Piezoelectric Template

Feliciano-Morales, Carlos

Energy conservation law establishes that energy can't be created or destroyed, but transformed. Kinetic energy is related to moving objects and it depends on mass and velocity. This energy can be change into electric energy to be used with commonly used devices. The problem was: is it possible to create a device where the piezoelectric method could be used to transform kinetic energy from a person's movements into electric energy in order to recharge a portable 2000mAH battery? The hypothesis was that: It is possible to create a device using the piezoelectric method to transform kinetic energy from a person's movements into electric energy to recharge a cellphone's battery. Using the adequate materials and tools a sneaker template was framed and cut in a piece of PVC. Fourteen holes were made in the template to accommodate and glue the piezocells in place. Different horizontal cuts were made in the PVC template to make it flexible when walking. The piezocells were welded in parallel. Pieces of foam were placed over and under each piezocell for cushion. A diode bridge was used and the end of the cells were welded to the AC exit; and the battery was welded to the DC end of the bridge. The device was tested when walking and running distances of 400m to 1,600m. Electric energy was generated and the greater the distance the higher the voltage obtained and the higher the percent of charge in the battery. It was concluded that the hypothesis was accepted.