REAL TIME LOCATING SYSTEMS (RTLS)

RFID Vs WI-FI

RTLS:

Real Time Locating Systems are used to track and identify the real time location of specific objects using simple tags attached to objects and readers that receive the signals from these tags carrying their unique IDs to determine their locations. RFID Radio Frequency Identification and Wi-Fi RTLS has always been linked together, however RFID led and its popularity increased over Wi-Fi due to many factors. The fact that Wi-Fi networks were not designed for RTLS influenced these factors.

RFID Vs Wi-Fi:

RFID-RTLS: Radio Frequency Identification uses tags and readers to track and identify the location of an object. RFID specially target this type of application.

Wi-Fi-RTLS: Wi-Fi networks were not designed initially to handle the requirements of RTLS, therefore a large number of supplementary access points will need to be added to the systems in order to receive multiple coordinates to calculate & approximate the tag location, and this will increase the cost of deployment, maintenance and support.

Advantages Vs Disadvantages

Factor	Active RFID	Wi-Fi
Cheaper Tag Price	Yes	No
Smaller Tag Size	Yes	No
Longer Read Range	Yes	No
Higher Tag Density (more tags)	Yes	No
High Granularity	Yes	Yes
Work better around metal and liquid	Yes (433 Mhz low frequency)	No (2.4 Ghz High frequency)
Granularity Cost	Cheap	Very Expensive (infrastructure required)
Battery Life	Long	Short
Secure tag- Sealed & robust	Yes	No
Infrastructure Costs	Low	High
Maintenance Cost	Low	High
Frequency adaptability	433 MHz: friendlier with obstacles/ NO LOS	2.4 GHz: obstacles are numerous, accurate reading requires LOS
Frequency Impact on current Wi-Fi Infrastructure	None	N/A
Interference	NA	With VoIP
Software to use	Open (Unlimited)	Forced to buy by vendor
Network Traffic	Low	High
RF signal	Tag based: ULTRA weak 200,000 less than a cell phone	WAP based: Very Strong High density of WAP is mandatory