Harvesting Energy from Walking Human Body

#2020 #Award #Energy

PROJECT QUICK FACTS

Principal Investigator

Prof. LIAO Wei Hsin

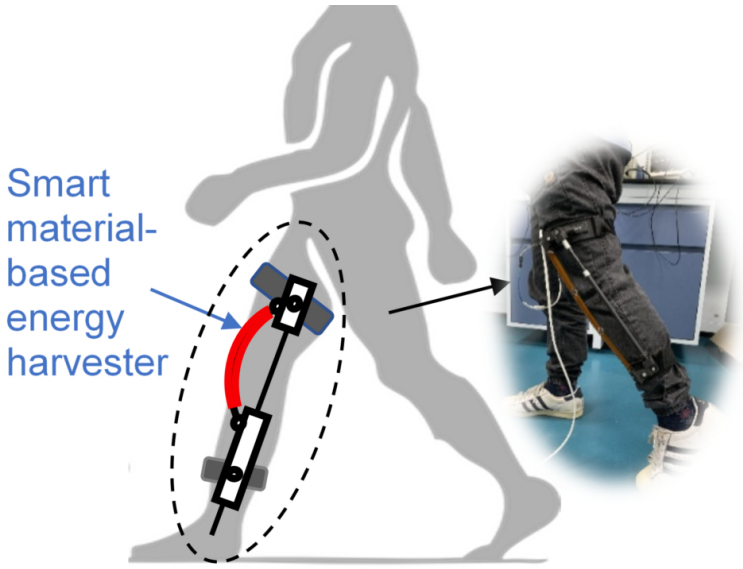
DEPARTMENT OF MECHANICAL AND AUTOMATION ENGINEERING

- **Funding**
  Innovation and Technology Commission
- **Patent**
  1 US patent filed and 1 China patent application
- **Award**
  Silver Medal, International Exhibition of Inventions Geneva 2021

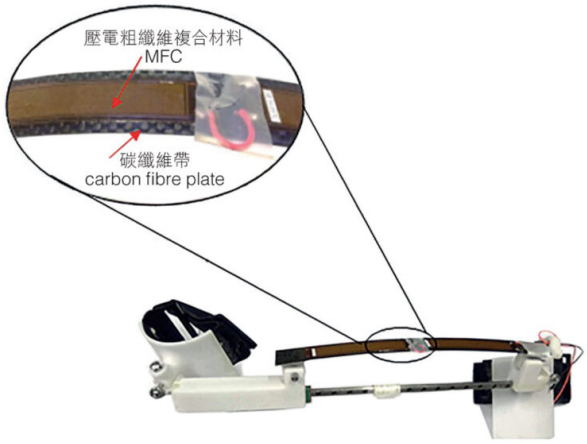
Energy harvesters are traditionally heavy and create burden in the energy capture process. This smart materials-based energy harvester enables wearable electronic devices. Made with a lightweight macro-fibre composite, it captures energy from motion of the human knee, deforming piezoelectric transducers 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



Placement of the energy harvester on a leg



Layout and components of the developed energy harvester

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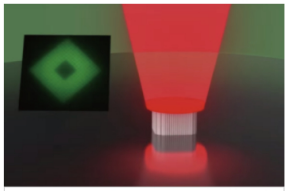

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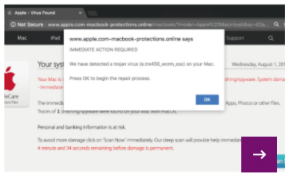

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