

## Science

# See the Technology That's Smaller Than a Penny That's Supposed to Be Able to Recharge Your Phone

Jan. 16, 2014 1:56pm [Elizabeth Kreft](#)

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## Video

Forget a bulky extra battery case; new technology smaller than a penny can now recharge your mobile devices.

Actually – think even smaller – more like the thickness of a penny. Researchers at the University of Texas at Arlington created a miniature windmill that is just 1.8 millimeters at its widest point.

These ultra-tiny windmills are designed with a micro-generator that can recharge your phone or tablet as long as you have access to a little fresh air.



One of the micro windmills pictured on the face of a penny. Researchers say

hundreds of the micro electrical mechanical systems could be inserted into the sleeve of a phone and recharge the device. (Credit: WinMEMSTechnologies)

A single grain of rice could hold about 10 of the tiny devices, and the researchers believe hundreds of them could be embedded in a cell phone sleeve for recharging purposes, [Computerworld](#) reports.

Once the sleeve is on the phone, a user could simply wave the device in the air or set the phone in a windy place to get the tiny propeller blades turning, allowing the micro-generators to produce electricity.

And just imagine the gag gift possibilities, for your favorite co-worker who has hot air to spare.

Smitha Rao, a UT research associate, and J.-C. Chiao, an electrical engineering professor, co-designed the miniature windmills. The two have filed for a patent for the devices which were tested successfully in September 2013 in Chiao's lab. The windmills operate under strong artificial winds without any fracture in the material because of the durable nickel alloy and the aerodynamic design.

The micro-windmills can be made in an array using batch processes. The fabrication cost of making one device is the same as making hundreds or thousands on a single wafer, which enables for mass production of very inexpensive systems.

"Imagine that they can be cheaply made on the surfaces of portable electronics," Chiao said, "so you can place them on a sleeve for your smart phone. When the phone is out of battery power, all you need to do is to put on the sleeve, wave the phone in the air for a few minutes and you can use the phone again."

[WinMEMSTechnologies](#), a Taiwanese electro-mechanical fabrication company, has agreed to commercialize the micro-windmill technology.

(H/T: [Computerworld](#))

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