Radio frequency identification

Radio Frequency Identification

Radio Frequency Identification (RFID) is a generic term for technologies that uses wireless communication between an object (also known as a tag) and an interrogating device (also known as a reader), for the purposes of automatically tracking and identifying of such objects. (Techpedia, 2011)

A typical RFID has three basic parts such as an antenna, a transceiver and a transponder (RF tag). The main advantage of RFID is that it does not require direct contact with the object nor is it required to be in the line of sight of the reader. RFID is now being used as an alternative to bar code technology, as it facilitates bulk reading of massive data unlike the latter. It can be affixed to items of many varying sizes like Mobile phones, cars, aero planes, books, etc. Due to these advantages, there has been an increase in the use of RFID recently in many diverse areas like the retail sector to manage inventory, financial industry to track assets and even in many libraries to track books. The first form of modern RFID was patented by Mario Cardullo in the year 1973. The largest use of active RFID is in the US Defense force. The largest use in a private enterprise is by Wall mart for tracking their inventory, where ' Intelligent software agents', an automated system manages the data that is coming in and out of the RFID tags implanted in the products. Japanese authorities have started to implant these in the bags and cloths of school children to ensure safety of minors. The cost of an RFID tag could range from US$0. 05 to over US$100 each. The ability to affix RFID to miniscule equipments has increased its use recently. The smallest RFID chip is of size 0. 05mm x 0. 05mm made by Hitachi. Microscopic RFID tags were attached to live ants in Bristol University to learn their behavioral patterns.

Ethical Implications

RFID has created some serious amount of controversy in the past few years because of the threats it pose on security, privacy and ethical matters. The main reason for campaigns against the use of RFID is that the owner of the item may never know the presence of RFID in it, and this could lead to stealing of sensitive information from him. There have been many instances reported where the employer has asked their employees to implant an RFID to their body to track them. This is to ensure the confidentiality of sensitive information. But many privacy activists have argued that this trend could have serious effect on the privacy and freedom of these employees. There have also been concerns about using RFID in patients for clinical purposes. Even though there has been a general consensus on accepting RFID as a technology which would improve patient safety, there are concerns on the compromise of patient privacy. Another worry is that RFID could be difficult to extract from the patient's body if in case it starts migrating.

" In July 2007 American Medical Association (AMA) has officially established a code of ethics designed to protect patients receiving RFID implants." (Bacheldor, 2011) This code recommended that RFID cannot be implanted or removed from a patient's body without his or her prior approval and the patient or the person acting as a legal guardian should be informed on the benefits and potential safety hazards associated with the use of RFID technology. RFID also creates many safety concerns for enterprise and military security. The RFID tags can be read from anywhere in the world and there is a constant threat to leak of sensitive information and personal location of a person or an equipment.

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