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MULTIFUNCTIONAL STREET PROJECT

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ABSTRACT

In this project we propose a combined model of electricity generation using speed breaker and accident prevention system. Electricity generation using speed breaker tells us how to conserve and use energy wasted on a speed breaker when any vehicles passes over it. Lots of energy (frictional and kinetic) is wasted when a vehicle passes over a speed breaker. We can store that energy and generate electricity using speed breaker as the electricity generation medium. Here, roller mechanism is used to change the kinetic energy of moving vehicle into mechanical energy and then that into electrical energy. The electrical energy produced here can be stored in a battery. The energy we save during the day light can be used in the night time for lighting street lights. In accident prevention system, many hair pin accidents occurs mostly because of the driver cannot see the vehicle coming from either side of the hairpin bend . Our system uses sensor to check any vehicle reaching hair pin turn and alert immediately on the other side vehicle by giving a red signal. If hair pin turn road is clear green signal is shown .Thus system provide safety for drivers and prevent Hillside accident to ride safely in hill roads.

KEYWORDS: Electricity Generation, Speed Breaker, Accident Prevention.

I. INTRODUCTION

Now a day's power has become the major need for human life. We propose a non-conventional power generation system based on roller mechanism of speed breaker which produce electricity without using any commercial fossil fuels, and is also pollution free . In addition to that while driving on roads, at ghats section many drivers faces accidents which result them into serious injuries or even death. The main reason behind is that on ghats driver cannot see the vehicle coming from other lane at opposite side turning. In this project we propose a combined model of electricity generation using speed breaker and accident prevention system.

II. METHODOLOGY

Power can be produced from conventional and nonconventional energy sources. In this paper we show energy conversion from kinetic energy to rotational energy and rotational energy to electrical energy respectively. This project explains how we can save electricity from speed breakers.

It is a simple yet a very effective process to produce energy from speed breaker configuration. There are a multitude of vehicles running on the roads. These vehicles are passing over several speed breakers that are on the road. We want to replace this traditional speed breakers with our proposed speed breaker. It is an ElectroMechanical unit. This system uses both mechanical and electrical techniques for electricity production and its storage. The generation will be proportional to the traffic density.

III. SYSTEM DESCRIPTION

In speed breaker system, a roller which is connected to the shaft of dynamo, is fitted in between a speed breaker. A grip is also there on the speed breaker so that whenever any vehicle will pass over it, it will rotate the roller. With the roller, the shaft of dynamo also rotates which generates electricity. The generated electricity is then stored in a battery. This stored electricity can then be used to lighten street lights on the road. Accident prevention system uses

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two IR sensor S1 and S2 placed on both side of Hair pin bend. When there is no motion on the road, green signal will be shown on both sides of the roads and whenever any vehicle passes from one side of road, IR sensor placed on that side of road detects it and gives a red signal on either side of the road. This alerts drivers on both sides.

IV. COMPONENTS REQUIRED

a) IR Sensors.

b) LDR Sensor

c) Dynamo(1000rpm)

d) Transistors

e) Led

f) Resistors

g) Voltage Regulator

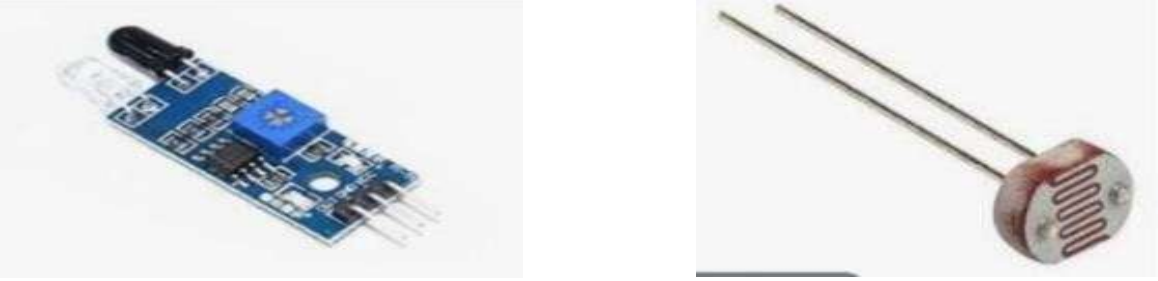

Fig-1: IR and LDR Sensor

V. DIAGRAMS AND MECHANISM

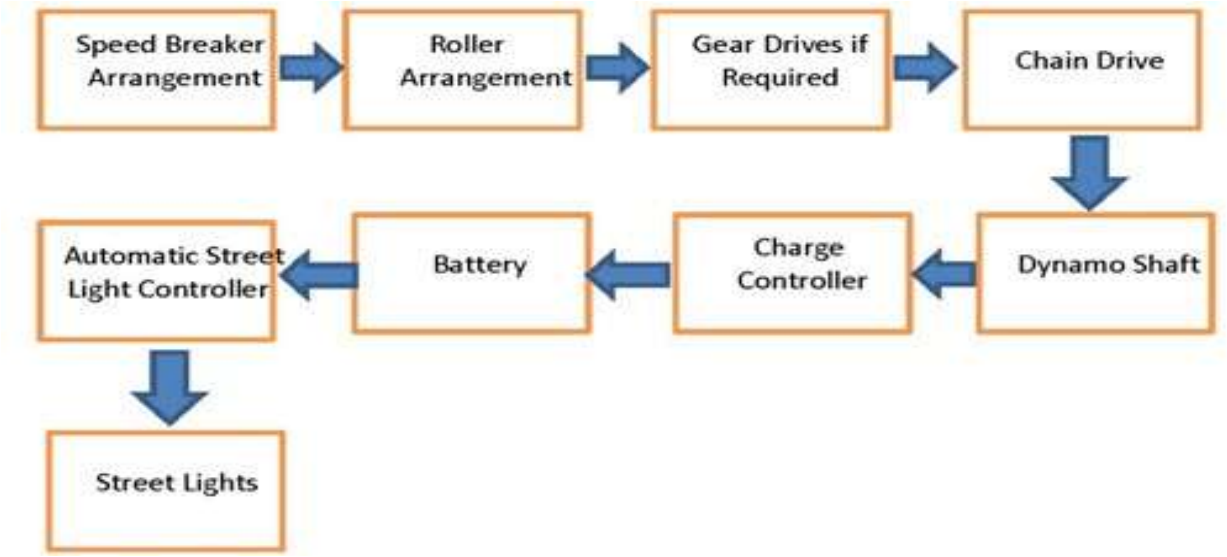

Fig-2: Block diagram of the setup

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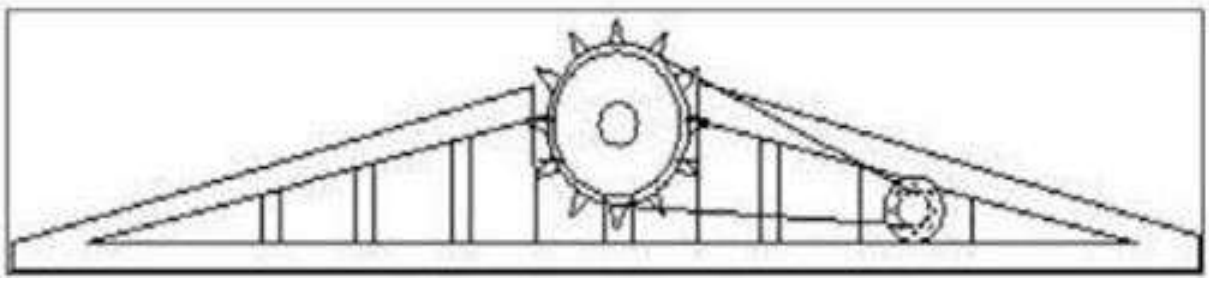

Fig-3: Roller Mechanism

Fig-4: Driver Warning System

Fig-5: Prototype of Multifunctional Street Project

VI. ADVANTAGES

a) Produces energy which is proportional to number of vehicles passing by

b) Low budget electricity production

c) Avoid accidents on hairpin bend roads

d) Less floor area

e) Easily implementable to the existing roads

f) Fully automated

VII. CONCLUSION

This is a multifunctional model. Our collision avoidance system is simple yet effective methodology which will enable the driver to have a better sense of terrain and will drastically reduce road accidents in hairpin bends. In this model, we produce electricity using speed breakers in which the system used is reliable and this technique will help conserve our natural resource. This concept will save a lot of energy of power stations that get wasted in lighting the street lights. So this idea not only provides alternative of electricity generation but also adds to the economy of the country.

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