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# Harvesting Energy from Walking Human Body

#2020

#Award

#Energy



## PROJECT QUICK FACTS

### Principal Investigator

**Prof. LIAO Wei Hsin**

DEPARTMENT OF MECHANICAL AND AUTOMATION  
ENGINEERING

### Funding

Innovation and Technology Commission

### Patent

1 US patent filed and 1 China patent application

### Award

Silver Medal, International Exhibition of Inventions Geneva 2021

Energy harvesters are traditionally heavy and create burden in the energy capture process. This smart materials-based energy harvester enables wearable electronic devices. Made with a lightweight macro-fibre composite, it captures energy from motion of the human knee, deforming piezoelectric transducers to generate electricity. Walking 10,000 steps at normal speed is enough to power a smart wristband for the whole day.

## Uniqueness and Competitive Advantages:

- Light (307g only) and easy to wear/take off
- No extra metabolic burden to users
- Can power wearables especially for hikers, e.g. pedometers, health monitors, GPS
- Can be embedded into garments for sportswear

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Harvesting energy from walking human body

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W. H. LIAO

香港中文大學  
The Chinese University of Hong Kong

## Harvesting Energy from Walking Human Body

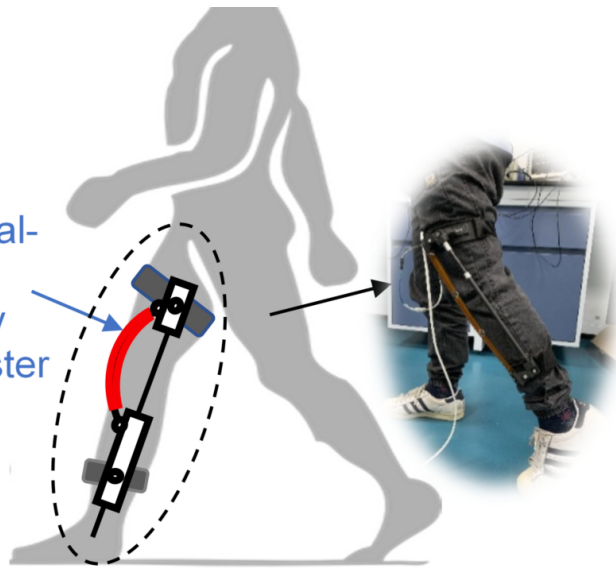
W. H. Liao, F. Gao, G. Liu, Brendon L. H. Chung, and Hugo H. T. Chan

Department of Mechanical and Automation Engineering

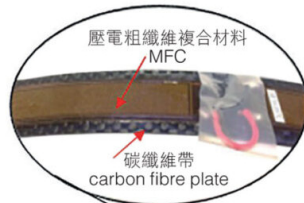
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Smart material-based energy harvester



Placement of the energy harvester on a leg



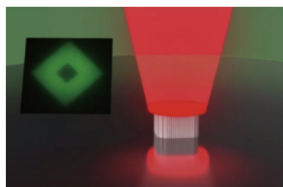
Layout and components of the developed energy harvester

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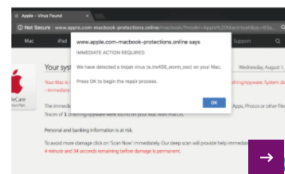
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