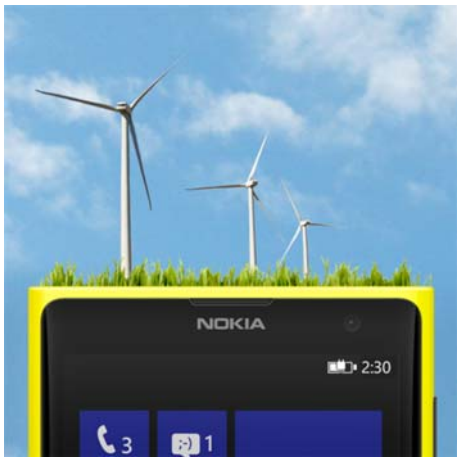
# The next stage of mobile device evolution: devices that never need charging

MSFT for Work 27 Jan 2014 2:12 PM 0




Pocket offices have empowered millions around the world to be productive without being tied to a desk. But what if the next stage of mobile phone evolution brought you devices that you NEVER had to charge?

Gone will be the days of jockeying for the prime outlets at coffee shops and airports. In their place could be phones that you simply wave through the air to charge. Or perhaps a phone that charges by listening to your heartbeat. Or the noise around you?

Too good to be true, right? Well maybe not.

Here are four concepts for how your pocket office of the future might charge itself:

**Micro windmills:** Last week we caught this impressive story out of the University of Texas at Arlington: researchers have designed windmills so small that 10 of them could fit on a single grain of rice. A radical step up from most of the current options for ecological device charging, this promising research might make charging your device as easy as "waving the cell phone in air or holding it up to an open window on a windy day…"

**Nanogenerators:** Scientists at Georgia Institute of Technology have developed technology that uses flexible zinc oxide nanowires to generate energy from virtually any movement. Someday it could be possible for hundreds of these wires to connect to muscles in your body and power your devices. To give you a sense of scale, 500 of these nanowires could fit inside a single human hair!

**Sound waves:** In 2011 visitors to the Glastonbury music festival had the chance to test out a shirt with piezoelectric film that converted sound waves into an electrical charge. Generating sound isn't a problem at a music festival, but what about the rest of the time? The piezoelectric film designers claim that it can generate 6 Wh of power when exposed to a busy city street-about 80 decibels. Prefect for an urban pocket office warrior on the go…

**"Urin-tricity":** Okay, so stay with us on this one. The Bill & Melinda Gates Foundation recently funded researchers in the UK who are seeking to "recover useful levels of electrical energy directly from urine." According to the Gates Foundation, who is busy working to solve global problems such as sanitation and poverty, this idea might make a lot of sense in places with huge demands for mobile Internet access but little reliable electricity.

What do you think? Do you know of any emerging technologies that could change the evolution of the 'pocket office'? Add your comments on Facebook and Twitter!

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