REVIEW PAPER ON FOOTSTEP POWER GENERATION SYSTEM USING MICROCONTROLLER

[1]Miss. Kulkarni M. S, [2]Mr. Harwalkar. S. M, [3]Mr. Gaikwad S. R, [4]Miss. Dhallu S. A, [5]Miss. Tonage R. A.
Lecturer in (Department of Electronics & Telecommunication Engineering), SVSMD's KKI Polytechnic, Akkalkot, Solapur, Maharashtra, India[1], Student, From Department of Electronics & Telecommunication Engineering SVSMD's KKI Polytechnic, Akkalkot, Solapur, Maharashtra, India[2,3,4,5]
mansikulkarni@gmail.com

ABSTRACT

Day by day, the population of the country increased and the requirement of the power is also increased. At the same time the wastage of energy also increased in many ways. So reforming this energy back to usable form is the major solution. As technology is developed and the use of gadgets, electronic devices also increased. Power generation using conservative methods becoming deficient. There is a necessity arises for a different power generation method. At the same time the energy is wasted due to human locomotion and many ways. To overcome this problem, the energy wastage can be converted to usable form using the piezoelectric sensor. This sensor converts the pressure on it to a voltage. So by using this energy saving method which is the footstep power generation system we are generating power.

INTRODUCTION

Footstep step generation system basically converts force energy of foot into electric energy by using piezoelectric sensor. Piezoelectric sensor is a transducer which converts mechanical energy into electric energy which is used for different applications. Today, electricity has become a life line of human population. The concern about the gap between demand and supply of electricity has led to alternate sources of energy and its sustainable use. Linear increase of human population and energy demand led to the invention of a method to provide power from the increased population. This technology utilizes piezoelectric effect, in which the materials have the ability to generate electricity from pressure and force applied to them. The ability of some materials to generate electric potential in response to applied pressure is piezoelectricity. Energy harvesting becomes a waste if not utilized properly. Pressure exerted by moving people can be converted to electric current with the help of embedded piezoelectric crystals. It is a non- conventional energy production mechanism. Transducers are used to convert mechanical energy of footsteps into electrical energy. The system can be implemented on roads, bus stations and many public places. Piezoelectric materials act as transducers and pressure exerted by the moving people transformed into electric current.

At display, power has turned into a help for human populace. Its request is expanding step by step. Present day innovation needs an immense measure of electrical power for its different activities. Power generation is the single biggest wellspring of contamination in the entire world. At one hand, rising worry about the hole amongst request and supply of power for masses has featured the investigation of interchange wellsprings of vitality and its economical utilize. Then again, human population is increasing everywhere throughout the world and thus vitality request is expanding step by step directly. In like manner, it is a target of the present development to give a technique for electrical power generation from this regularly expanding human populace that does not adversely affect the earth. This innovation depends on a rule called the piezoelectric impact, in which certain materials can develop an electrical charge from having weight and strain applied on them. Piezoelectricity alludes to the capacity of a few materials to produce an electric potential in light of connected weight. Inserted piezoelectric material can give the enchantment of changing over weight applied by the moving individuals into electric current. Human-fuelled transport has been in presence since time immemorial through strolling, running and swimming. However current innovation has prompted machines to upgrade the utilization of human control in more effective way. In

this specific circumstance, pedal power is an astounding wellspring of vitality and has been being used since nineteenth century making utilization of the most capable muscles in the body.

Ninety-five Percent of the effort put into pedal power is changed over into vitality. Pedal power can be connected to an extensive variety of employments and is a straightforward, shoddy, and helpful wellspring of vitality. Be that as it may, human dynamic vitality can be valuable in various ways however it can likewise be utilized to create power in view of various methodologies and numerous associations are as of now actualizing human controlled advances to produce power to control electronic devices.

LITERATURE SURVEY

To generate electrical energy from the footsteps there are several methods i.e. gear wheel and fly wheel to produce power. These are used in places where there is a lot of people's movement to generate power because the mechanical portion of this will work on the principle. Footstep from crowed on floor and piezo plate scheme that is used below the floor is done for the generation of power, piezo plate will be covered by the sheet and piezo sensor experience a vibrating force by the spring. Electric power will be generate in form of electric current by the striking of piezo plate on the floor. Power generated by the footsteps is used for the additional features like light or street light used at the place of pedestrian's. Credit is given to the pedestrian for the energy which they produced

Day by day, the population of the country increased and the requirement of the power is also increased. At the same time the wastage of energy also increased in many ways. So reforming this energy back to usable form is the major solution. As technology is developed and the use of gadgets, electronic devices also increased. Power generation using conservative methods becoming deficient. There is a necessity arises for a different power generation method. At the same time the energy is wasted due to human locomotion and many ways. To overcome this problem, the energy wastage can be converted to usable form using the piezoelectric sensor.

This sensor converts the pressure on it to a voltage. So by using this energy saving method that is the footstep power generation system we are generating power. Energy is nothing but the ability to do work. Power has turned into help for the human populace nowadays. Its request is expanding rapidly. In day to day, life innovation needs an immense measure of electrical power for its different activities. Power generation is the single largest wellspring of contamination in the world. Due to which numerous energy resources are produced and wasted.

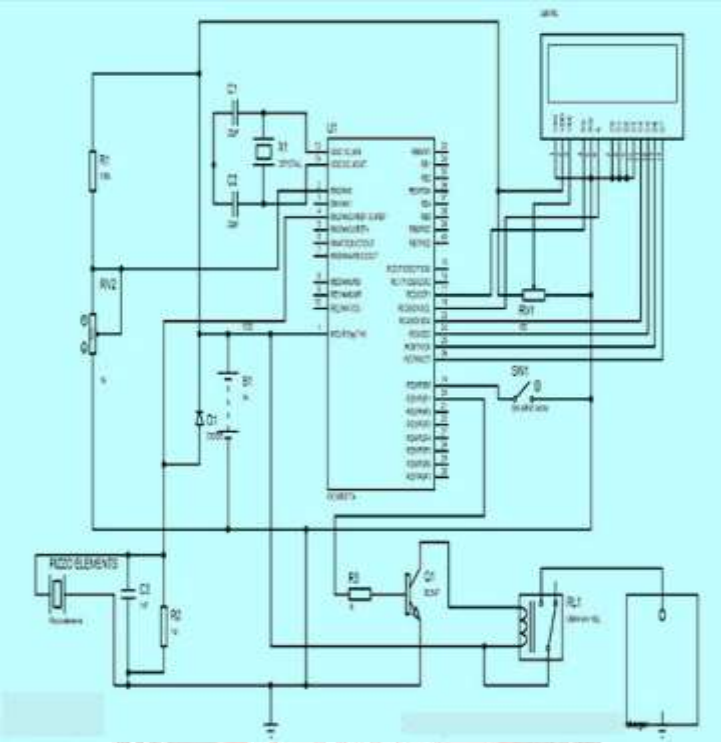
Electricity is generally generated from resources like water, wind, coal, etc. for generating the electricity from these resources development of big plants that are needed having high maintenance and high cost. In like manner, it is the target of the present development to give the technique for electrical power generation from which regularly expanding human populace that does not adversely affect the natural resources. This innovation depends on a rule called the piezoelectric effect impact, in which certain materials can develop an electrical charge from having weight, the strain applied to them.

The piezoelectric effect is the effect of specific materials to generate the electric charge in response to applied mechanical stress on it. It is the effect in which mechanical vibrations, pressure or strain applied to the piezoelectric material are converted into electrical form. Piezoelectricity alludes to the capacity of a few materials to produce and electric potential in light of connected weight.

The inserted piezoelectric material can give the enchantment of the changing overweight applied by moving individuals into the electric current, which is stored in a battery and further distributed using Microcontroller.

IMPLEMENTATION

Circuit diagram



To design and implement:

- To generate using footstep
- To design and develop the model of stair case power generation

OBJECTIVES:

The aim of this project is:

- To develop much cleaner cost effective way of power generation method
- Trying to utilize the west energy in a useful way
- Power generation through footstep as a source of renewable energy that can obtained while walking

Scope:

- Footstep arrangement is used to generate the electric power. As the power demand is increasing, this arrangement is used to generate the electrical power in order to meet the large energy demand. In this arrangement the mechanical energy is converted into electrical energy.
- Has large potential and option for the non-conventional energy source.
- It can be directly implemented in shoes to generate power On-the-Go.
- It can be increased for multiple chargers.

METHODOLOGY

Piezoelectric sensor interfaced with microcontroller and used as a transducer to convert force energy into electrical energy It is consists of large number of Piezoelectric sensors connected in series. Kinetic energy of

series connected transducers is converted into electrical energy.Voltages generated by piezoelectric sensors are feed to circuit elements to get proper output. Output energy is stored in batteries.

CONCLUSION & FUTURE SCOPE

Footstep arrangement is used to generate the electric power. As the power demand is increasing, this arrangement is used to generate the electrical power in order to meet the large energy demand. In this arrangement the mechanical energy is converted into electrical energy.Has large potential and option for the non-conventional energy source.It can be directly implemented in shoes to generate power On-the-Go.It can be increased for multiple chargers.

REFERENCES

[1] https://www.elprocus.com/footstep-power-generation-system/
[2] https://www.ijert.org/advanced-footstep-power-generation-system-to-charge-e-vehicleshttps://nevonprojects.com/advanced-footstep-power-generation-system/
[3] https://www.slideshare.net/AhabKhan/foot-step-power-generation-using-piezoelectric-material
[4] https://www.slideshare.net/AhabKhan/thesis-of-footstep-power-generation
[5] https://www.ijert.org/advanced-footstep-power-generation-system-to-charge-e-vehicles