Energy Harvesting Footwear  
Technology #19250

Applications

This invention allows walking to generate electric energy via a pneumatic motor in the sole of shoes that can be used to power a GPS receiver and manage the location of children, soldiers, the elderly, or anyone wearing the device.

Problem Addressed

Human locomotion typically dissipates large amounts of energy on the order of about 10W to 15W. Prior attempts at harvesting this energy using materials such as piezoelectric materials incorporated into the shoes has only resulted in the ability to harvest about 1 mW to 5 mW. However, during a walking and running test of the proposed device the average power output was 86 mW.

Technology

This footwear uses a pneumatic motor including two micro-turbines located in series to harvest energy. Each micro-turbine is operatively coupled to a separate generator. The pneumatic motor is fluidically connected to several air bladders positioned in the shoe, and as someone walks or runs in the shoes, they force the air in the bladders back and forth spinning the micro-turbines and generating energy that is used to power a GPS receiver.

Advantages

- Increases energy harvesting
- Ability to follow a person’s geographic location via their footwear

Categories For This Invention:

Energy Harvesting

Intellectual Property:

Energy harvesting footwear  
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**External Links:**

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