

WHAT IS RFID?



Radio-frequency identification (RFID)

- RFID is an automatic identification method, relying on storing and remotely retrieving data using devices called RFID tags or transponders. The technology requires some extent of cooperation of an RFID reader and an RFID tag.
- An RFID tag is an object that can be applied to or incorporated into a product, animal, or person for the purpose of identification and tracking using radio waves. Some tags can be read from several meters away and beyond the line of sight of the reader.

RFID tag

- Most RFID tags contain at least two parts. One is an integrated circuit for storing and processing information, modulating and demodulating a radio-frequency (RF) signal, and other specialized functions. The second is an antenna for receiving and transmitting the signal.
- Size of tags: from 0,05 mm × 0,05 mm
- Working distance: from 0,1m to 10m

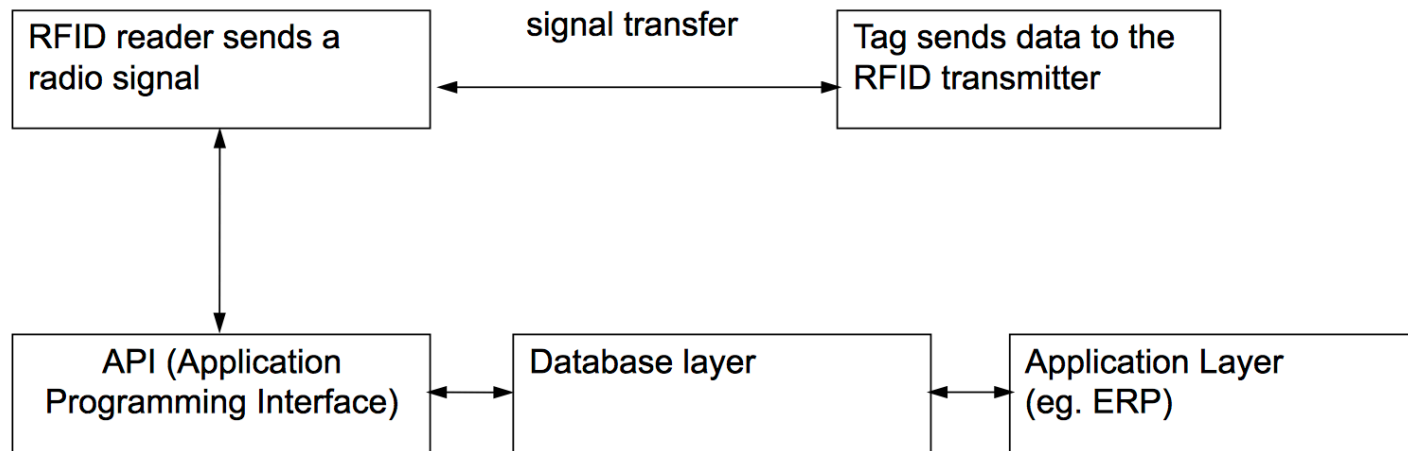
Types of RFID tags

- RFID tags come in three general varieties:
 - passive (tags require no internal power source, they are only active when a reader is nearby to power them by wireless illumination),
 - active (tags require a power source, usually a small battery),
 - beacon (tags transmit autonomously with a certain blink pattern and do not respond to interrogation)

Communication

- To communicate, tags respond to queries generating signals that must not create interference with the readers, as arriving signals can be very weak and must be differentiated. Besides backscattering, load modulation techniques can be used to manipulate the reader's field. Typically, backscatter is used in the far field, whereas load modulation applies in the nearfield, within a few wavelengths from the reader.

RFID technology in practice



RFID: tag-reader-computer

