RFID Fact Sheet

What is RFID?

Radio frequency identification (RFID) describes a system that uses radio waves to identify an object or person. There are three key components to an RFID system:

- **Tag:** A radio antenna attached to a microchip that stores a number that can uniquely identify an object.
- **Reader:** A device equipped with one or more antennas that emit radio waves and receive signals back from proximate RFID tags.
- **Database:** Stores data on when and where particular tags are read; may also store information about each tag (e.g., what object the tag is attached to, who owns the tag).

What is the difference between "passive" and "active" RFID tags?

Active tags are equipped with a battery that allows them to broadcast their ID continuously, whether a reader is present or not. In contrast, passive tags require a reader to interrogate them before they are able to transmit information. This is because passive tags get their power from the radio signals emitted by the reader.

From how far away can RFID tags be read?

This depends. First, if the tag is passive, it will have a shorter read range (typically 1 cm to 4m); active tags can be read from a much greater distance (e.g. upwards of 20m). Second, the tagged object affects the read range. For example, tags on metal objects have a shorter range than those on plastic objects. Third, the size and power

of the reader antenna is important, though it is practically impossible to build an antenna which will read tags from more than ten times the standard read range.

What kind of information can be stored on a tag?

Anything that can be represented by a number. In addition to a unique ID, many tags can also store further data; often, this data can be "reprogrammed". Most tags currently being used contain around 256 bits of storage, about the equivalent 6 phone numbers.

RFID & Location Tracking

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