



The technology eliminates the need for energy-intensive radio frequency sensing modules | Photo source Pixabay

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HARVESTING RADIO WAVES FOR ENERGY

 COMPUTING & TECH

A new source of energy reduces the need for batteries in electronic devices

Spotted: Making use of [ambient energy](#) could expand the capability of IoT (Internet of things) devices while simultaneously reducing the electronics industry’s need for battery power. Ambient energy is released by wireless devices, and when not captured, simply becomes a wasted resource. University of Central Florida (UCF) researchers, led by Reza Abdolvand, professor and chair of UCF’s [Department of Electrical and Computer Engineering](#), have created a method for harvesting radio frequency electromagnetic waves, which are the most common form of wireless communication.

The device recognises different radio frequencies and converts them into direct current electricity using a piezoelectric material. With no power needed for the conversion, the new technology can be integrated easily into IoT and other miniature devices for expanded applications.

Because devices using the new energy process no longer have to find radio waves, the conversion process eliminates the need for sensors. Removing sensors from electronics chips makes them more efficient, smaller and easier to use for ultra-low power devices.

The team recently won a [National Science Foundation award](#) to help with patent expenses, and an application for a patent for the design has already been filed with the United States Patent and Trademark Office (USPTO). The researchers are also seeking organisations and businesses interested in licensing the technology.

From unused energy from [WiFi signals](#) to smart windows that use [sunlight](#) to send data, Springwise has spotted a number of new ways scientists are making use of otherwise wasted sources of energy.

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Takeaway:

Harvesting otherwise wasted sources of energy has the potential to save substantial amounts of resources, with experts [predicting](#) “a major leap forward” in the market as technology develops and alternatives to fossil fuels are sought more urgently. The [value](#) of the market is expected to exceed \$650 million (around €613 million) by 2025, driven in part by the demand for energy secure solutions in increasingly volatile natural environments. This research from the University of Florida shows that radio waves can be utilised as an extra energy source directly, and could mean a reduced reliance on batteries in the electronics industry in future.