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New technology could power smartphones with tiny windmills

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BY **Joe Kukur**

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An actual micro-windmill from UT-Arlington, held against a penny.

Electronics manufacturers have been pursuing the idea of a "self-recharging" smart phone for a few years, but most of these efforts have been just chasing windmills. But by using actual windmills of tiny microscopic sizes a group of researchers at the University of Texas at Arlington thinks they've developed the self-recharging phone. Their work is promising enough that WinMEMS Technologies, a Taiwanese metallic fabrication company, has already snatched up the commercial rights, and someday we may charge our cellphones just by holding them up outdoors.

The photograph above is an actual image of one of these tiny windmills, and they do indeed work. The micro-windmills measure 1.8 millimeters at their widest point, and 10 of them could fit on a single grain of rice. Thousands of them could fit on a cell phone casing, providing a promising new green energy source for smartphones and numerous other devices.

The micro-windmills are the inventions of UT electrical engineering professor J.-C. Chiao and research associate Smitha Rao,

"It's very gratifying to first be noticed by an international company and second to work on something like this where you can see immediately how it might be used," said co-developer Smitha Rao. "However, I think we've only scratched the surface on how these micro-windmills might be used."

While consumers would surely go for wind-powered cell phones that recharge themselves, smartphone manufacturers have other incentives too. The cell phone batteries we currently dispose contain **all manner of toxic chemicals** that constitute hazardous waste.

The micro-windmills have been successfully tested, and they do indeed work. They're made of incredibly strong nickel alloy, and the cost of making one is virtually the same cost as making a thousand of them.

Co-developer Dr. Chiao estimates that 2,040 of the tiny windmills could fit on the back of an iPhone.

"Imagine that they can be cheaply made on the surfaces of portable electronics," Dr. 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."

The micro-windmills could also be used in larger numbers to power household energy or security. But if they can just keep our smartphone batteries from dying, these little windmills will have a lot of fans.

Joe Kukura is based in San Francisco, California, United States of America, and is an Anchor for Allvoices.

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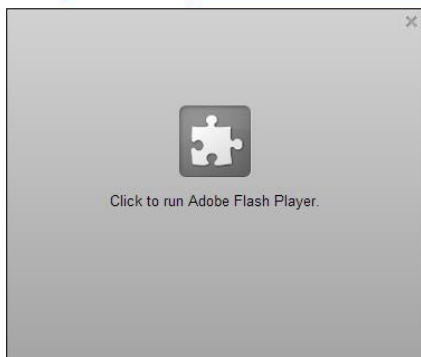
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