
Nanotechnology Could Charge Your Phone Using Your Clothes

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A €1.5m research project will investigate how to generate energy from clothing, which could be used to power electronic devices.

While the use of wearable devices is increasing, the need for frequent charging and physical rigidity of batteries are the main challenges for future development.

Now, a team of scientists in [Ireland](#) and the [UK](#) is trying to address this problem by exploring ways to capture the kinetic energy generated from items of clothing using nanotechnology.

This is part of a €1.5m project funded by Science Foundation [Ireland](#) and the [UK](#)'s Engineering and Physical Sciences Research Council. It involves researchers at the [University of Glasgow](#), the Institute of Technology Sligo, Tyndall National Institute and Heriot-Watt University.

The project aims to convert human motion into electricity using triboelectric nanogenerator (TENG) technology, which provides a way to harvest power from human motion.

If successful, these materials could be woven into items of clothing and used to charge electronic devices through movements such as walking or running.

The team said this technology could be available as early as 2027 and could be used to power devices such as smart watches, mobile phones or wearable healthcare monitors.

Prof Suresh C Pillai, principal investigator of the project for [Ireland](#) and the head of the nanotechnology and bioengineering research group at Institute of Technology Sligo, said while people are increasingly using smart devices, the most commonly used power source for these devices is lithium-ion batteries.

“As the level of functionality has increased and the devices have miniaturised to fit the

human body, the demand for energy is also increasing and are predicted to upsurge significantly in the coming years,” he said.

“Our body is an effective power source: activities of daily living such as brisk walking or regular movement can produce electricity using nanotechnology methods.”

From the movement of the body, Pillai said the TENG materials attached to the clothing move too, creating an electrical current. He said this could help to develop the next generation of ultra-high-performance wearable TENG technology capable of powering wearable devices while avoiding the need for carrying heavy battery packs.

Read the [original article](#) on Silicon Republic.