

Running Head: The Microchip

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Radio Frequency Identification (RFID)

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Introduction

Remember the movie called “Demolition Man” that came out in 1993. The lead stars of the movie were Sylvester Stallone, Wesley Snipes, and Sandra Bullock. For those of you that may have not watched it, this was a fiction type movie about what the future might be like concerning a New World Order. Everywhere you went you were watched. Life was so controlled that if you even said a bad word you were automatically ticketed. If you said two bad words, the police came to arrest you. In this movie there was a group of people who refused to live like this, in turn, they had no access to normal things in life such as food and so on. They lived underground and came out at night to steal what they needed to survive. I’m sure you will agree that this would be a terrible way to live life.

Now I want you to imagine a world where there was no more privacy. A world where your every purchase was recorded in a database and your every belonging was numbered. Now imagine that someone many states away or in another country had a record of everything you ever bought, everything you ever owned, every item of clothing in your closet. Imagine a world where even people were numbered and tracked at a distance.

Sounds really futuristic, doesn’t it? If I told you that there was a technology in today’s world based on a tracking system that is growing in sophistication as we speak, would you be concerned as to where it will be say ten years from now? There is a technology of such and it is called Radio Frequency Identification (RFID).

RFID is a rapidly spreading technology based on a tracking system, which raises concerns of privacy infringement and creates fear of a surveillance society. These concerns need to be addressed quickly.

Radio Frequency Identification (RFID) is an automatic identification method, relying on storing and remotely retrieving data using devices called RFID tags or transponders. An RFID tag is an object that can be attached to or incorporated into a product, animal, or person for the purpose of identification using radio waves. This tag transmits the identity and other properties of anything to which it is attached to a reader via radio frequency signals, allowing further information to be accessed in a computer database.

A Radio-Frequency Identification system has three parts:

- A scanning antenna
- A transceiver with a decoder to interpret the data
- A transponder - the RFID tag - that has been programmed with information.

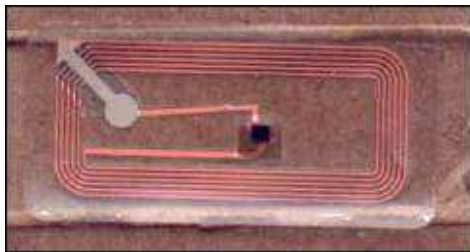
The scanning antenna puts out radio-frequency signals in a relatively short range. The RF radiation does two things:

- It provides a means of communicating with the transponder (the RFID tag) AND
- It provides the RFID tag with the energy to communicate (in the case of passive RFID tags).

RFID tags are tiny, cheap, and all around you. With the use of RFID technology, the surveillance of the surrounding world is more easily accomplished than ever before.

There are many current uses for RFID. Companies of all sorts, including clothing stores, libraries, and so on are jumping on this new technology, to track inventory. One particular company, Marks & Spencer, have extended the use of RFID chips in their stores. Marks & Spencer claim that this particular technology will help them stay accurate with inventory. They state that the chip will be placed in the removable price tags on their clothing. Wal-Mart is also taking advantage of this technology. I don't know about you, but he thought of my whereabouts being tracked through my underwear makes my skin crawl.

Consumer Products



Shown at left is a magnified image of actual tag found in Gillette Mach3 razor blades.

Note: The chip appears as the tiny black square component. The coil of wires surrounding the chip is the antenna, which transmits information to a reader device, which can be located anywhere!

Electronic Toll Collection



Many ETC systems use transponders like this one to electronically debit the accounts of registered cars without their stopping

The transponder, once attached to your windshield, transmits a radio signal to sensors mounted in the toll lanes. As you drive through the lanes, the proper toll amount is deducted from your Prepaid Account.

Remote Keyless Vehicle Entry



Remote keyless entry (RKE) systems allow a user to lock and unlock the car using a transmitter on the keychain, which transmits data to a receiver in the vehicle. Some of these systems even allow you to start your car by pushing a button. Each car has a unique identification number that is sent from transmitter to the receiver inside the car. In other words, your transmitter will not unlock the doors of your friend's car. Only yours.

Passports

On August 14, 2006 the Department of State began issuing Electronic Passports (e-passports) to the public. This next generation of the U.S. passport includes biometric technology. The proposed U.S. Electronic Passport is the same as a regular passport with the addition of a small contactless **integrated circuit** (computer chip) embedded in the back cover. The chip will securely store the same data visually displayed on the photo page of the passport, and will additionally include a digital photograph. The inclusion of the digital photograph will enable biometric comparison, through the use of facial recognition technology at international borders.

A recent vote in Congress endorsing standardized, electronically readable driver's licenses has raised fears about whether the proposal would usher in what amounts to a national ID card.

Inmate Tracking

The RFID tagging is being used in some US prisons to keep track of inmates. The tiny chip is placed in a wristband and worn by the inmates. This keeps them from trying to escape along with recording their whereabouts in the prison. This particular RFID enabled wristband will send off an alarm if the inmate tries to remove it.

Electronic Cash

RFID enabled cards, such as SmartCards, are being used for electronic cash. While some of these uses sound good, they come with a price.

Animal Tracking

Implantable RFID tagging has been used in animals since the 1960s to track livestock and other animals. For example, a cow can be traced from birth to consumption. This also helps meat packing companies who have to condemn a carcass because of disease. If one cow is infected, maybe others from the herd are as well. The packing company can track a cow back to its original owner, due to the information stored on the RFID chip. Pet owners are using RFID tags in identifying their pets, which increases the likelihood of the pet being returned if it gets lost. According to Verichip Corp., more than one million pets in the United States and greater than ten million in Europe are protected by implantable identification devices. Success in animal applications has led to the idea of implanting RFID tags in humans. Miracle or Mark of the Beast? You decide!

Revelations

"And he causeth all, both small and great, rich and poor, free and bond, to receive a mark in their right hand, or in their foreheads: And that no man might buy or sell, save he that had the mark, or the name of the beast, or the number of his name." (Rev. 13:16, 17)

Human Implants

In 2004 the U.S. Food and Drug Administration approved an RFID tag for humans called Verichip, which allows health care workers to access a person's medical history in the event the person could not communicate. The Verichip is unpowered and only transmits its unique 16-digit identification number when interrogated by the special scanner. The encrypted number is transmitted via the Internet to the secure database. Previously stored medical information on the patient is then relayed to authorized onsite medical professionals.

Alzheimer's Patients

This past summer, VeriChip Corporation, a subsidiary of Applied Digital Solutions, located in Delray Beach, FL funded a large pilot program involving hundreds of human patients at the Alzheimer's Community Care agency in West Palm Beach, Florida. VeriChip Corporation wants to market its tags to the roughly 45 million high-risk patients in the U.S. with diseases such as Alzheimer's, diabetes, cancer and heart disease. As of October 18 2007, 2,000 people worldwide have voluntarily had the VeriChip tag implanted into their upper right arms, among them patients with chronic or debilitating disease — as well as VIP patrons of a Barcelona nightclub and investigators requiring special access to confidential drug-trafficking case files at the Ministry of Justice in Mexico. Over the next two years, VeriChip and Alzheimer's Community Care plans to inject 110 patients with dementia or Alzheimer's with the chip as well. But VeriChip came under fire in September — shortly after the first 90 or so Alzheimer's patients received its chips in Florida — after an AP report unearthed studies suggesting the chips may cause cancer in laboratory animals. Bioethicists argue that existing safeguards to protect Alzheimer's patients, among others, are being exploited for the sake of research studies and commercial gain.

Employee Requirement

In 2006 a Cincinnati video surveillance company titled CityWatcher required that any employee who works in its secure data center must be implanted with the VeriChip, which has been proven to have security flaws. CityWatcher is the company that provides video surveillance throughout the streets of Cincinnati. When news of this got out, it fired up a debate over the production of ever-more-precise tracking technologies and their ability to erode privacy in the digital age.

Last month, California Governor, Arnold Schwarzenegger signed a bill that bars California employers and others from forcing people to have RFID devices implanted under their skin. This bill will go into effect as of January 1. Wisconsin and North Dakota have enacted similar laws.

My Greatest Concern

My greatest concern, and it should be yours as well, is that RFID "chipping" will be put to uses to which an individual does not wish to submit and that the procedure will cease to be voluntary, forcing citizens to surrender to its intrusion without the capability to make an informed choice. Considering recent moves by the government, such as the intended imposition of a national identification card for every US citizen, the eventual use of RFID in such applications is a real possibility. Where should the line be drawn for what is and is not acceptable usage?

Are We Protected?

Radio Frequency Identification is a new technology based on a tracking system that is rapidly spreading. This new technology is definitely amazing, but how is our individual privacy protected? This is the question amongst many Americans. Radio frequency identification is definitely a controversial issue. Many people are worried about their privacy along with the risk of identity theft. As long as computers have been around someone has found a way to crack, hack, and steal information. Why should this case be any different? Can we protect ourselves against RFID interception?