FOOT-STEP POWER GENERATON SYSTEM

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ABSTRACT: *Power generation and its use is one of the issues. Now a day's no. of power sources is present but still we can't overcome our power needs. Among this human population is one of the resources .In this project we are doing generation of power by walking and running. Power can be generated by walking on the stairs. The generated power will be stored and then we can use it for domestic purpose. This system can be installed at homes, schools, colleges where the people move around the clock. When people walk on the steps or that of platform, power is generated by using weight of person. The control mechanism carries piezoelectric sensor, this mechanical energy applied on the crystal converts into electrical energy. When there is some vibrations, stress or straining force exert by foot on platform. It can be used for charging devices example: - Laptops and Mobiles.*

KEYWORDS: *Power utilization, Foot Step Power generation, piezoelectric material, Energy utilization.*

I. INTRODUCTION

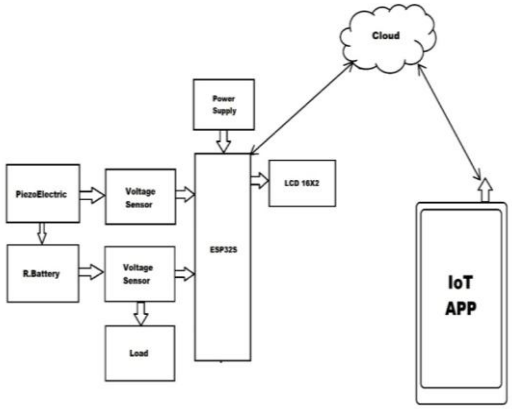
Footstep step generation system basically converts force energy of foot into electric

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 nonconventional 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.

II. SYSTEM ARCHITECTURE

A. Proposed System:

Our proposed system presents a smart parking system that regulates a number of vehicles to the nearest parking space at any given time based on the parking space availability. The user requests the Parking Control Unit to check the status of available parking slots. As soon as the user request, all the available free slots are displayed to the user.



B. Hardware:

The main hardware components used are

- **Peizo-electric transducer:**

Squeeze certain crystals (such as quartz) and you can make electricity flow through them. The reverse is usually true as well: if you pass electricity through the same crystals, they "squeeze themselves" by vibrating back and forth. That's pretty much piezoelectricity in a nutshell but, for the sake of science, let's have a formal definition: Piezoelectricity (also called the piezoelectric effect) is the appearance of an electrical potential (a voltage, in other words) across the sides of a crystal when you subject it to mechanical stress (by squeezing it).

- **Arduino:**

It is a compact board which can be used in various devices and various field. It has overall 22 input/output pins out of which 14 pins are digital pins. It has a flash memory ofabout 32 kb. These pins can control the operations of digital pins as well as analogy pins. This module is a breadboard friendly board which can be easily used anywhere.

- **WIFI Module:**

WiFi modules (wireless fidelity) also known as WLAN modules (wireless local area network) are electronic components used in many products to achieve a wireless connection to the internet.

- **ATMEGA 328:**

ATmega328P is a high performance yet low power consumption 8-bit AVR microcontroller that's able to achieve the most single clock cycle execution of 131 powerful instructions thanks to its advanced RISC architecture. It can commonly be found as a processor in Arduino boards such as Arduino Fio and Arduino Uno.

- **LCD**

In LCD 16×2, the term LCD stands for Liquid Crystal Display that uses a plane panel display technology, used in screens of computer monitors & TVs, smartphones, tablets, mobile devices, etc.

III. IMPLEMENTATION

This section contains the

implementation of the proposed system. Whenever force is applied on piezo electric crystals that force is converted to Electrical energy is used to drive DC loads. And that minute voltage which is stored in the load Acid battery. The battery is connected to the inverter. This inverter is used to convert the 12 Volt D.C to the 230 Volt A.C. This 230 Volt A.C voltage is used to activate the loads. We are using conventional battery charging unit also for giving supply to the circuitry

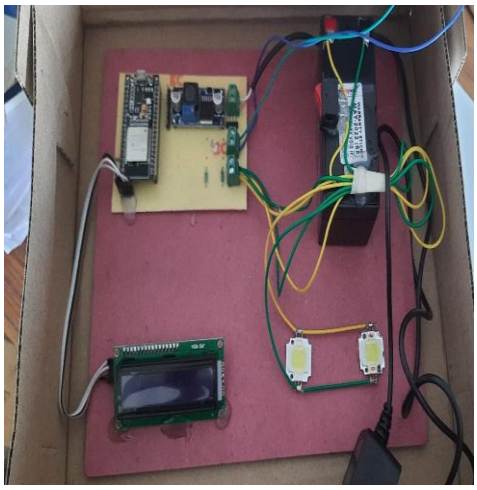


Fig. Model Kit

IV. RESULT AND DISCUSSION

The 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. The project "FOOT STEP POWER GENERATION" is an afford-able energy solution to common people.

V. CONCLUSION AND FUTURE WORK

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. The project "FOOT STEP POWER GENERATION" is an afford-able 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 a huge population. By using this project we can drive both AC and DC loads according to the force we applied on the piezoelectric sensor to charge electronic vehicles and reduce the amount of pollutants which cause a negative impact on the environment.

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Degradation Issues of PV Solar Power Plant", 2017 International Conference on Electrical, Electronics, Communication, Computer and Optimization Techniques (ICEECCOT), PP 311-313, 978-1- 5386-2361-9/17/$31.00 ©2017 IEEE.