

Microchips Everywhere

A Future Vision

By Todd Lewan, AP National Writer
Jan. 29, 2008

Here's a vision of the not-so-distant future: Microchips with antennas will be embedded in virtually everything you buy, wear, drive and read, allowing retailers and law enforcement to track consumer items—and, by extension, consumers—wherever they go, from a distance. A seamless, global network of electronic “sniffers” will scan radio tags in myriad public settings, identifying people and their tastes instantly so that customized ads, “live spam,” may be beamed at them. In “Smart Homes,” sensors built into walls, floors and appliances will inventory possessions, record eating habits, monitor medicine cabinets—all the while, silently reporting data to marketers eager for a peek into the occupants’ private lives.

Already, microchips are turning up in some computer printers, car keys and tires, on shampoo bottles and department store clothing tags. Companies say the RFID tags improve supply-chain efficiency, cut theft, and guarantee that brand-name products are authentic, not counterfeit. At a store, RFID doorways could scan your purchases automatically as you leave, eliminating tedious checkouts.

At home, convenience is a selling point: RFID-enabled refrigerators could warn about expired milk, generate weekly shopping lists, even send sig-

*It will be “difficult
to know who is
gathering what data,
who has access to it,
what is being done
with it, and who
should be held
responsible for it.”*

nals to your interactive TV, so that you see “personalized” commercials for foods you have a history of buying. Sniffers in your microwave might read a chip-equipped TV dinner and cook it without instruction.

The problem, critics say, is that microchipped products might very well do a whole lot more. With tags in so many objects, relaying information to databases that can be linked to credit and bank cards, almost no aspect of life may soon be safe from the prying eyes of corporations and governments, says Mark Rasch, former head of the

computer-crime unit of the U.S. Justice Department.

He imagines a time when anyone from police to identity thieves to stalkers might scan locked car trunks, garages or home offices from a distance. “The data is going to be used in unintended ways by third parties—not just the government, but private investigators, marketers, lawyers building a case against you . . .”

Even some industry proponents recognize risks. Elliott Maxwell, a research fellow at Pennsylvania State University who serves as a policy adviser to EPC global, the industry’s standard-setting group, says data broadcast by microchips can easily be intercepted, and misused, by high-tech thieves. As RFID goes mainstream and the range of readers increases, it will be “difficult to know who is gathering what data, who has access to it, what is being done with it, and who should be held responsible for it,” Maxwell wrote in *RFID Journal*, an industry publication.

The recent growth of the RFID industry has been staggering: From 1955 to 2005, cumulative sales of radio tags totaled 2.4 billion; last year alone, 2.24 billion

continues on next page

THE SEATTLE TIMES

Microchips Everywhere

continued from previous page

tags were sold worldwide, and analysts project that by 2017 cumulative sales will top 1 trillion.

Privacy concerns, some RFID supporters say, are overblown. Mark Roberti, editor of *RFID Journal*, says the notion that businesses would conspire to create high-resolution portraits of people is "simply silly." Corporations know Americans are sensitive about their privacy, he says, and are careful not to alienate consumers by violating it. Besides, "all companies keep their customer data close to the vest. There's absolutely no value in sharing it. Zero."

But industry documents suggest a different line of thinking, privacy experts say.

A 2005 patent application by American Express describes how RFID-embedded objects carried by shoppers could emit "identification signals" when queried by electronic "consumer trackers." The system could identify people, record their movements, and send them video ads that might offer "incentives." RFID readers could be placed in public venues, including "a common area of a school, shopping center, bus station or other place of public accommodation," according to the application.

In 2006, IBM received patent approval for an invention it called, "Identification and tracking of persons using RFID-tagged items." One stated purpose: To collect information about people

The documents "raise the hair on the back of your neck. The industry has long promised it would never use this technology to track people. But these patent records clearly suggest otherwise."

that could be "used to monitor the movement of the person through the store or other areas."

But as the patent makes clear, IBM's invention could work in other public places, "such as shopping malls, airports, train stations, bus stations, elevators, trains, airplanes, restrooms, sports arenas, libraries, theaters, museums, etc." (RFID could even help "follow a particular

crime suspect through public areas.")

The documents "raise the hair on the back of your neck," says Liz McIntyre, co-author of *Spychips*, a book that is critical of the industry. "The industry has long promised it would never use this technology to track people. But these patent records clearly suggest otherwise."

Corporations take issue with that, saying that patent filings shouldn't be used to predict a company's actions.

So, how long will it be before you find an RFID tag in your underwear? The industry isn't saying, but some analysts speculate that within a decade tag costs may dip below a penny, the threshold at which nearly everything could be chipped.

In the United States, RFID is not federally regulated. And while bar codes identify product categories, radio tags carry unique serial numbers that—when purchased with a credit card, frequent shopper card or contactless card—can be linked to specific shoppers. And, unlike bar codes, RFID tags can be read through almost anything except metal and water, without the holder's knowledge.

Scientists Successfully Clone Cat

David Braun, February 14, 2002

Scientists in Texas have successfully cloned a cat, opening the way to replicating pets and other valued animals once the technique is perfected. The work was funded in part by a company that hopes to use the technology to provide commercial cloning of companion animals for pet owners.



Cloned kitty, "CC"

The kitten, called CC (the old typist's abbreviation for carbon copy) and now almost two months old, appears healthy and energetic, although she is completely unlike her tabby surrogate mother, Mark Westhusin and colleagues at Texas A&M University, College Station, announced in the February 21 issue of *Nature*.

The cat was cloned by transplanting DNA from Rainbow, a female three-colored (tortoiseshell or calico) cat, into an egg cell whose nucleus had been removed, and then implanting this embryo into Allie, the surrogate mother.

"CC's coat color suggests that she is a clone, and a genetic match between CC and the donor mother confirms this," the researchers say.

She is not, however, identical to her DNA donor. The reason for this is that the pattern on cats' coats is only partly genetically determined—it also depends on other factors during development.

Out of 87 implanted cloned embryos, CC is the only one to survive—comparable to the success rate in sheep, mice, cows, goats, and pigs, the scientists say. "If these odds can be improved and CC remains in good health, pet cloning may one day be feasible," the scientists reported.

How They Did It

In their first attempt, researchers obtained the cells used to make the clone from the skin cells of a "donor" cat. But it didn't work. "We did

188 nuclear-transfer procedures, which resulted in 82 cloned embryos that were transferred into seven recipient females," the scientists said. Only one cat became pregnant, with a single embryo. But this pregnancy miscarried.

In the next attempt, the scientists used cells from ovarian tissue to receive the DNA from the cat to be cloned. Five cloned

embryos made in this way were implanted into a single surrogate mother. Pregnancy was confirmed by ultrasound after 22 days and a kitten was delivered by C-section on December 22, 2001, 66 days after the embryo was transferred.

Endangered Species Could Benefit

The Audubon Nature Institute welcomed the research. "Now we can take this technology and apply it for the preservation of endangered species," said their spokesman. "It proves that cloning can be applied not only to livestock but also to companion animals. Ultimately it will also be used for endangered species."

Humane Society Opposes Cloning

The Humane Society of the United States is opposed to the concept of cloning pets. "In the first place it is dangerous for the animals involved," said Brian Sodergren, who monitors the exploitation and abuse of companion animals for the society. "Take the cat that was cloned: The sheer amount of embryos it took is quite mind boggling."

"Secondly, cloning adds needlessly to the overpopulation of pets in the United States. There are millions of dogs and cats in shelters waiting to be adopted, looking for responsible owners and loving homes. About half of them will be euthanized because there are not enough homes for them."

U.S. Constitution's Privacy Provisions

- **The First Amendment** provides that Congress make no law respecting an establishment of religion or prohibiting its free exercise. It protects freedom of speech, the press, assembly, and the right to petition the government for a redress of grievances.
- **The Third Amendment** prohibits the government from quartering troops in private homes, a major grievance during the American Revolution.
- **The Fourth Amendment** protects citizens from unreasonable search and seizure. The government may not conduct any searches without a warrant, and such warrants must be issued by a judge and based on probable cause.
- **The Ninth Amendment** states that the list of rights enumerated in the Constitution is not exhaustive, and that the people retain all rights not enumerated.