What is RFID?

Radio frequency identification, or RFID, is a term for technologies that use radio waves to automatically identify people or objects. It generally has two important components a TAG or a Transponder and a receiver. The tag is basically a has antenna to transmit the waves through an antenna .then the receiver decodes the received information.

General RFID Information

What is automatic identification?

Automatic identification, or auto ID for short, is the broad term given to a host of technologies that are used to help machines identify objects. Auto identification is often coupled with automatic data capture. That is, companies want to identify items, capture information about them and somehow get the data into a computer without having employees type it in. The aim of most auto-ID systems is to increase efficiency, reduce data entry errors and free up staff to perform more value-added functions, such as providing customer service. There is a host of technologies that fall under the auto-ID umbrella. These include bar codes, smart cards, voice recognition, some biometric technologies (retinal scans, for instance), optical character recognition (OCR) and radio frequency identification (RFID).

What is RFID?

Radio frequency identification, or RFID, is a generic term for technologies that use radio waves to automatically identify people or objects. There are several methods of identification, but the most common is to store a serial number that identifies a person or object, and perhaps other information, on a microchip that is attached to an antenna (the chip and the antenna together are called an RFID transponder or an RFID tag). The antenna enables the chip to transmit the identification information to a reader. The reader converts the radio waves reflected back from the RFID tag into digital information that can then be passed on to computers that can make use of it.

Is RFID new?

RFID is a technology that's been around since World War II. Up to now, it's been too expensive and too limited to be practical for many commercial applications. But if tags can be made cheaply enough, they can solve many of the problems associated with bar codes. Radio waves travel through most non-metallic materials, so they can be embedded in packaging or encased in protective plastic for weatherproofing and greater durability. And tags have microchips that can store a unique serial number for every product manufactured around the world.

Is RFID better than using bar codes?

RFID is not necessarily "better" than bar codes. The two are different technologies and have different applications, which sometimes overlap. The big difference between the two is bar code is a line-of-sight technology. That is, a scanner has to "see" the bar code to read it, which means people usually have to orient the bar code toward a scanner for it to be read. Radio frequency identification, by contrast, doesn't require line of sight. RFID tags can be read as long as they are within range of a reader. Bar codes have other shortcomings as well. If a label is ripped or soiled or has fallen off, there is no way to scan the item. In addition, standard bar

codes identify only the manufacturer and product, not the unique item. The bar code on one milk carton is the same as every other milk carton, making it impossible to identify which one might pass its expiration date first.

In what ways are companies using RFID today?

Thousands of companies around the world use RFID today to improve internal efficiencies. Club Car, a maker of golf carts uses RFID to improve efficiency on its production line. Paramount Farms - one of the world's largest suppliers of pistachios—uses RFID to manage its harvest more efficiently. NYK Logistics uses RFID to improve the throughput of containers at its busy Long Beach, Calif., distribution center. Many other companies are using RFID for a wide variety of applications. (Visit the Case Study section of our website for more examples.)

What are some of the most common applications for RFID?

RFID is used for everything from tracking cows and pets to providing secure building access to employees. The most common applications are payment systems (Mobil Speedpass and toll collection systems, for instance), access control and asset tracking. Increasingly, retail/CPG and pharma companies are looking to use RFID to track goods within their supply chain, to simplify work in process and for other applications.