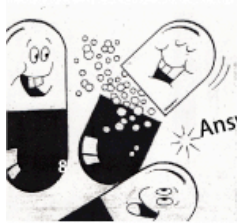




RFID: Where is it?

1. **RFID is used for automatic toll collection systems like EZ-Pass and Fastrack.** True! / False!
2. **The FDA has endorsed tracking pill bottles with RFID tags to prevent counterfeit drug trade.** True! / False!
3. **Public schools are testing RFID to track students. The information is automatically fed via wireless phone to the police and school administrators.** True! / False!
4. **The U.S. government has begun issuing passports with unencrypted RFID tags.** True! / False!
5. **RFID tags are placed on the shoes of marathon runners to track them during a race.** True! / False!
6. **Libraries, including the Vatican library in Rome, are using RFID for checkout and management.** True! / False!
7. **RFID tags were put on cockroaches and let loose in a Wal-Mart store to add noise to the database.** True! / False!
8. **The FDA has approved subdermal RFID tags that are designed for implanting under human skin.** True! / False!
9. **The Mexican Attorney General and 160 employees have been implanted with RFID chips for security.** True! / False!
10. **RFID tags coupled with a web cam were used in a Wal-Mart store to study consumer behavior.** True! / False!



Answers on page 26!

RFID Taxonomy

TAGS

come in many shapes, sizes and types. Below is a list of the major types of tags that are currently popular.

Chipless RFID tags

do not store any identifying data but only alert a reader that they are present. The tag in the photo on the preceding page is a chipless tag used by a drugstore as an anti-shoplifting device and does not have a unique ID.

Microchip RFID tags

can be read-write, read-only, or write once read many (WORM). With read-write chips, you can add information to the tag or write over existing information when the tag is within range of a reader.

Active RFID tags

have a transmitter and power source (typically a battery). These tags are used in situations where cost isn't a big issue, but longer transmitting ranges are required.

Passive RFID tags

have no battery. Instead, they draw power from a reader, which sends out electromagnetic waves that induces a current in the tag. This means that the tag could function indefinitely.

FREQUENCY

Just as your radio tunes in to different frequencies to hear different channels, RFID tags and readers have to be tuned to the same frequency in order to communicate. The most common frequencies used by RFID are low (125 KHz), high- (13.56 MHz) and ultra-high frequency (860-960 MHz). These different frequencies behave somewhat differently and determine characteristics like the read range of the RFID system. See the "RF Spectrum Coloring Exercise" on page 20 to learn at the ways we put our radio wato use!

READERS

also come in different shapes, sizes and types. Below is a brief list of different reader capabilities.

Agile reader

is one that can read tags operating at different frequencies or using different methods of communication between the tags and readers.

Intelligent reader

means the reader has the ability not just to run different protocols, but also to filter data and even run applications.

Dumb reader

is a simple device that might read only one type of tag using one frequency and one protocol. It typically has very little computing power, so it can't filter reads and store tag data.