

Reversible Thermo-Power Parka Jacket

A body heat-powered harness within a jacket generates electrical power for a power bank, enabling both continuous charging and thermoelectric temperature regulation in a wearable device.

Attempts to generate power from body heat have faced several difficult technical challenges. Technologies have most often tried to charge cell phones through body heat. Charging a cell phone in one hour requires 5 Volts of regulated DC power of 5-10 Watts. The ideal body heat generator can charge a phone, but will take more than 100-200 hours to charge from empty to full. Innovations in this technology are needed in order to feasibly implement it into markets.

Researchers at Purdue University have developed a power bank to be charged from body heat within a power harness that is built into a parka jacket. Charging a power bank instead of charging a phone is beneficial as it allows for thermoelectric temperature control. This technology is able to warm up or cool down the inner side of a jacket by consuming the electrical power generated from the power bank. The power generation and temperature control can be externally controlled with a wireless transmitter/receiver or from a cell phone connected with a power wire or wirelessly through an additional app.

Advantages:

- Charges at all times, whenever power is available
- Temperature control
- Adds value to parka jackets

Potential Applications:

- Integration to parka jackets
- Thermoelectric materials
- Sporting, medical, military, emergency services, etc.

Technology ID

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Category

Energy & Power Systems/Power Generation
Materials Science & Nanotechnology/Thermal Management Materials & Solutions
Aerospace & Defense/Advanced Protective Materials & Wearable PPE

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