

For DARPA's next trick: Things that disappear

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Over the years we've heard about U.S. fighter jets that crashed on foreign soil and were later destroyed by another U.S. fighter jet so enemies could not get their hands on any sensitive equipment or data. As electronics get smaller and more sophisticated, they can find their way onto the battlefield in a number of ways. Many of these electronics are tiny sensors to monitor their environment and collect data from the field. Such small devices can be hard to recover, and they can possibly be obtained and used by unauthorized parties.

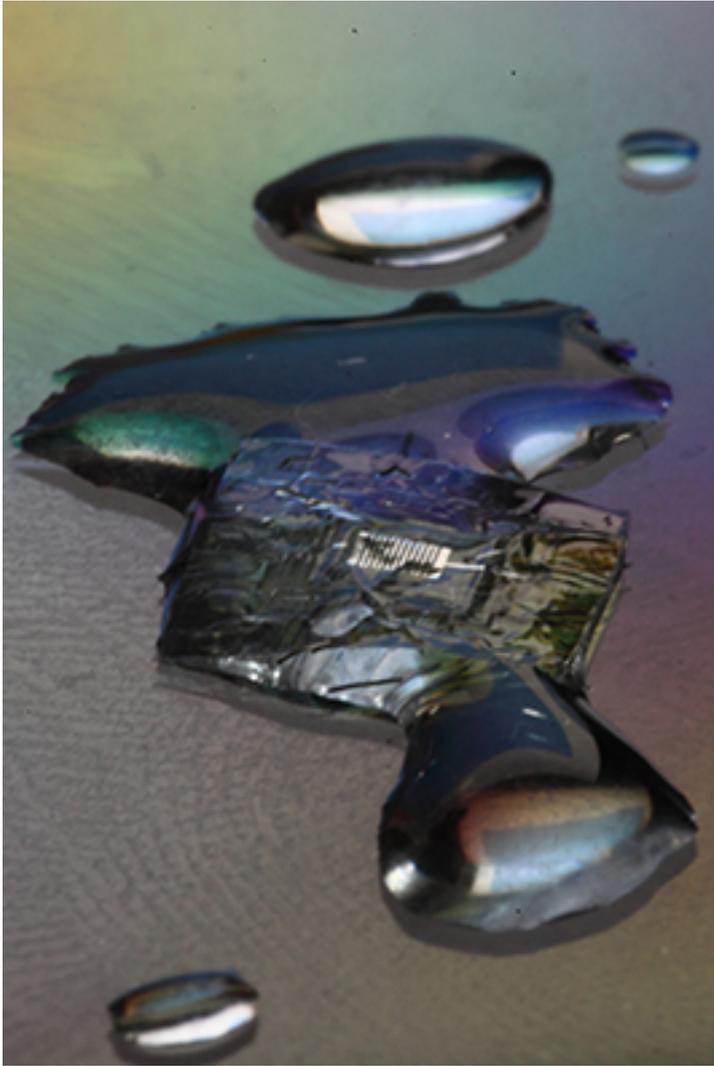
DARPA (Defense Advanced Research Projects Agency), through its Vanishing Programmable Resources (VAPR), is working on what it calls "transient" electronics that can disappear when activated remotely. The BBC recently reported that DARPA awarded a \$3.5 million contract to IBM to develop transient devices that can be destroyed by remote control. (<http://bbc.in/1egNLCx> [1]) The BBC reports an RF signal will be used to initiate the chip's disintegration into mere powder, and DARPA's grant notice (<http://1.usa.gov/1jBSbfA> [2]) states that "IBM plans is to utilize the property of strained glass substrates to shatter as the driving force to reduce attached CMOS chips into Si and SiO₂ powder." The BBC article notes DARPA's intent on developing large distributed networks of sensors that can function for a limited time before the chips destroy themselves. In addition to the obvious potential use in the field, transient electronics may also one day have medical applications.

Transient electronics present the obvious benefit of removing the need for personnel to go into rugged and hostile environments. Using RF as a trigger looks like a great step forward for this tech. Perhaps the ultimate trigger to be explored – and I'm sure it's already being researched – is shock, so the instant a jet, helicopter or explosion renders a system vulnerable, the sensors could instantly vanish along with the sensitive data.

Below is a DARPA photo of a chip dissolving into droplets.

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Links:

[1] <http://bbc.in/1egNLCx>

[2] <http://1.usa.gov/1jBSbfA>