

Memory device holds key to green gadgets

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Fast, low-energy memory for MP3s, smartphones and cameras could become a reality thanks to University of Edinburgh scientists.

Researchers have created a tiny device that improves on existing forms of [memory storage](#).

Conventional methods use electronic devices to convert data into signals that are stored as binary code.

This latest device uses a tiny mechanical arm to translate the data into [electrical signals](#).

This allows for much faster operation and uses much less energy compared with conventional memory storage tools.

The device records data by measuring the current passing through a carbon nanotube.

The binary value of the data is determined by an electrode that controls the flow of current.

Scientists at the University, who helped create the device, say it could offer gadget designers a way to create faster devices with reduced [power consumption](#).

Previous attempts to use carbon nanotube transistors for memory storage hit a stumbling block because they had low operational speed and short

[memory retention](#) times.

By using a mechanical arm to charge the electrode - which operates much faster than conventional memory devices - scientists have been able to overcome these problems.

The research, carried out in collaboration with Konkuk University and Seoul National University, Korea, was published in *Nature Communications* and supported by EaStCHEM.

"This is a novel approach to designing memory storage devices. Using a mechanical method combined with the benefits of nanotechnology enables a system with superior speed and energy efficiency compared with existing devices," said Professor Eleanor Campbell, School of Chemistry.

Provided by University of Edinburgh

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