



The shape of the battery minimises the deformation of the materials in order to ensure the battery's safety and give high capacity per unit size. | Photo source Korea Institute of Machinery and Materials (KIMM)

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FLEXIBLE BATTERY CAN MOVE LIKE A SNAKE



HEALTH & WELLBEING

Researchers have developed a flexible battery that can move like a snake, to provide a boost to robots and wearables

Spotted: Researchers at the Korea Institute of Machinery and Materials (KIMM) have developed a flexible and stretchable battery that could allow robots and wearable devices to take on a wider range of shapes and functions. The KIMM research team, led by Senior Researcher Dr. Bongkyun Jang and Principal Researcher Dr. Seungmin Hyun at the Department of Nano-Mechanics, based the battery on the structure of snake scales, with small, hexagonal battery cells.

The cells are connected using a polymer and copper material and a hinge mechanism that allows them to fold and unfold. The unique design allows flexibility for movement and at the same time can fold together to protect against external impact. The design also makes economical mass-production easier because the battery can be made by cutting and folding flexible electrodes in a manufacturing process that resembles a sort of industrial origami.

The shape of the battery minimises the deformation of the materials in order to ensure the battery's safety and give high capacity per unit size. The team also found that the batteries had excellent stability and performance. They were successfully tested in situations where they stretched and returned to their original size.

In a press release, the team **noted that** "Unlike conventional wearable devices in which frames and batteries are combined in a tight formation, this new technology enables flexible movements by connecting several small, hard batteries in a scale-like structure."

Robots are seeing a widening number of uses in almost every area of life. Springwise has recently covered robots that have been developed to [purify DNA](#), sort waste for [recycling](#) and even a [micro-robot](#) that can deliver medicine directly into organs.

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Takeaway:

The researchers suggest that the scale-like batteries can be used in conjunction with robots that mimic the movement of snakes, to crawl into small spaces, such as inside a pile of building debris or drainage pipes. Many current soft robots used for these applications need to be connected to power cables, which can limit their movement and reach. The researchers also regard the battery as an ideal power source for wearable devices. In the future, the KIMM research team hopes to increase the storage capacity of the batteries and to use them to develop multi-functional soft robots that combine artificial muscles with soft robot actuation technology.