



One Day, Your Phone Could Be Powered by 'Micro Windmills'

JOHN METCALFE JAN 14, 2014 3 COMMENTS



UT Arlington

Imagine the disappointment if you ordered a windmill and it arrived in a box the size of a pea. But such so-called "micro-windmills" possibly could be a decent source of energy, if you jammed a couple hundred onto an electronic device and held it out to the breeze.

That's the odd vision of researchers who have designed a turbine so tiny that 10 can fit on a rice grain. (It's kind of the opposite of [this guy](#).) Smitha Rao and J.-C. Chiao, both at the University of Texas at Arlington, wanted to offer a way to charge cell-phone batteries in areas where using [wind power](#) is impossible. So they built mills about 1.8 millimeters wide that theoretically can populate the sleeve of a phone. When your energy bar gets low, simply stick the device out the window at a gusty moment – or for those floating in the [coldrums](#), just windmill your own arms frantically to generate an artificial gale.

How realistic is this concept? The researchers say their turbines have survived lab tests involving fake but powerful gusts. And they don't expect labor pains by cobbling together each micro-mill by hand, as they've devised a manufacturing process to do that, [according to UT Arlington](#):

The micro-windmills can be made in an array using the 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.

They believe that such nano-mills could one day become a source of home electricity, too:

Chiao said because of the small sizes, flat panels with thousand of windmills could be made and mounted on the walls of houses or building to harvest energy for lighting, security or environmental sensing and wireless communication.

For fans of chigger-sized doodads, the micro-mill sheet is just one idea that UT Arlington has generated at the behest of a Taiwanese [micro-printing company](#). The school's researchers are also working on teensy robotics that could be used for scouring disaster areas, building legions of nano-bots, and for really delicate surgeries.

Top image courtesy of University of Texas at Arlington

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