DEVELOP AND FABRICATE FLOOR TILES TO GENERATE ELETRICITY

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ABSTRACT

Man has needed and used energy at an increasing rate for the substance and well being since time immemorial. Due to this a lot of energy resources have been exhausted and wasted. Proposal for the utilization of waste energy of foot power with human locomotion is very much relevant and important for highly populated countries like India where the railway stations, temples, etc., are overcrowded all round the clock.

Nowadays energy and power are the one of the basic need in this modern world. Energy demand is increasing day by day. On the other hand, the many energy resources are getting exhausted and wasted . Millions of people move around. This whole energy is wasted. If this energy made possible for utilization then it will be a great invention. In this project we are converting non-conventional from just walking foot step into electrical energy. Non-conventional energy system is very essential at this time to our nation. Non- conventional energy using foot step needs no fuel input power to generate the electrical power. In this project the simple drive mechanism such as rack and pinion assembly mechanism is used for generating power by utilization of force which is obtained during the walking on steps is converted in to electrical energy with the help of mechanical systems. We have discussed its various alternate applications with extension also. The power generation is much worthy but it has little initial cost effective factors

INTRODUCTION

As the availability of conventional energy declines, there is need to find alternate energy sources. All most all the state electricity departments in our country, they are unable to supply the power according to the demand. The power produced by these companies is not even sufficient for domestic utilities; in such critical situation it is very difficult to divert the energy for other public needs. There by an alternative source must be discovered, many people proposes for solar energy, but it is going to be a costliest affair, moreover availability of solar energy is poor particularly in rainy & winter seasons, as a result it is not dependable. Hence an alternative cheapest method must be determined for few applications; consequently this project work has been taken up, which is aimed to generate electricity from footsteps mechanism. Human has needed and used energy at an increasing rate for his sustenance and well-being ever since he came on the earth a few million years ago. Primitive man required energy primarily in the form of food. He derived this by eating plants or animals, which he hunted. With the passage of time, man started to cultivate land for agriculture. He added a new dimension to the use of energy by domesticating and training animals to work for us. With further demand for energy, man began to use the wind for sailing ships and for driving windmills, and the force of falling water to turn water for sailing ships and for driving windmills, and the force of falling water to turn water wheels. Till this time, it would not be wrong to say that the sun was supplying all the energy needs of man either directly or indirectly and that man was using only renewable sources of energy. This whole human energy being wasted if can be made possible for utilization it will be great invention and power producing platform will be very useful energy sources in crowded countries.

LITERATURE REVIEW

Tom Josh V (March 2013) manufactured a model made from stainless steel, recycled car tires and recycled aluminium, also includes a lamp embedded in the pavement that lights up every time a step is converted into energy

Shiraz Afzal, Farrukh hafeez – (April 2014.) is all generating electricity when people walk on the Floor if we are able to design a power generating floor that can produce 100W on just 12 steps, then for 120 steps we can produce 1000 Watt and if we install such type of 100 floors with this system then it can produce 1MegaWattAs a fact only 11% of renewable energy contributes to our primary energy

C.Nithiyeshkumar et.al. (January 2015) studied three methods of foot step power generation namely piezoelectric method, rack and pinion method and fuel piston method comparatively and found that the rack and pinion mechanism is more efficient with moderate cost of operation and maintenance.

Joydev Ghosh. et.al. (January 2018.) used 80 volts and 40 mA from one coil have been generated from a prototype model as first invention. The second invention provides 95 volts and 50 mA from one coil and this generated power can be used to light LED array and to run DC fan after rectifying the AC or can charge batteries. For high efficiency in the axel of the second gear, they fitted a strong magnet vertically, so that when the gear will rotate due to human body weight the magnet also rotate. The magnet is placed in a loop type copper coil. When the magnet start rotating according to the Faraday's law of electromagnetic induction, there will be induced emf in the coil.

Ramesh Raja R, Sherin Mathew (July 2018.) attempts to show how energy can be tapped and used at a commonly used floor steps. The usage of steps in every building is increasing day by day, since even every small building has some floors. A large amount of energy is wasted when we are stepping on the floors by the dissipation of heat and friction, every time a man steps up using stairs. There is great possibility of tapping this energy and generating power by making every staircase as a power generation unit. The generated power can be stored by batteries, and it will be used for slighting the building.

PROPOSED SYSTEM

Concept

The footstep arrangement is used to generate the electric power. Now a day's power demand is increased, so the footstep arrangement is used to generate the electrical power in order to compensate the electric power demand. In this arrangement the mechanical energy is converted into electrical energy.

Dynamo A dynamo is an electrical generator that produces direct current with the use of a commutator. Dynamos were the first electrical generators capable of delivering power for industry, and the foundation upon which many other later electric-power conversion devices were based, including the electric motor, the alternating-current alternator, and the rotary converter. The electric dynamo uses rotating coils of wire and magnetic fields to convert mechanical rotation into a pulsing direct electric current through Faraday's law of induction.

Capacitor The capacitor is a component which has the ability or "capacity" to store energy in the form of an electrical charge producing a potential difference (Static Voltage) across its plates, much like a small rechargeable battery.

Resistor aresistor is a passive two-terminal electrical component that implements electrical resistance as a circuit element. In electronic circuits, resistors are used to reduce current flow, adjust signal levels, to divide voltages, bias active elements, and terminate transmission lines, among other uses.

Diode A rectifier diode is designed specifically for circuits that need to convert alternating current to direct current.

In this Project we work on how Electricity is generated for Battery charging

How it work:

In this Project Model when we gives the pressure on the upper side of the Power tile then upper side area goes down and gear started to move gear. This gear is connected to dynamo so dynamo is starting moving , because of this movement of dynamo ,it helps to generate electricity. This generated Electricity will help to light the LED bulb also helps Battery to charged ,so this Battery will help for other operation .This is our overall project working .

The complete diagram of the footstep power generation is given below. Only one step is inclined in certain small angle which is used to generate the power. The pushing power is converted into electrical energy by proper driving arrangement

RESULT

The power generated by the foot step generator can be stored in an energy storing device. 4.5 watt, 220 V – 240 V bulb was connected. The duration of lightning, the bulb for number of footsteps and corresponding energy stored.

The source of pressure can either be from a moving vehicles lie in a speed breaker or from the weight of people walking over it. The output of this project is not a steady one so to make it so a bridge circuit can be used to covert this variable voltage into a linear one. An AC ripple filter is used to filter out any further fluctuations.

CONCLUSION

Project work "**Develope and Fabricate the floor tiles to Generate Electricity"**is designed and developed successfully, for the demonstration purpose a proto type module is constructed with lower ratings of devices, & results are found to be satisfactory. As it is a demo module it cannot be used for real applications, but the concept is near to the real working system, to make it more realistic, higher rating power generator with suitable gear mechanism is essential to produce more energy. This concept falls under the subject of non-conventional energy resources, out of the many alternative energy resources one dependable source is solar energy, but it is quite costliest affair. Therefore alternative cheapest source is to generate electricity from foot step. This technology proven here is the ultimate inexpensive source of all known forms of energy

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