

## UT-Arlington students invent windmill that could power smartphones

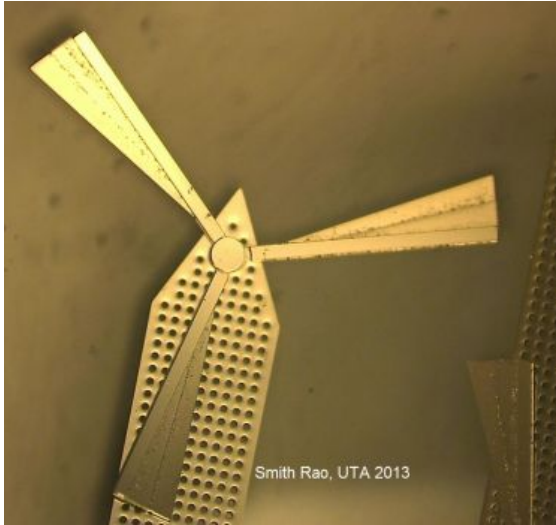
by Heather Alexander, Houston Chronicle | January 13, 2014 | Updated: January 14, 2014 10:28am

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A tiny windmill invented at the University of Texas at Arlington could end up charging future smartphones, according to researchers.

Engineering majors had been trying to figure out potential uses for a new metal alloy when graduate research associate Smitha Rao recalled her 3- year-old playing with a toy windmill.

The group suggest that thousands of windmills — 1.8 mm in diameter — could be put together in a sleeve that would cover a smartphone. That sleeve, once waved through the air, could recharge a phone's battery, according to the UTA research.

Each windmill is so small that a single grain of rice could hold 10 of them.

Electrical engineering professor J.C. Chiao said he was shocked at how well the windmills worked.

"Research is often about making mistakes," he said.

"This is really good. Smitha (the designer) had really good intuition. I'm really proud."

Chiao said he hopes the idea will be purchased by a developer, potentially raising hundreds of thousands of dollars for the university's engineering department. UTA has applied for a patent on the windmill and is seeking a commercial partner, he said.

The windmill is made of a highly strong alloy so it can withstand strong winds. Around 2,000 of them could fit on a sleeve for an iPhone and would produce enough power to charge the battery.



So far they have interest from Taiwanese Micro-electrical manufacturer WinMEMS, but are looking at other options, Chiao said.

Chiao's team has had success before with super small inventions and is currently in the middle of another negotiation involving a sensor so small it can fit into a human vein. The sensor is used to measure Ph levels in the blood.