RFID

radio-frequency identification
IT contains digital information in forms of tags.We can encode the rfid with the help of reader which is based on MICRO waves.

Types of RFID Tag

Passive

Passive tags are “powered” by the electromagnetic energy sent from an RFID reader. What this means is that there is a possibility for passive RFID tags to last a lifetime. They don’t require a battery or any other internal power source.

Passive RFID tags can therefore be smaller, more flexible, and a lot more durable, allowing the ability to use them in harsh conditions. However, the scanning range, although a lot larger than a QR code, is still a lot smaller than with an active RFID tag.

Active

Active tags, however, do require an internal power source which means that they must be larger. This can affect their longevity and durability. So, yes, active tags can be read from a much, much larger distance than passive tags, but it’s also probable that at some point the RFID tag will have to be replaced sooner than a passive tag.

As an added benefit, however, as active tags have a much larger scanning range, reading/writing ability and communication with assets can be more remote and done with a lot more ease. This means updating is a lot faster and simpler.

Working

It contains a chip and there are some wires which are bounded all around. Through the wires information is circulated all around.At a simple level, RFID systems consist of three components: an RFID tag or smart label, an RFID reader, and an antenna. RFID tags contain an integrated circuit and an antenna, which are used to transmit data to the RFID reader (also called an interrogator). The reader then converts the radio waves to a more usable form of data. Information collected from the tags is then transferred through a communications interface to a host computer system, where the data can be stored in a database and analyzed at a later time.

Alternative

- QR code can be the alternative for RFID as it is cheaper but it also has it cons like cannot be updates,also an “active” RFID tag will constantly transmit information, where a QR code needs to be rescanned each time individually and with line of sight and many more.

Advantage

- **RFID** avoids the limitations of barcode scanning, which requires line-of-sight access to each barcode and can only be used to scan one item at a time.
- RFID can be readed from a distance

- RFID can be updated
- RFID is accurate.
- Active RFID can be operative remotely.

Disadvantage

- RFID is expensive.
- RFID can be easily hackable.
- RFID is harder to understand
- Active RFID has short life because it has batteries.

Application

- It is used in our id card to take attendance.
- It is used in metro as a token for a train.
- It is used in high restriction region where some people are only allowed to come,people with specific card can enter ie rfid card.
- It is first used by walmart in their boxes to give them a identity and to track them.