

Piezoelectric Power Generation

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ABSTRACT

This project seeks to generate electricity from human footsteps by harvesting and converting the energy expended during human locomotion into electrical energy. The system of energy conversion is achieved through piezoelectric transducers and appropriate harvesting circuit to trap the mechanical energy, convert it and store the electrical energy that results. The work delves into piezoelectric theory and the methods used in the energy harvesting and storage process. Also, the analysis and selection of appropriate components and materials used in achieving the proposed system design is discussed. The system is simulated using Multisim 13.0 software and the amount of power produced per step is 9.672 W. The simulation results prove that the amount of electrical energy that can be harvested and stored from numerous steps with the appropriate harvesting circuit can be used as a power source for many applications.