Vivek kr	Department of Mechanical Engineering, IIMT College of Engineering, Greater Noida, UP, India.

ABSTRACT

In this paper harvests energy from speed breaker by making gear arrangement and using electronic gadgets. Large amount so electricity can be generated saving lot of money. And If implemented will be very beneficial to government. Electricity is generated by replacing the traditional speed breakers with some simple mechanism. As vehicles pass over the speed breakers, they spin the rollers which are connected to a generator which in turn generate electricity. This method is an effective way to produce electricity as the numbers of vehicles on the road are ever increasing. Also the cost of fabrication of the model is low. It can be effectively placed near traffic lights, at the entrance of parking lots and any other place where the traffic density is high. Rollers are fixed on a wooden ramp on which vehicle passes. As vehicle passes over it, it starts moving. A chain drive mechanism is provided which transfer the motion to a DC motor/generator for electricity generation. This method provides an efficient way to generate electricity from the kinetic energy of moving vehicles in roads, highways, parking lots etc.

KEYWORDS :**2. INTRODUCTION**

A large amount of energy is wasted at the speed breakers through friction, Everytime a vehicle pass over it. So electricity can be generated using the vehicle weight and speed (kinetic energy) as input. So this is a small step to try to improve this situation. In this model we show that how we can generate a voltage from the busy traffic conversion of mechanical energy into electrical energy is widely used concept. It's a mechanism to generate power by converting the potential energy generated by a vehicle going up on a speed breaker into rotational energy. We have used a simple concept to the project. We connect one mechanical rod with the dynamo and fit this rod on the surface of the road. When any vehicle moves from this roller that due to friction, vehicle rotate the rod roller and the roller then move the dynamo. When dynamo moves it generates a voltage and this is connected to the bulb. In actual practice with the help of this voltage we will charge the battery and then we use this voltage to light the small bulb. If we install this unit to the any small fly over then with the help this voltage we can lighten the street lights.

2.1 SPRING:

A **spring** is an elastic object used to store mechanical energy.

2.2 RACK AND PINION:

A **rack and pinion** is a type of linear actuator that comprises a pair of gears which convert rotational motion into linear motion.

2.3 CHAIN DRIVE:

Chain drive is a way of transmitting mechanical power from one place to another.

2.4 FLYWHEEL:

A **flywheel** is a mechanical device specifically designed to efficiently store rotational energy.

2.5 SHAFT:

A shaft is a rotating machine element, usually circular in cross section, which is used to transmit power from one part to another, or from a machine which produces power to a machine which absorbs power.

2.6 DYNAMO:

A **dynamo** is an electrical generator that produces direct current with the use of a commutator.

2.7 LED:

A **light-emitting diode (LED)** is a two-lead semiconductor light source.

2.8 BATTERY:

An electric **battery** is a device consisting of one or more electrochemical cells.

3. ADVANTAGE:

- Pollution free power generation.
- No obstruction to traffic.
- Low budget electricity production.
- Easy maintenance.
- Suitable for parking at multiplexes, mall, toll booths, signals, etc.
- Suitable for all season.
- Simple construction, mature technology.
- No manual work necessary during generation.
- No fuel transportation problem.
- No consumption of any fossil fuel which is non-renewable source of energy.

4. DISADVANTAGE:

- It gives low electric output.
- May not work with light weight vehicles.
- We have to check mechanism from time to time.
- It can get rusted in raining season.

5. CONCLUSION:

The existing source of energy such as coal, oil etc. may not be adequate to meet the ever increasing energy demands. These conventional sources of energy are also depleting and may be exhausted. These are some non-conventional methods of producing energy. This is a one step to path of exploring the possibilities of energy from several non-conventional energy sources. Energy is an important input to sustain industrial growth and standard of living of a country and can be directly related to energy consumption. The conventional sources energy like coal, oil,

uranium etc are depleting are very fast and by the turn of century man will have depend upon non-conventional sources of power generation. It can be implemented at metropolitan cities. So that more electric power is produced. Arrangement of whole setup is easier. The stored electricity could satisfy the daily requirement of electric power.

6. References

1. https://www.wikipedia.com/solar_water_pump
2. https://www.google.com/web_search
3. https://www.google.com/image_search
4. Solar PV Water Pumping by CRISTOPHER KINKAID