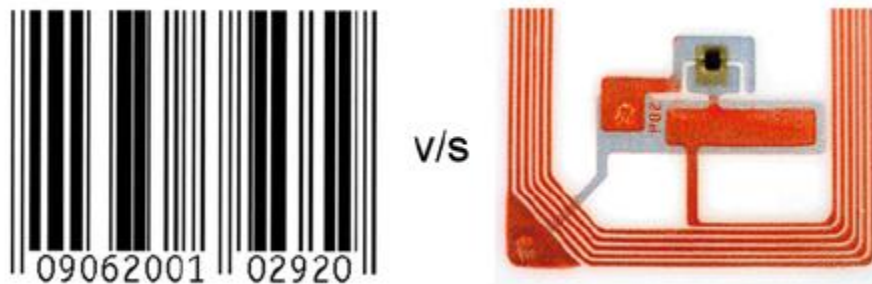


RFID V/S BARCODE



As far back as 1960s, the barcodes were used in industrial work environments. In the early 1970s, common barcodes started appearing on grocery shelves. To automate the process of identifying grocery items, UPC barcodes were placed on products and were used to mechanize the process of checking out in store. They are in use today also for allotment, supply chain, retail stores, apparel shops, book stores, movie galleries and libraries etc. RFID is also in use since 1990, to find out the friend and foe military airplanes. Its use in supply chain management is the new concept. The RFID based Electronic Product Code (EPC) are much in use because in Barcode technology an optical reader is required to read the data manually while in RFID based EPC, data is read through the radio signals from the RFID tag with an RF reader automatically. RFID tags can be read across a variety of things such as human body, paint, smoke, fog, snow ice, and other visually and environmental challenging conditions, where barcodes and other optically read technologies could not read. The response time of RFID tags is almost 100 milliseconds or even less than this.

For RFID tags to replace barcodes they must present a convincing value scheme at reasonable cost. Some of the advantages of RFID tags over barcodes are associated with the ability to store information in the tags which is dynamic i.e. can be updated as and when required. They do not require line of sight for readouts and the tags can be read in a multiplexed fashion. Since the RFID tags contains memory elements and in barcodes the information is only printed in some sort of codes so the amount of information which can be stored in RFID is significantly greater than barcodes.

RFID tags have ability to incorporate additional functionalities like environmental monitoring of

temperature, humidity, pressure through implanted circuitry. This functionality is not available with barcodes and the information stored is also static. Despite of all the above advantages of RFID over Barcodes, they also have some disadvantages because of which barcodes are still in existence.

Firstly, Bar codes are printed directly onto the paper or plastic objects. The only cost implicated in manufacturing a bar code is extra ink; this is insignificant cost. RFID technology requires the gathering and inclusion of an automated chip, which is more costly.

Secondly, RFID functions like a wireless network so the system may have areas with weak signals. It's also possible that the system may experience intervention from other source signals. Weak signals and obstruction from other sources might damage an RFID tracking system which is not the case with barcodes.

Thirdly, the RFID system is not restricted to line-of-sight which means malicious high-intensity directional antennas could be used to scan susceptible tags. Scam is always an opportunity when the technology is used for high-security operations, such as payment authentication.

Fourthly, a bar code can be put on an any object regardless of whether it is RF- lucent or RF- opaque. RFID tags can be read with difficulty if they are placed on metal and some liquids in UHF and microwave frequency ranges. Therefore, if an atmosphere has too much metal in it, an RFID system might not work well.

Fifthly, Bar code technology works on optics principles, whereas RFID technology works on the principle of RF waves. There are no restrictions on frequency of light, but are there on RF waves. Extensively varying global limits apply on RFID system frequency ranges.

Lastly, increasing RFID technology uptake also depends on standardization of the society.

Source : <http://www.udaipurTalents.com/technical-learning/rfid-vs-barcode>