Coming Soon: Silk-Screened Batteries

by Jason Lomberg, Technical Editor

efficiency zone
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Who knew those shady vendors hawking silk-screened t-shirts at tourist traps were leading the tech revolution? Actually, that claim belongs to the Fraunhofer Research Institution [1], but who's keeping track? The German institute has developed a printable battery that is produced using a silk-screening process similar to that used in t-shirts.

Composed of different layers, including a zinc anode and a manganese cathode zinc, the P-battery produces 1.5 V. Weighing less than one gram, and less than one millimeter thick, the new battery makes the diminutive Quad A [2] seem like a giant. According to Fraunhofer's site [3], "By placing several batteries in a row, voltages of 3 V, 4.5 V, and 6 V can also be achieved." Unfortunately, the P-battery's miniscule size carries a steep price: a short life span. Says Fraunhofer, "the anode and the cathode layer

A prototype of Fraunhofer's printable batteries.

dissipate gradually during this chemical process. Therefore, the battery is suitable for applications which have a limited life span or a limited power requirement…”

For real-world application, Fraunhofer recommends greeting cards and ATM cards. The P-battery would be a natural fit for greeting cards, but bank cards are more problematic. Fraunhofer presents a hypothetical scenario where the battery could enable storage of the TAN (Transaction authentication number) in one’s bank card. The problem is that the P-battery has a limited lifespan, and most people won’t be bothered to swap it out. The obvious application is in electronic t-shirts [4] and similar devices. At least that, *ahem*, audience [5] (take note of the website I link to) would be diligent in changing the battery. Unfortunately, this is a very limited application. The last time I spotted one of these kooky shirts was at a video game music concert [6] (yes, you read that right).

Fraunhofer is aiming to mass-produce these batteries for less than 10 cents each. The P-battery should be available by the end of the year.

Do you agree? Disagree? Think my brain needs a battery change? Leave a comment below or e-mail me directly.

Note: The preceding represents the view of the editor and not necessarily ECN.

Source URL (retrieved on *09/23/2014 - 11:49pm*):
http://www.ecnmag.com/blogs/2009/07/coming-soon-silk-screened-batteries

Links:
[1] http://www.fraunhofer.de/en/about-fraunhofer/
[2] http://www.ecnmag.com/efficiency-zone-Energizer-Stays-One-Step-Ahead-by-Catering-to-Diminutive-Device-Trend.aspx?menuid=&adcode=section=effzone
[3] http://www.fraunhofer.de/en/press/research-news/2009/july/printable-batteries.jsp
[4] http://www.onlinemuseumstore.com/images/tabletennisshirt_anim.gif
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