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E-Wallet

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ABSTRACT:As there is complexity of today's most country is to generate electricity by not harming the environment, new techniques must be developed to effectively produce electricity without disturbing the nature and quickly. This project will generate electricity, and physically design a suitable component which intended for creating electricity. With this new and powerful device, it is possible to create electricity, which can light up the whole street lights, shopping malls, railway station and many more. With the help of this device, we can reduce energy crisis which is one of the main problem of today's world

KEYWORDS: **Energy generation, power harvesting, non-conventional energy source, roller mechanism.**

I. INTRODUCTION

Now days, electricity has become a need of every single human also demand of electricity is increasing day by day. This new generation needs lots of electrical power for their different operations. Due to this many sources are wasted and exhausted in a large amount. There are various ways to generate electricity.. On an average busy road around 4,000-5,000 vehicles are passing on the road, by the help of our project we can generate electricity, by installing this device on the road. In this work an attempt has been made to fabricate a ramp, which can utilize the kinetic energy of vehicles in power generation. This type of ramp is best suited for the places where the speed breaker is a necessity. The places likes toll plaza or an vehicle parking stands are best for its utilization. The work also discusses the shortcomings of existing methods and the ways it is countered by this method. The paper is organized as following. Section II Describes the scope of the project. Section III discusses the recent works in the same field. Section III Explains the working principle of power generation in this setup. Section VI Includes the data collected during the experiment. Section V Describes the conclusion of our approach and future work.

II. RELATED WORK

Recently several attempts and models have been suggested and tested for harnessing kinetic energy of vehicles via a speed bump. Mechanisms which include springs by A.K. Singh, Deepak S., Madhawendra K. and V. Pandit, Rack and Pinion by Aswathaman V and Priyadharshini. M in "Every Speed Breaker Is Now A Source of Power";by Shakun Srivastava , Ankit Asthana in "Produce electricity by the use of speed Breakers" and by Ankit Gupta, Kuldeep Chaudhary & B.N Agrawal in "An Experimental study of Generation of Electricity using Speed Breaker" and slider crank by Noor Fatima and Jiyaul Mustafa "Production of electricity by the method of road power generation" have been suggested for producing electricity. Electrodynamics based models by Ankita and Meenu Bala in "Power generation from speed breaker" have also been suggested, but are not only expensive to fabricate but involve complicated calculations and can't be used a large scale very easily. Totaram uses a platform plate which is kept inclined on a raised base level to allow vehicles to pass over the raised surface. This system will not work till a vehicle passes on road way.

III.WORKING PRINCIPLE

This project explains the mechanism of electricity generation from speed breakers. The friction force generated due to vehicle movement acted upon the speed breaker system is transmitted to chain sprocket arrangements. The sprocket arrangement is made of two sprockets. One of the sprocket is larger in dimension than the other sprocket. Both the sprockets are connected with chain which transmits the power from the larger sprocket to the smaller sprocket. As the power is transmitted from the larger sprocket to the smaller sprocket, the speed that is available at the larger sprocket is relatively multiplied at the rotation of the smaller sprocket.

The axis of the smaller sprocket is coupled to a gear arrangement. Here we have two gears with different dimensions. The gear wheel with the larger diameter is coupled to the axis of the smaller sprocket. Hence, the speed that has been increased at the smaller sprocket wheel is passed on to this gear wheel of larger diameter. The smaller gear is coupled to the larger

gear. Therefore, as the larger gear rotates it increases the speed of the smaller gear which is following the larger gear and multiplies the speed to more intensity.
Though the speed due to the rotary motion achieved at the larger sprocket wheel is less, as the power is transmitted to gears, the final speed achieved is high. This speed is sufficient to rotate the rotor of a generator and is fed into the rotor of a generator. The rotor which rotates within a static magnetic stator cuts the magnetic flux surrounding it, thus producing the electric motive force (emf). This generated emf is then sent to an inverter ,where the generated emf is regulated. This regulated emf is now sent to the storage battery where it is stored during the day time and can be used in night time for providing power to places like street lights, parking stand, bus stand and many more areas.

IV. ANALYSIS

For testing the above setup, a two-wheeler was run over the model at different speeds to get the reading of current and voltage generated under different conditions. It is observed that on moving a small vehicle over the roller, the speed varies from 10 -15 km/hour, the voltage produced is in the range of 3-4 volts. For a single run of a 2 wheeler, 0.06W/tire of power is produced.

V. CONCLUSION AND FUTURE SCOPE

For a dense places like where a vehicular flow is of more than 40,000 per day, which includes 2/3/4/6/8 wheelers, the energy produced will be much more significant compared to the experimental results obtained, thus making it a good energy producing setup, as energy of vehicles impact with the speed breakers is anyway lost. This lost energy can be tapped, stored and used as back up or for small applications. Improvements have to be made in the setup to increase the efficiency which is discussed in following section. In this study a new technique has been proposed to generate electricity from speed breakers. This technique will help to conserve our natural resources.
In the current model, the rollers are covered with plain rubber to increase the friction between the rollers. It can be replaced with another material with a coarse texture to provide better grip between the tires and the rollers.
The chain drive can be replaced with a V-belt drive. This would reduce the shocks and vibration caused when under heavy load. Also Belt drives do not require lubrication which would decrease
maintenance costs.
The bearings can be replaced with more durable plumber bearings reducing the chance of failure.
The material of the rollers can be made lighter so as to increase the efficiency. The mild steel used in this model can be replaced by aluminium alloy 6063 or 6061.

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