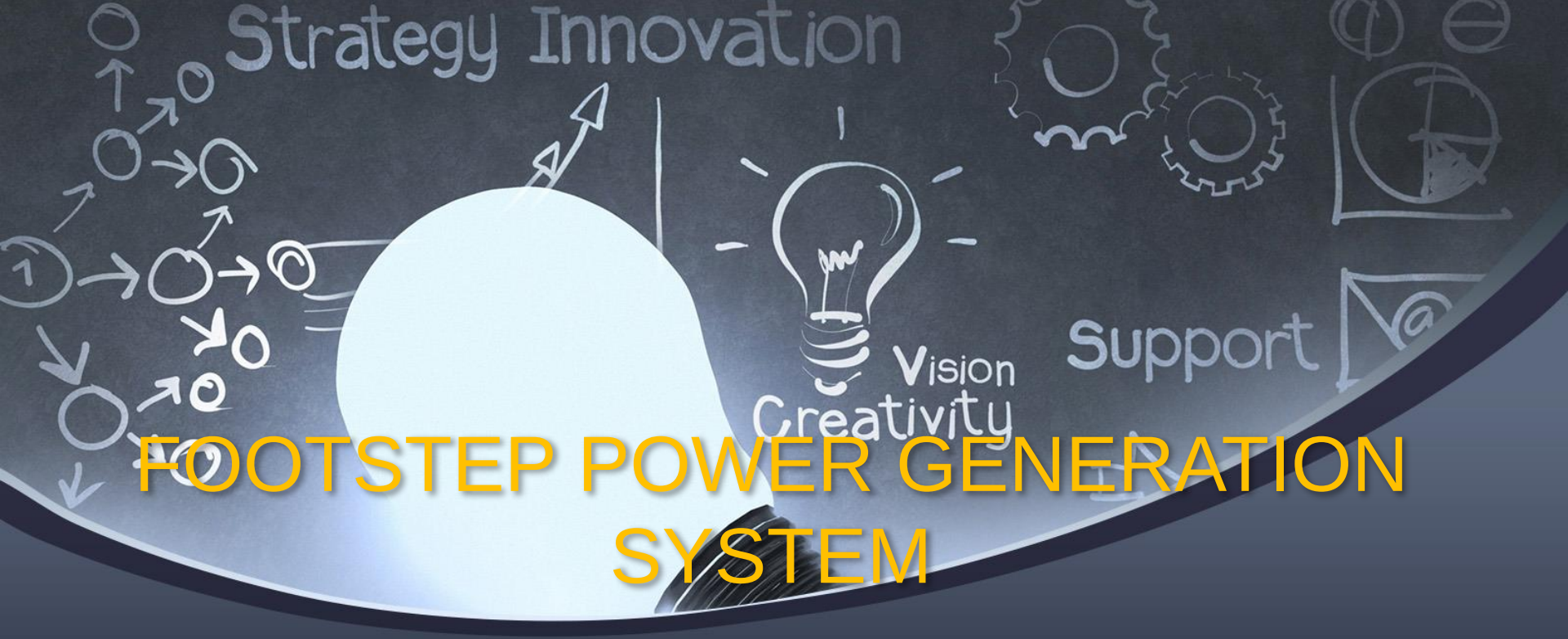

FOOTSTEP POWER GENERATION SYSTEM

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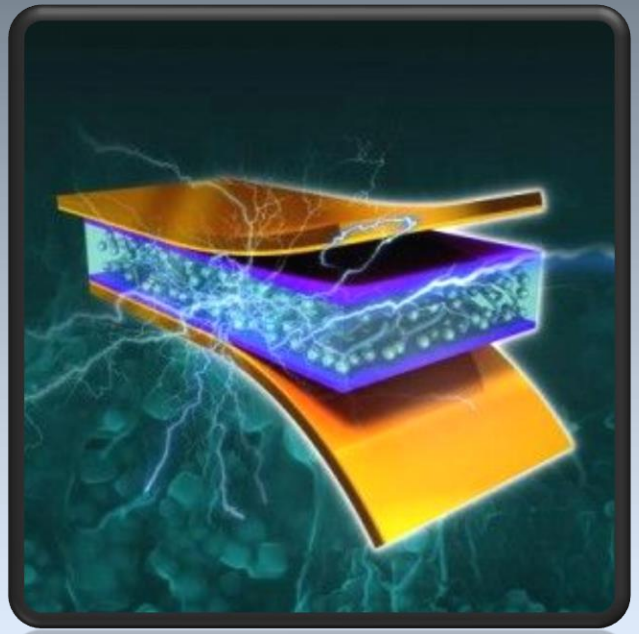
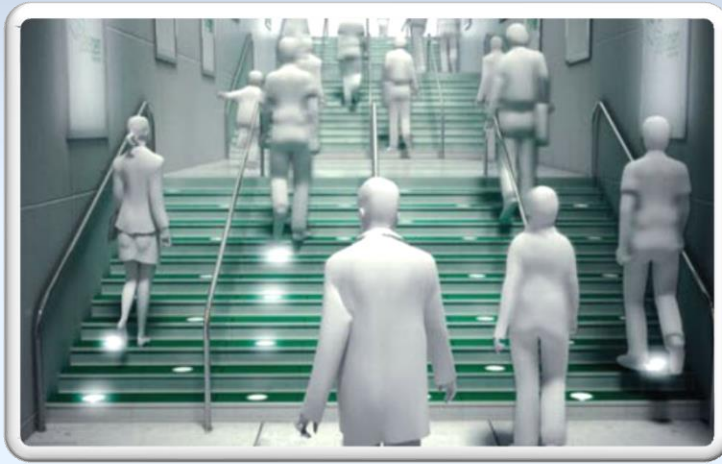
PVKKIT ,Anantapur

INTRODUCTION

- We are generating electrical power non-conventional method by simply walking or running on the foot step
- Non conventional energy using foot step is converting mechanical energy in to the electrical energy
- The basic principle behind this system is piezoelectric effect


tion
Vision
Creativity





PIEZOELECTRIC MATERIAL

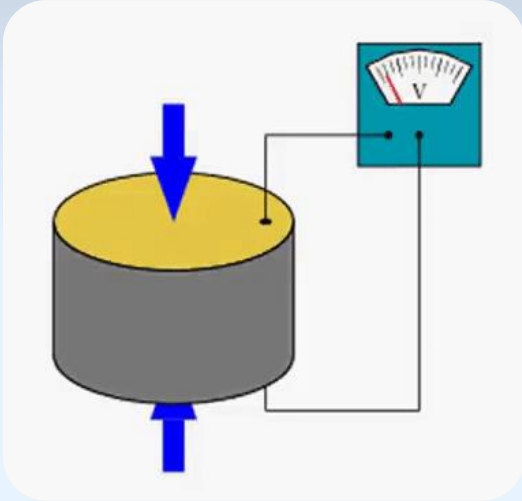
Certain materials have the ability to build up an electrical charge from having pressure and strain applied to them. Piezoelectricity refers to the ability of some materials to generate an electric potential in response to applied pressure such materials are called piezoelectric material

E.g.:

- Quartz
- Belemnite
- Gallium
- orthophosphate
- Tourmaline

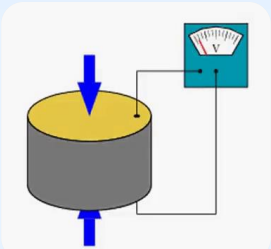
PIEZOELECTRIC EFFECT

- Piezoelectric Effect is the ability of certain materials to generate an electric charge in response to applied mechanical stress.



WORKING

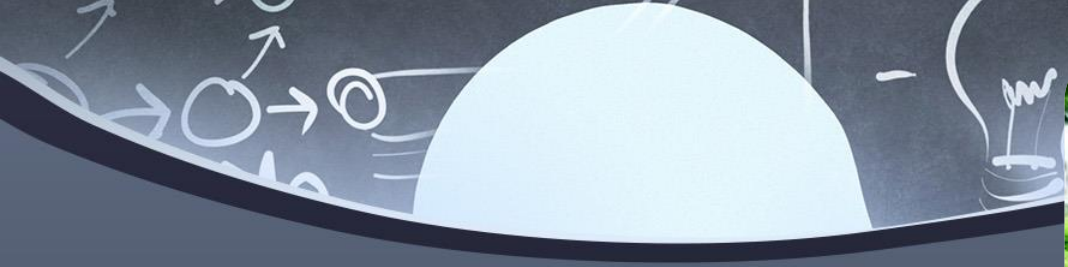
- The piezoelectric material converts the pressure applied to it into electrical energy.
- The source of pressure can be either from the weight of the moving vehicles or from the weight of the people walking over it.
- The output of the piezoelectric material is not a steady one. So a bridge circuit is used to convert this variable voltage into a linear one.
- Again an AC ripple filter is used to filter out any further fluctuations in the output.
- The output dc voltage is then stored in a rechargeable battery.
- The inverter is converts the DC into AC



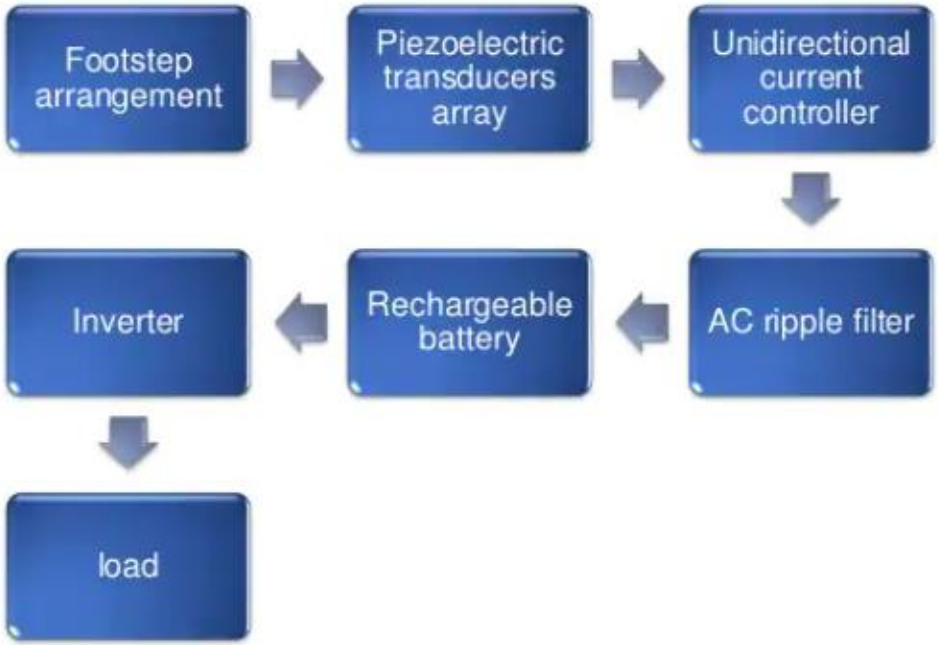
- A force is applied along a neutral axis of the piezoelectric crystal and the charges are generated along the perpendicular to the line of force.
- The amount of charge depends up on the

  * Geometrical dimensions of the respective piezoelectric element

  * The pressure applied



BLOCK DIAGRAM



ADVANTAGES

- Non conventional method, renewable energy source
- Eco friendly
- Reliable
- Self generating – no external power required
- Less maintenance cost
- Ultra low noise
- An alternative way of power generation

DISADVANTAGES

- Initial cost is too high
- Implementation is difficult
- Less maintenance , but difficult

APPLICATION

- Footstep power generation can be used in emergency power failure situations
- It can be used for Agricultural ,Home applications , Street lighting and etc…
- Metros and Rural applications

Thank You