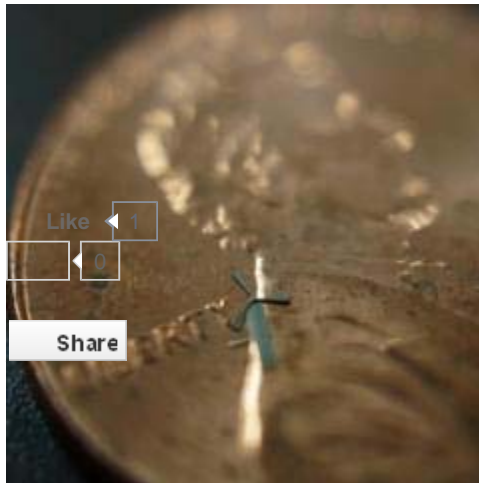


Wave goodbye to flat batteries: tiny windmills could power smartphones on the go



by **Matthew Jarvis**

5 days ago



Researchers have created miniature wind turbines that could be embedded in phone cases to provide power with the wave of a hand.

Smitha Rao and J.C. Chiao, a University of Texas Arlington research associate and electrical engineering professor, designed and built the 'micro-windmills' as part of a brainstorm commissioned by a Taiwanese firm.

"The company was quite surprised with the micro-windmill idea when we showed the demo video of working devices," Rao said.

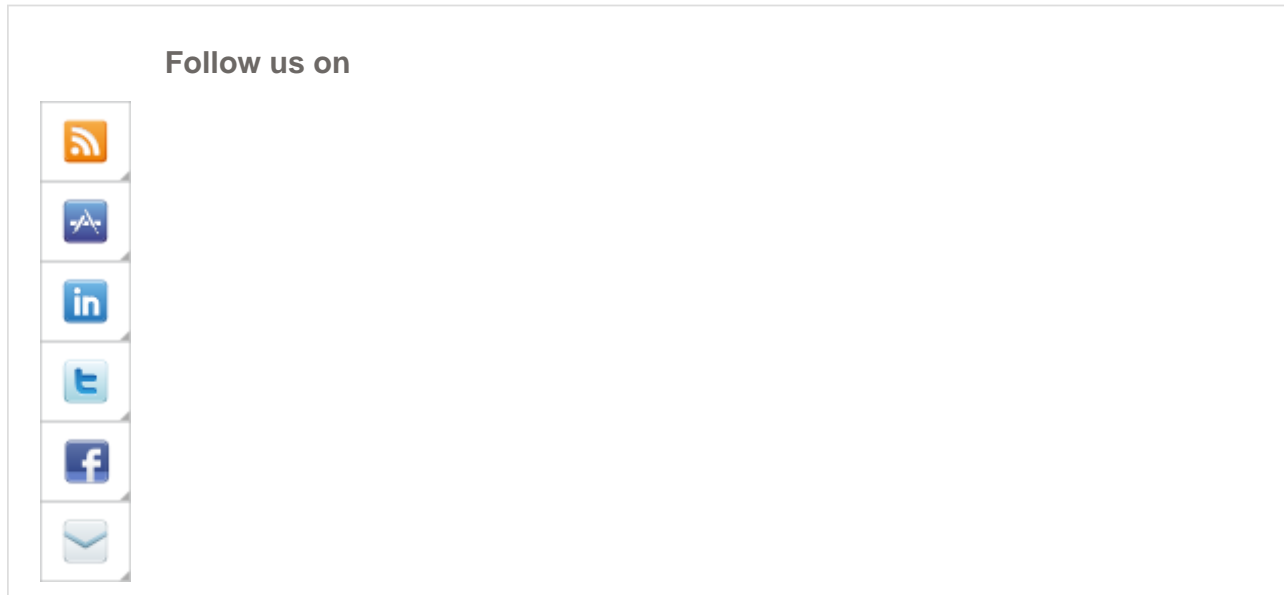
"It was something completely out of the blue for them and their investors."

The tiny devices, which can be batch-produced on a single wafer of material, are around 1.8mm at their thickest point – with 10 of the turbines able to find on a single grain of rice.

"Imagine that they can be cheaply made on the surfaces of portable electronics, so you can place them on a sleeve for your smartphone," Chiao said.

"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."

He added that the miniature windmills could also be used in larger-scale applications – for example, thousands of the micro-windmills could be mounted on the outside of a building to generate energy for lighting, security or other such uses.



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