Special Issue - Radio Frequency Identification

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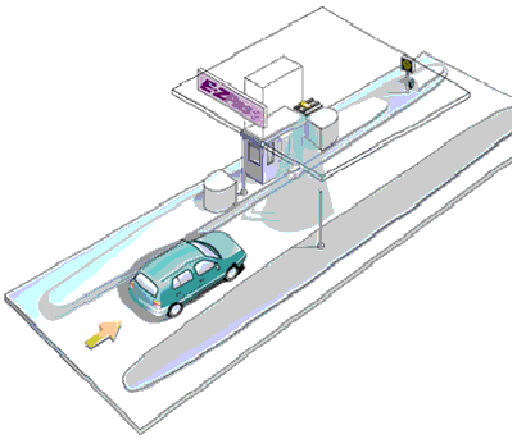
RFID: Strange four letter word?

By Lisa Rosenberger

RFID actually does represent something; it stands for Radio Frequency Identification. They are intelligent bar codes that can talk to a networked system to track the flow of a product. They were once limited to tracking cattle, soon they will track millions of products through the supply chain. RFID technology relies on both hardware and software in order to function. RFID uses electronic tags, wireless readers and databases to capture information.

Imagine this, you are walking through the grocery store, picking up items and placing them into your shopping cart and then after you are done, you walk right out the door. No waiting in lines; this doesn't seem possible right? Well soon it will be. RFID technology allows for electronic tags to be placed on products so when you leave the store the electronic tag will send data to the wireless reader and update the databases that hold all the product information. Once this happens your bank account will automatically deduct the price of all the goods.



Inside this issue:

RFID Tracking Party

By David Penz

The San Francisco Museum of Modern Art hosted a party on October 27, 2005 to demonstrate the tracking abilities of RFID. Partygoers were given RFID tags to place on their clothing. Several RFID readers made by Alien Technology were installed at various places in the room and used to track the movements and current locations of attendees of the party. People were given colors based on where they spent the most time in the party. Those that spent the most time at the bar were green, while people that danced a lot were red. A Java program then took the output of the RFID readers and generated a graph of how each person moved around the party. This graph was displayed on a large screen and updated every minute for all to see. This party made a statement not only of the power of the tracking abilities of RFID technologies, but also of the privacy implications of it.

Cost-effective RFID Tagging

By Andrei Migia

RFID Technology for supply chain management is usually associated with high equipment and implementation costs and unreliable tracking.

The Zebra R2844-Z RFID printer/encoder is a product designed to change that view. The product is a low volume desktop barcode printer which can use RFID Smart Label to encode additional data with the tag. The cost of the printer/encoder is $3800 from authorized Zebra distributors.

This printer / encoder is a great solution for small companies with advanced tracking needs. The concept of the product also enables redundancy of basic data to identify the box or item labeled in case the RFID tag loses its data.

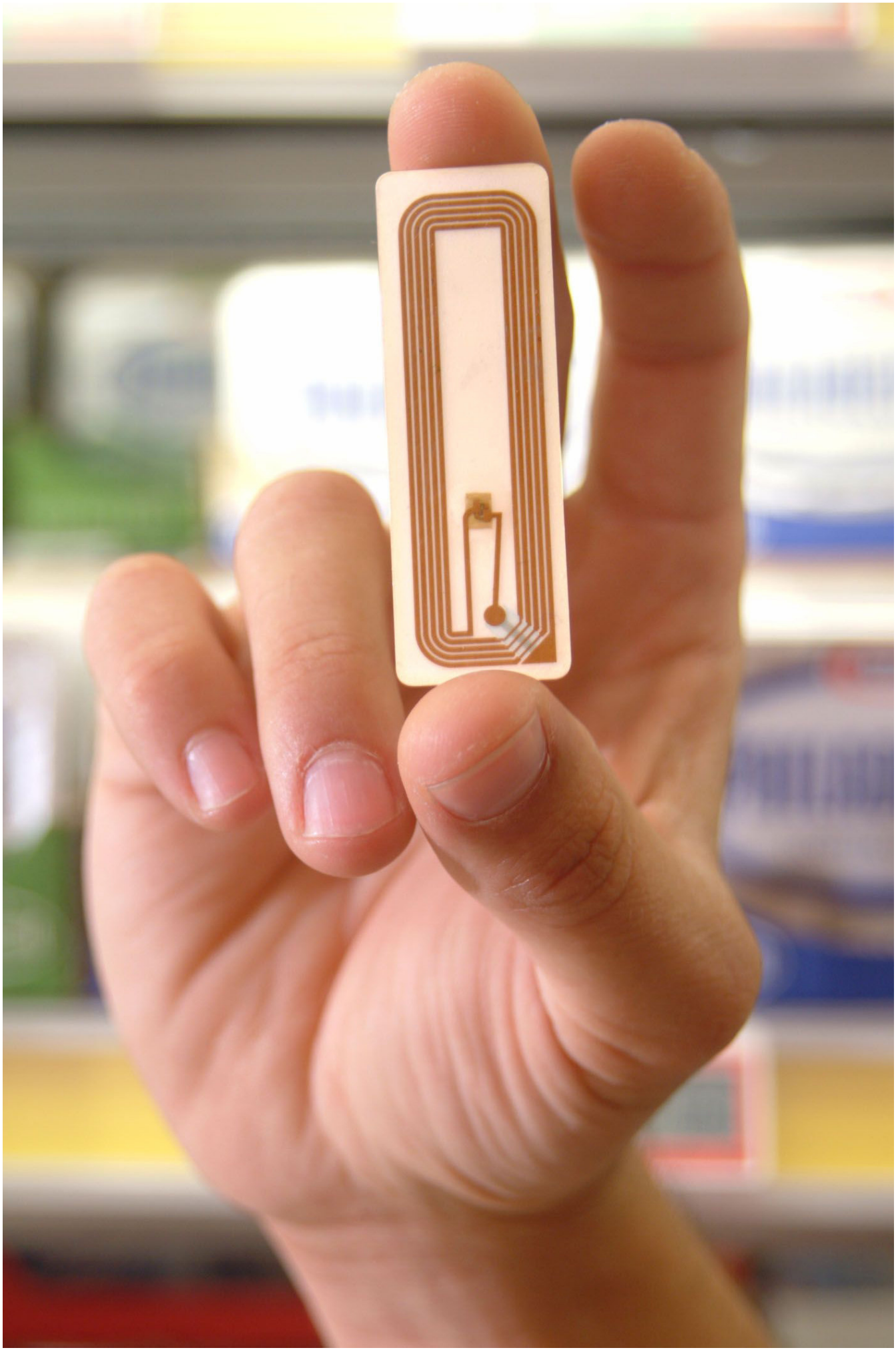
The main advantage of this device is that in case the company deems RFID as not feasible for the firm they can still use it as a barcode printer.

The only other increased cost associated with using this system is the increase in label costs. Each RFID SmartLabel costs between 16 and 25 cents, depending on the quantity ordered, with a minimum order of 25,000 units.

Zebra Technologies also offers label print engines with much higher printing speeds for higher volume applications, such as shipment labeling and tracking from manufacturers through the supply chain.

More information about RFID printer/encoders from Zebra Technologies at:

http://www.zebra.com



Featured Product: MyKey 2300 RFID Door Lock

By David Penz

The MyKey 2300 is an RFID enabled digital door lock that provides an interesting alternative to standard mechanical locking systems. With MyKey 2300, instead of turning a key to unlock your door, you can simply tap an RFID card or keyfob to its reader button. An RFID reader in the door lock receives radio frequency from the keycard or keyfob, authenticates the signal, and unlocks the door.

One great advantage of MyKey 2300 is that you will never need to call a locksmith to change your lock or open your door! If you forget your keycard or keyfob you can use a hidden number pad to type in your PIN number to unlock the door. If one of your keycards is lost or stolen, you can change your PIN number and reprogram your keycards so that the missing keycards will no longer open the door.

The lock is also highly secure. Since it uses no keyholes, the lock cannot be picked. It also has a night deadbolt function which disables all external functions while you sleep. Also, if the door is forcefully opened, an alarm will sound.

MyKey 2300 can operate on AA batteries roughly a year. However, if the batteries do die or fail, you can connect a 9v battery to a hidden contact from the outside, allowing you to get in your house and change the batteries.

MyKey 2300 costs $299, and can be found at www.mykey2300.com

What Retailers Are Doing

By Lisa Rosenberger

RFID technology sounds like it is the latest technology but some retailers have already implemented RFIDs. Some other retailers are on the way towards the initiative.
Here is a list of retailers that have implemented RFID technology:

Albertsons is a food and drug retailer. They have implemented a case and pallet level RFID in Texas and they are pilot tagging a small group of suppliers.
Metro Future Store gathers companies from the retailing, consumer goods and information technology industries to elaborate solutions for tomorrow's retailing. The have implemented a case and pallet level tagging, and they are extending RFID implementation to other stores and suppliers.
Tesco is the largest grocery home shopping service in the world. They also sell books, DVDs, CDs, wine, electrical goods, flowers and much more. They have implemented item-level tagging of DVDs and doing DVD tracking in two stores with future plans to include eight more stores.
Wal-Mart is the world's largest retailer. They have implemented RFIDs in 104 Wal-Mart stores, 36 Sam's Clubs, and 3 distribution centers in Texas. They are currently working with first group of mandated suppliers.

Here is a list of retailers that are taking the initiative towards implementing RFID technology:

Marks & Spencer have started tagging men's suits in nine stores and they are mandating suppliers to tag items. They are starting a trial to expand up to 53 stores and other clothing departments in 2006.
Target has started case and pallet level tagging in Texas. They are working with small group of suppliers prior to the 2007 rollout.
Best Buy started case and pallet level RFID. They are pilot tagging with major suppliers next year, and they plan to rollout in 2007.

The concept of store-wide tagging of all products is still a decade or more away since the economics forbid such a tagging initiative. The bottom line is that, even though RFID is not delivering sound ROI to retailers, it has both long-term strategic value and some untapped uses that could improve the existing ROI case.

EZ-Pass

By Andrei Migia

EZ-Pass is one of the oldest applications of RFID in the public sector.

EZ-Pass is a widely used highway toll collection system based on RFID tags. The EZ-Pass system consists of specially equipped toll booths with RFID scanners. Since February of 1997 it has covered all of the NYS Thruway. By 2002 there were over 6 million EZ-Pass tags issued by 2002. This is the most popular use of RFID for end consumers. Consumers come in contact with RFID tags at large retailers such as Walmart. Walmart's tags are used for supply chain management, not directly for the consumer's benefit.

A similar implementation is Exxon-Mobil's SpeedPass that allows customers to link their credit card to the SpeedPass RFID token to pay for gas and any purchases at member gas stations.

Start Small, Think Big

By Lisa Rosenberger

"Start Small, Think Big" is a practical approach to RFID adoption says business developer, Liz Roth from Stratum Global in an interview that was conducted on Monday, October 17, 2005. The purpose of the interview was to find out more information on Radio Frequency Identification (RFID).

Stratum Global is a software solutions company and systems integrator that develops and markets RFID solutions for various platforms and Applications. They focus on small and medium sized manufacturers and suppliers.

According to Liz Roth, the company that wants to implement RFIDs first needs to understand how the business operates and what the current challenges are. One scenario is that the company is being mandated to implement RFIDs, but if the company is looking to improve the business then there is another scenario involving a depth analysis on what RFID can do for the company. Secondly, the company has to have a vision of where they want to be and understand what is possible with RFID deployment across the enterprise. After the company has a vision it is then up to the company to identify small pilots where they can learn what RFID can provide and what its limitations are. Liz stressed the fact that the company should not implement RFIDs all at once; they should focus on small areas and gradually work up.

Liz Roth said one advantage of using RFIDs is that it is systematic, and it removes humans from the process. This reduces labor and increases productivity by using a standard continual process. The company that wants to implement this can configure it to a specific environment; they can even make it mobile by applying it to such things as a fork lift. One disadvantage of using RFIDs is the volatility of the tags; they can get damaged easily and not function. Planning is the critical component to the implementation of RFIDs. The success of implementing RFID tags relies on good planning, understanding the company's operating environment, and identifying the problems first in order to figure out the best solution.

The History of RFID

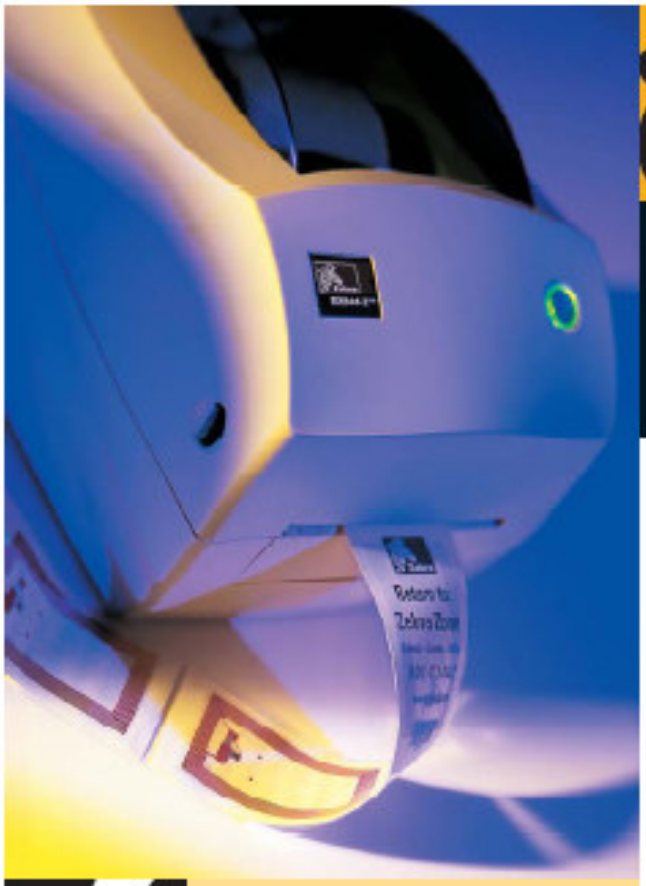
By David Penz

The roots of Radio Frequency Identification (RFID) can be traced to the advancements of radar and radio broadcasting technologies. Both of these technologies involved the manipulation of radio waves, and the use of radio waves to track movement of objects. The use of radar was refined and used during WWII.

The developments in radar and radio broadcasting led to the formation of the idea of RFID. In 1948 Harry Stockman wrote a paper entitled *"Communication by Means of Reflected Power."* This paper is considered one of the first explorations of RFID technologies.

During the 1960s and 1970s actual RFID related inventions began to be developed. During this time rudimentary commercial applications of RFID were explored. During the 1980s full implementations of RFID were developed. Commercial applications of RFID to electronic toll systems began to be tested and used. Widespread use of RFID in electronic tolls systems began in the 1990s. During the 1990s RFID technologies were used to track and manage such issues as parking lot access and fare collection, gated community access, and campus access. In the 1990s RFID tags that used only a single integrated circuit were also developed.

Currently, cheaply manufactured RFID tags are being used in many different situations. One of the major applications of RFID has been to track and manage inventory. However, RFID technologies and their usages are still being explored. In the future we will be sure to see many new uses of RFID and much advancement in its technologies.



Zebra® R2844-Z™

RFID Printer/Encoder—Low-Volume Desktop Printing, 13.56 MHz Smart Labels

The smart choice—print and encode data using one advanced solution.

Fulfilling the need for a compact RFID printing solution that can encode smart labels at the point of use, the R2844-Z printer/encoder is one of the most versatile in the industry! Designed for printing and encoding smart media such as wristbands and smart labels, the R2844-Z meets the needs of applications requiring greater processing speed and more connectivity choices—such as standard serial, parallel, and USB ports, and optional internal Ethernet. It also offers the widest range of supported 13.56 MHz RFID transponders, including Philips' I-Code®, Philips' EPC, TI's Tag-it®, Inside Technologies' PicoTag®, and ISO 15693 from Philips, Infineon, and Texas Instruments. Transponder sizes can range from 12 x 28 mm to 90 x 130 mm.

RFID from Your Desktop

The R2844-Z features a programmable print position for flexible transponder placement. With a compact footprint, and a powerful processor that delivers faster print speed, it is the ideal solution for low-volume desktop applications. Because the R2844-Z is Flash upgradeable, new RFID protocols can be added as they are developed.

The R2844-Z RFID smart label printer/encoder provides expanded connectivity, superior performance, and the widest range of support for 13.56 MHz RFID transponders, making it ideal for applications in industries that include:

- Healthcare/Pharmaceutical
- Amusement parks/Entertainment venues
- Libraries
- Express parcel delivery

RFID Passports and RFID Privacy

By Andrei Migia

RFID tags in passports are the RFID application that created the most controversy among privacy groups in the United States.

The Department of Homeland Security (DHS) has proposals to implement RFID tags in all US passports which would allow the holder's name, date of birth, and passport ID to be identified by compatible RFID readers.

Due to the nature of RFID technology, there is no data encryption built into the tags and therefore it could be read by any RFID scanner capable of reading tags in the same frequency range.

Privacy concerns are not only related to passports, but also relating the serial number in a tag with a person's identity.

Articles today point to the concept that data brokers will probably start linking RFID serial numbers to customer's names. This will then allow retailers to identify the person by the RFID tag on an object or a piece of clothing he or she is wearing. This is the one important step toward personalized advertising in the retailing sector, outside of the Internet.

The main argument against this ideology is that the frequency will be only in use by the US DHS. That will probably be the case for the RFID passports. The opposing party underlines the fact that even detecting which passports have this feature would indicate US citizens in other countries, which would make them easily identifiable by anyone groups who may not wish the US the best.

Special Issue - Radio Frequency Identification

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RFID is the way to be!

November 2005

Sun	Mon	Tue	Wed	Thu	Fri	Sat
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Date	Event
November 2-4th	ID World International Conference—Rome, Italy
November 2-3rd	Medical Design and Manufacturing—Minneapolis, MN
November 7th	RFID Futures Conference—London, UK
November 16-17th	Automation Fair 2005—St. Louis, MO