

# Rechargeable battery essay sample



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BUSTER**

Picture a Nike (NKE) FuelBand that's just a small ring on your index finger, or a cell phone that's as slim and pliable as a credit card. Such thin, tiny or just downright unusual shapes could be created if there were batteries slim, flexible and also powerful enough to run the gadgets. The batteries, it turns out, are the main barrier to modern electronics design.

But in a small, brightly lit lab in an office park behind the Oakland Airport in Alameda, Calif., a young startup called Imprint Energy, is using research created at the University of California, Berkeley to develop just such a battery that could free gadget makers from the constraints of the standard lithium ion battery. Well, that's the plan, anyway.

Using zinc instead of lithium, along with screen-printing technology, Imprint Energy is already churning out low volumes of its ultra-thin, energy-dense, flexible, low-cost, rechargeable batteries for pilot customers. It's hard to make standard lithium ion batteries thin and flexible, explains Imprint Energy Chief Executive Officer Devin MacKenzie in an interview in the startup's lab. There's a "lot of packaging" required to seal off the highly reactive lithium in the battery from the environment, says MacKenzie. If you've ever seen YouTube (GOOG) videos of lithium batteries that catch fire in the air or water, you know why those barriers are needed.

But this architecture also makes lithium ion batteries rigid and potentially bulky. Even the slimmest laptops such as the Macbook Air (AAPL), or tablets like the iPad, face design limitations posed by the size and weight of the batteries. The Nike FuelBand uses a curved (called conformal in battery

terms) lithium polymer battery, but if you look closely at the shape of the band, the battery is the only part of the bracelet that isn't pliable.

Imprint Energy's battery tackles the problem of rigidity and bulkiness by throwing out the lithium. The company, which has a staff of 8, was founded in 2010 by Berkeley PhD students Christine Ho and Brooks Kincaid, who recently raised seed funding from Dow Chemical (DOW) and CIA fund In-Q-Tel. The company uses zinc for the anode part of the battery, combinin.