**TOPIC OF THE PROJECT:**

FOOT STEP POWER GENERATION

**OBJECTIVE:**

Our project ”FOOT STEP GENERATION” is to generate electricity by the movement of anything which is in contact with the surface. This is done with the help of a suitable mechanism.

**INTRODUCTION:**

Energy is one of the most important issues around the world. Especially in Bangladesh energy crisis is a big problem. Renewable energy sources can be a great media to solve this energy crisis problem in Bangladesh. As we know natural resources will finish one day. That’s why researchers are trying to introduce substitute energy sources from nature. That must be green and not harmful for the environment. Energy harvesting is defined as capturing minute amounts of energy from one or more of the surrounding energy sources. Human beings have already started to use energy harvesting technology in the form of windmill, geothermal and solar energy.

Walking is the most common activity in human life. When a walks, he loses energy to the road surface in the form of impact, vibration, sound etc, due to the transfer of his weight on to the road surface, through foot falls on the ground during every step. This energy can be tapped and converted in the usable form such as in electrical form. This device, if embedded in the footpath, can convert foot impact energy into electrical form.

**ABSTRACT:**

Man has needed and used energy at an increasing rate for his sustenance and wellbeing ever since he came on the earth a few million years ago. 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 and China where the roads, railway stations, bus stands, temples, etc. are all over crowded and millions of people move around the clock. The project advanced footstep power generator system is used to generate power from human footsteps. The system allows for a platform for placing footsteps. It uses Peizo sensors to generate the power. The Peizo sensors are mounted below the platform to generate voltage from footsteps. The sensors are placed in such an arrangement so as to generate maximum output voltage. This is then provided to our monitoring circuitry. The circuit is a microcontroller based monitoring circuit that allows user to monitor the voltage and charges a connected battery by it.It also displays the charge generated and displays on the computer screen which is integrated with the hardware. Also it consists of a USB mobile phone charging point where user may connect cables to charge mobile phone from the battery charge. Thus we charge a battery using power from user footsteps, display it on screen using microcontroller circuit and allow for mobile charging through the setup. The Footstep Power Generation System is echo-friendly, it reduces waste of energy , it is of less maintenance cost, it is of ultralow noise and wide dynamic and temperature range . This project is used for street lighting, mobile charging. It can be used in power failure situations. The application areas of this project involve public areas like temples, streets, metros, railway stations. This entire system will be integrated with software for displaying the amount of power generation with the help of IOT technology. ***Keywords- Peizo sensor, microcontroller.***

**REQUIREMENTS:**

**HARDWARE REQUIREMENTS**

* AT89S52 Microcontroller
* Piezoelectric Sensor
* AC Ripple Neutralizer
* Diode
* Step Down Transformer
* 16X2 LCD
* Lead Acid Battery
* ADC
* INVERTER

**SOFTWARE REQUIREMENTS**

* MC Programming Language: C
* Keil Software

**ADVANTAGES:**

* Power generation is simply walking on step.
* No need fuel input.
* This is a Non-conventional system.
* No moving parts - long service life.
* Self-generating - no external power required.
* Compact yet highly sensitive.
* Reliable, Economical, Eco-Friendly.
* Less consumption of Non- renewable energies.
* Power also generated by running or exercising on the step.
* Battery is used to store the generated power.
* Extremely wide dynamic range, almost free of noise.

**APPLICATIONS:**

* Power generations using footstep can be used in most of the places such as
* Colleges
* Schools
* Cinema theatres
* **S**hopping complex
* Airports
* Railway Stations
* Bus Stands

**FUTURE SCOPE:**

Utilization of wasted energy is very much relevant and important for highly populated countries in future.

**Flooring Tiles**

Japan has already started experimenting the use of piezoelectric effect for energy generation. They implement piezoelectric effect on the stairs of the bus. Thus every time passenger steps on the tiles; they trigger a small vibration that can be stored as energy

**Dance floor**

Europe is another one of the country which started experimenting use of piezoelectric crystal for energy generation in night clubs. Floor is compressed by the dancer’s feet and piezoelectric materials makes contact and generate electricity

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**CONCLUSION:**

The project “ FOOTSTEP POWER GENERATION SYSTEM” will be implemented which is the best economical, affordable energy solution to common people. This can be used for many applications in rural areas where power availability is less or totally absence As India is a developing country where energy management is a big challenge for huge population. By using this project we can drive both A.C. as well as D.C loads according to the force we applied on the piezo electric sensor.

**SYNOPSIS**

**ON**

**FOOT STEP POWER GENERATION**

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