

Wild Ride

Imagine this: You enter the gates at Disney World with a wave of your wrist, and with that same wave you can book guaranteed ride times for your favorite attractions and shows, reserve parade and fireworks viewing spots, purchase food and merchandise, and even unlock the door to your hotel room. All that convenience without the wait—and also without keys, money, or credit cards ever changing hands.

This idea is far from imaginary. In fact, the Disney MagicBand bracelet, complete with built-in radio frequency identification (RFID) technology, is a technological initiative that was announced earlier this year, with rollout expected in the coming months.

Though not yet a reality, this same RFID technology could also allow you to walk into a grocery store, place several items in your coat pockets, and casually walk out of the store, not stopping by a check-out lane to pay. And the security guard won't stop you either.

That's because you wouldn't be shoplifting. You would have paid for your groceries through an RFID reader that, when you walked past it, read every item in your possession, read your credit card, and charged your card.

"That might seem like science fiction right now," says Fataneh Taghaboni-Dutta, "but that future is not so far away. I think in five or six years we'll see this."

Taghaboni-Dutta, a clinical professor of business administration, has a keen interest in RFID and its impact on the supply chain. Simply put, RFID uses radio waves to identify people and objects carrying encoded microchips, and its uses and applications are nearly endless.

For example, RFID is used in passports to track travel and cut down on people gaining access to countries by fraudulent means; in

hospitals to track patients and medicines and improve the accuracy of care; in vehicles using E-Z Pass programs for toll roads; in warehouses and refrigerated trucks to alert employees when temperatures are too high or too low; in pets to find them when they are lost; and in retail stores to track inventory.

And that, Taghaboni-Dutta assures, is just the tip of the iceberg. "RFID is everywhere," she says. "It has exploded."

And the market for RFID transmitters, readers, software, and services is expected to continue its healthy growth. From 2012 to 2017 forecasters predict it will generate

\$70.5 billion, reflecting an annual growth rate of 17 percent.

THE BLOSSOMING OF RFID

RFID was first used in the 1960s by the military to track vehicles and shipments, but it came into widespread use after two events: 9/11, when the Department of Defense wanted to improve the tracking of shipments that came into the country, and in 2003, when Walmart demanded that its top 100 suppliers tag their boxes. "This greatly reduced Walmart's cost of their supply chain," Taghaboni-Dutta says.

"RFID allows you to know exactly what you have in your store at all

times," she continues. "One of the biggest costs is managing your inventory to have the right amount of the right item at the right time." RFID is one technology that could help companies achieve that, she says.

And it can both save you money and help you sell more products.

"If I come to your store three days before Christmas and you don't have an item, I might leave," she explains. "But if you can tell me it's in the truck and you know exactly where the truck is and when it will get here, then I might come back."

The rest of the savings, she adds, is logistics. "How does it come to me, how do I order, how much do I order, when do I order, all of that inventory information is much better made if I have real, timely data. RFID enables that. And the savings are huge."

How huge? Some have predicted that Walmart can save more than \$8 billion per year by using RFID technology in its supply chain.

CONCERNS ABOUT RFID USAGE

But not everyone is happy that RFID is in such widespread use. Many are uncomfortable with the Big Brother-type of surveillance and control that RFID can be used for.

For example, some states require "enhanced driver's licenses" that use RFID chips in them. One use of the chips is to allow officers to scan an entire vehicle from up to 30 feet away to identify the occupants—

particularly useful in border situations. But because of the privacy issues this raises, many states have shied away from such a law.

In fact, many citizens have raised concerns about RFID privacy issues, both personal and commercial.

"Businesses are concerned about industrial espionage," Taghaboni-Dutta says. "They are worried a competitor will hack into their RFID and glean proprietary information."

To that end, she says, researchers are "constantly working on programming tags so the tags can only respond to interrogating in a certain way. In lay terms, they are building firewalls to determine what is a legitimate reader and what is not a legitimate reader."

Because the technology is ever evolving, some people will find exposed areas of weakness, Taghaboni-Dutta says, prompting others to provide innovations to overcome those weaknesses.

In the meantime, discussions about the concerns surrounding RFID come and go, Taghaboni-Dutta says. "People get used to the idea and the conveniences it brings and they forget about the privacy issues," she says.

"But one thing is for sure: RFID is here to stay. And we're only bound by our imagination in how we can use it." ●

Tom Hanlon



"RFID is here to stay. And we're only bound by our imagination in how we can use it."

Fataneh Taghaboni-Dutta

RFID BASICS

- An RFID tag can be as small as a grain of sand. They can be embedded in paper, sewn in the seams of clothing, or placed just about anywhere else. They can be washed.
- RFID tags store a unique serial number and other data that can be read by readers anywhere from a few to a hundred meters away. Tags can be passive, meaning they must be activated by a transmitter signal; or they can be active, meaning they are battery-powered and have both reading and writing capabilities.
- Passive tags are cheaper and smaller. Such tags are used in pets and in retail items. Active tags are used for E-Z Pass systems, for truck refrigeration systems, and warehouses.
- Tags can be read whether they are covered or not, and hundreds of tags can be read at once.