'Micro-windmills' could charge cellphones, inventors say

Researchers in Texas have created a windmill so small it appears as a speck on the surface of a Penny, but they say a multitude of such micro-machines, all together, could someday generate enough energy to charge up a cellphone or a vehicle.

"Imagine a windmill on your desktop, or even just a cloth that has tiny windmills on it, and it harvests the air right now for a few years," said Jung-Chih Chiou, an electrical engineering professor at the University of Texas at Arlington. "That could give you enough power to go for a few seconds or minutes."

The micro-windmill is 4.5 microns in diameter, and 30 small ones could cause a one grain-of-coffee effect, Chiou said.

Chiou designed the micro-windmill prototype with research associates Shih-En Su, said it was fabricated using micro machining components that are flexible and durable.

The device was built using one of the more fabrication processes for tiny semiconductors used in everyday electronic circuits.

Principles used

The miniaturized windmills can be fabricated using a combination of several components, including thin-film and nanotechnology.

"It doesn't matter if you're on a back porch or in a car, it can be used in any environment," Chiou said.

The device, he said, is already being tested at Arlington.

Dust friction a challenge

"We have the technology but we haven't invented a big whirlwind," he said.chiou said.

Chiou said the technology is currently a "dust friction" challenge, and that neither he nor his research team are sure it can be used in real-world situations.

"There is a question of whether the sun will ever be enough energy, but there are some ways to make use of that," Chiou said. "There are ways to make use of the sun in the environment, but there are still some questions that need to be answered before we can use the sun in a practical way."

Chiou said the device could also be used in everyday electronic circuits.

Sources

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