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Do-It-Yourself RFID

By **IEEE Spectrum**

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A few years ago when Amal Graafstra first began chronicling his efforts to live in a key-free world by implanting radio-frequency identification chips in his hands [see our cover story, "Hands On"], his chip hacks generated lots of geeky Internet buzz. He compiled a book of RFID tricks, like building yourself an RFID-enabled pet door (*RFID Toys: 11 Cool Projects for Home, Office, and Entertainment*, Wiley, 2006). And then his girlfriend also agreed to get implants—RFID ones, not the other controversial kind—so they could share cars and homes and computers with keyless, passwordless abandon. Could Valentine's Day RFID specials be far behind?

Graafstra's experiments in domestic chipping are entertaining, but they point to some of the larger issues that are upon us as human RFID tagging becomes ubiquitous—first as passports, drivers' licenses, and medical bracelets, and then as implantable devices. What happens when people and their activities can be tracked and inventoried in much the way that Wal-Mart candy bars are today? Who's allowed to hack what and know what about each one of us?

That topic, the ethics of implanting chips, is the subject of "RFID Inside," by Kenneth R. Foster and Jan Jaeger, also in this issue.

Some good things are obvious—how convenient to have your medical records with you at all times, for example. But can you protect the already shredded remnants of your personal privacy from RFID?

Foster and Jaeger discuss the VeriChip, whose makers want to chip broad classes of people—soldiers, high-security personnel, guest laborers, cancer patients, and so on. But, according to Foster and Jaeger, the chip's security and its ability to authenticate that you are you can be compromised.

How quickly will widespread RFID tagging come to pass? While the technology is still costly and interoperability standards are still in limbo, the answer seems to be—soon. When we asked the IEEE Fellows about RFID technology in our survey published this past September ["Bursting Tech Bubbles Before They Balloon"], it was the one single issue on which there was the most agreement. Ninety-five percent thought RFID tags and readers would be pervasive in 20 years. Two-thirds of the Fellows said it would happen in the next 10 years.

So it seems pretty clear that these tiny chips, embedded everywhere, will change our lives. Every move, interaction, and transaction we make will potentially become data to be captured, stored, and analyzed. But by whom and for what purpose?

Some of us probably think that it's up to others to work out the privacy and policy issues. But we all need to think about what's on the near horizon so we can use RFID technology as we see fit—and not simply live with its consequences.

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IEEE RFID 2007 is the first in a series of annual conferences dedicated to the challenges presented by radio-frequency identification technologies. This year's conference will focus on wireless identification and sensing systems; technical and policy-related research; and the design, manufacture, deployment, and application of RFID systems and their supporting information systems and application infrastructures. To register, go to https://www.ieeerfid.org/2007.