

**NERD WORLD**

# Tag, You're It. They're cheap, they're tiny and they're everywhere. But are RFID chips good for humanity?

**LEV GROSSMAN**



YOU'VE PROBABLY NEVER SEEN AN RFID TAG, but chances are there's one within 10 ft. of you. An RFID tag—it stands for radio-frequency identification—is a tiny device consisting of a very small chip attached to a very small antenna. The chip is no great shakes, but it doesn't have to be; it just stores one very large number. When the RFID tag hears a particular radio signal, it responds by broadcasting back the number in its chip. That's its entire purpose in life. Some prototype RFID tags are about the size of a grain of ground pepper.

They don't do much, but that doesn't stop RFID tags from being incredibly useful, in ways that range from the mundane to the sinister. They're like bar codes on steroids, because you can read them at a distance. They're getting so cheap that manufacturers basically need a reason *not* to put them in things. Most people know RFID, if they're aware of it at all, as the technology behind cash-free highway tolls, but it goes way beyond that. Retail giants like Wal-Mart use RFID tags for inventory management, to help keep track of exactly what is precisely where in their vast tentacular supply chains—Wal-Mart announced earlier this month that it had RFID-enabled forklifts in 975 of its North American stores. RFID tags are embedded in tires. They're

in library books and credit cards and lift tickets. The military uses them to track assets in Iraq. The Venetian Casino that just opened in Macau puts an RFID tag in each one of its chips. As of Jan. 1 of this year, every U.S. passport contains an RFID tag, to make them machine-scannable and more forgery-proof. (Helpful hint: if you're worried about someone snooping on your RFID passport remotely, you can wrap it in foil, crazy-person style.)

RFID isn't new technology—its lineage can be traced back to World War II, when the Allies used a similar principle to tell friendly aircraft from foes. But RFID got a boost in the late 1990s, when two MIT professors hit on RFID tags as a way to help robots "see" the physical objects around them. That's the genius of RFID: it's a way to make the ordinary physical world of

people and objects visible to the virtual world that computers inhabit. It maps real space onto virtual space, so the two worlds can talk to each other.

Which is exciting but also a bit scary for anyone who doesn't want to be mapped. For RFID tags are just as useful for tracking living organisms as they are for tracking library books. Vets have been implanting RFID chips in pets for years, and there's a NASDAQ-traded company called VeriChip that manufactures RFID chips specifically for use in human beings, the idea being that the chips would provide a quick and reliable way to store and retrieve emergency medical information; VeriChip is also marketed in South America as a way to track kidnap victims. But it's not hard to imagine more Orwellian scenarios, in which prison inmates or even immigrants would be tagged with RFID implants to make it easier for the government to monitor them. Bizarre as it sounds, these ideas have been floated seriously enough that earlier this month Governor Arnold Schwarzenegger—possibly flashing back to the tracking implant he had in his nose in *Total Recall*—formally banned the forced implantation of RFID tags in humans in the state of California.

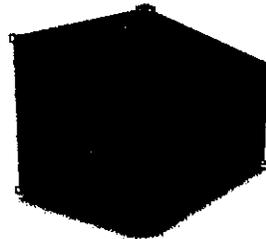
The cheaper RFID tags get, the more ubiquitous they'll become. But personally I envision a slightly more benign future, one in which the trend of human-implantable RFID tags merges with the online social-networking craze. What if all the information in your Facebook profile were tucked snugly into a tiny RFID-like chip embedded, say, in the ball of your thumb? Your RFID-enabled cell phone could beep every time you walked past somebody two degrees of separation or less from you or who had the same favorite novel you do or who liked to play Scrabble and wasn't doing anything later. Nightmare or utopia? You decide. And invest in RFID—or aluminum foil—accordingly. ■

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The new U.S. e-Passport is easier to scan and tougher to forge

**Pets**  
Implanted chips help keep track of stray animals



**Containers**  
RFID monitors the movement of shipping containers



**Books**  
Librarians use RFID to locate lost and misplaced volumes



**Tires**  
Embedding RFID tags in tires allows makers to find them in case of recalls



**Credit cards**  
You can buy without swiping—but there are security risks

**Humans**  
In people, RFID chips could be used to store medical records



RFID TAG: CARY WOLINSKY—AURORA; ALL OTHERS: ISTOCK PHOTO