



TECHNOLOGY

Multifunctional Energy Harvesting Skin

OVERVIEW

Energy harvesting technologies currently enable wireless sensors to be operated without a battery but still require recharging or periodic replacement. Vibration is a widely available ambient energy source. Piezoelectric energy conversion from vibration is the most efficient approach known. A cantilever beam type generator is a popular device for inducing strain required for such energy conversion.

Researchers at the University of Maryland have developed an alternative solution that eliminates the disadvantages associated with the cantilever method, namely its inefficient design and sensitivity to external impact and hazardous climate conditions. This new invention is a multi-layered, multi-functional thin skin that can be assembled and disassembled piece-by-piece. Its functional application is broad, allowing for vibration energy harvesting and storage, noise/vibration reduction, and protection and load carrying. The skin structure is innovative due to its compactness, multi-functionality and battery/maintenance-free features.

Advantages

- Efficient design
- Environmentally sound
- Convenient means for energy harvesting and storage
- Batteries unnecessary

Applications

- Wireless health monitoring sensors
- Sensors for home/building automation
- Consumer portable electronics

For additional information, please contact the Office of Technology Commercialization, University of Maryland College Park, via e-mail at otc@umd.edu or phone at 301-405-3947.

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CATEGORIES

- Engineering
- Power Electronics

- Clean Technology

EXTERNAL RESOURCES

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