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FOOT STEP BASED POWER GENERATION SYSTEM FOR APPLICATION OF RURAL ENERGY TO RUN AC TO DC LOADS

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ABSTRACT:

Man has required and utilized vitality at an expanding rate for the sustenance and prosperity since time immemorial. Because of this a great deal of vitality assets have been depleted and squandered. recommendation for the usage of waste vitality of foot force with human velocity is all that much noteworthy and imperative for exceptionally populated nations such as India where the railroad station, sanctuaries and so forth., are packed all round the clock .When the ground surface is designed with piezo electric innovation, the electrical vitality delivered by the weight is caught by floor sensors and changed over to an electrical charge by piezo transducers, then put away and utilized as a force source. What's more, this force source has a great deal of uses as in farming, home application and road lighting and as vitality hotspot for sensors in remote areas.

KEYWORDS:

Foot Step, Power Generation, Rural Energy, Human Velocity.

INTRODUCTION:

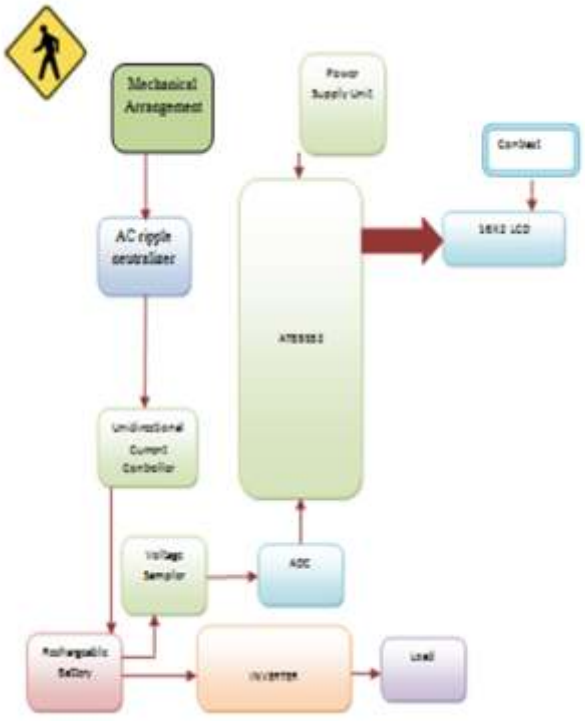
At present, power has turned into a life saver for human populace. Its interest is expanding step by step. Present day innovation needs a colossal measure of electrical force for its different operations. Power creation is the single biggest wellspring of contamination in the entire world. At one hand, rising worry about the crevice in the middle of interest and supply of power for masses has highlighted the investigation of exchange wellsprings of vitality and its practical use. Then again, human populace everywhere throughout the world and thus vitality interest is expanding step by step directly. Likewise, it is a target of the present creation to give a strategy for electrical force era from this constantly expanding human populace that does not adversely affect the earth. This innovation depends on a rule called the piezoelectric impact, in which certain materials have the ability to develop an electrical charge from having weight and strain connected to them. Piezoelectricity alludes to the ability of a few materials to produce an electric potential in light of connected weight. Collecting of vitality which implies vitality is as of now accessible, however is going to squander if not used. Installed piezoelectric material can give the enchantment of changing over weight applied by the moving individuals into electric current. In this venture we are producing electrical force as non-routine strategy by basically strolling or running on the stride. Non-routine vitality framework is extremely fundamental right now to our country. Non-routine vitality utilizing stride is changing over mechanical vitality into the electrical vitality. This venture utilizes piezoelectric sensor. Utilization of inserted innovation makes this framework productive and dependable. Small scale controller

(AT89S52) permits alterable and quicker control. Fluid gem show (LCD) makes the framework easy to understand. AT89S52 small scale controller is the heart of the circuit as it controls every one of the capacities. In this venture the transformation of the power vitality into electrical vitality. The control system conveys the piezo electric sensor, A.C swells neutralizer, unidirectional current controller and 12V, 1.3Amp lead corrosive dc rechargeable battery and an inverter is utilized to drive AC/DC loads. The battery is associated with the inverter. This inverter is utilized to change over the 12 Volt D.C to the 230 Volt A.C. This 230 Volt A.C voltage is utilized to actuate the heaps. We are utilizing customary battery charging unit additionally to give supply to the hardware. Here we are utilizing 16X2 LCD to show the voltage estimations of the rechargeable battery utilizing AT89S52.

II. PROBLEM FORMULATION

1. Workout energy is unnecessarily wasted.

III. BLOCK DIAGRAM AND EXPLANATION



Microcontroller

The AT89S52 is an elite CMOS 8-bit microcontroller, low-power, with 8K bytes of EPROM. These are components of AT89S52 microcontroller: 256 bytes of RAM, 8K bytes of Flash, , three 16-bit clock/counters, 32 information/yield pines , two information pointers, Watchdog clock. six hinder of two level structural engineering, serial port, oscillator . the AT 89C52 is capable MC which gives an adaptable and reasonable result to numerous implanted framework applications[2]

LCD (Liquid Crystal Display) –

LCD which is regularly known as Liquid Crystal Display &Alphanumeric Presentation it implies that it can indicate Letters, Amounts and additionally diverse codes in this manner LCD is a client mindfully Show strategy which can be utilized for demonstrating numerous correspondences divergent seven segment show which can demonstrate just amounts and a percentage of the letter

Piezoelectric sensor:

A piezoelectric sensor is a gadget that uses the piezoelectric impact to gauge weight, quickening, strain or constrain by changing over them to an electrical sign.

Piezoelectric sensors have affirmed to be adaptable apparatuses for the estimation of different procedures. They are utilized for quality affirmation, process control and for innovative work in a wide range of businesses it was just in the 1950s that the piezoelectric impact began to be utilized for mechanical detecting applications. From that point forward, this measuring rule has been progressively utilized and can be viewed as a grown-up innovation with a remarkable natural unwavering quality. It has been effectively utilized as a part of different applications, for example, in medicinal, aviation, atomic instrumentation, and as a weight sensor in the touch stack of cellular telephones. In the car business, piezoelectric components are utilized to screen burning while creating inner ignition motors. The sensors are either specifically mounted into extra

gaps into the chamber head or the flash/shine attachment is furnished with an inherent small scale piezoelectric sensor .

Simple To Digital Converter (ADC):-

ADC is utilized as a sign conditioner, which is given as a data to the miniaturized scale controller. The greater part of the data conveying flags, for example, voltage, current, temperature, weight and time are accessible in simple structure. Be that as it may, for preparing, transmission and capacity reason, it is regularly more advantageous to express such flags in advanced structure. At the point when communicated in computerized structure, they give better exactness and decrease commotion.

Inverter:-

An inverter is an electrical gadget that changes over direct current (DC) to substituting current (AC); the changed over AC can be at any required voltage and recurrence with the utilization of proper transformers, exchanging, and control circuits.

LEAD ACID BATTERY

Lead-corrosive batteries are the most widely recognized in PV frameworks on the grounds that their beginning expense is lower and in light of the fact that they are promptly accessible almost all over on the planet. There are a wide range of sizes and outlines of lead-corrosive batteries, however the most imperative assignment is that they are no-limit cycle batteries. Lead-corrosive batteries are accessible in both wet-cell (requires upkeep) and fixed no-support forms. AGM and Gel-cell profound cycle batteries are additionally well known on the grounds that they are sans upkeep and they last a considerable measure longer.

Control supply

The A.C. 230 info is given to rectifier circuit and Output acquire from the rectifier is a throbbing D.C voltage. The yield from the rectifier is given to a channel circuit to channel A.C segments present consistent later than correction. Presently, this voltage sustained to voltage controller to immaculate steady D.C voltage get.

IV. SOFTWARE DESCRIPTION

This undertaking is executed utilizing taking after software's:

1.Express PCB – for planning circuit
2.PIC C compiler - for assemblage part
3.Proteus 7 (Embedded C) – for reenactment part.

V. ADVANTAGES

- Reliable, Economical, Eco-Friendly.
- Less utilization of Non-renewable energies.

VI. APPLICATIONS:

- Foot step produced force can be utilized for rural, home applications, road helping.
- Foot step power era can be utilized as a part of crisis force disappointment circumstances.
- Metros, Rural Applications and so on.,

IV. CONCLUSION:

Incorporating elements of all the equipment segments utilized have been created as a part of it. Vicinity of each module has been contemplated out and set painstakingly, in this manner adding to the best working of the unit. Besides, utilizing very propelled IC's with the assistance of developing innovation, the task has been effectively executed. Hence the task has been effectively planned and tried.

IV. REFERENCES

1. Footstep Power Generation Using Piezo Electric Transducers Kiran Boby, Aleena Paul K, Anumol.C.V, Josnie Ann Thomas, Nimisha K.K Dept of EEE, MACE, Kothamangalam
ISSN: 2277-3754 Volume 3, Issue 10, April 2014
2. The 8051 Microcontroller and Embedded Systems Using Assembly and C, ISBN 8131710262, 9788131710265 Mazidi and Mazidi