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entry exit engineering

Why to use long range reader ?

WHY LONG RANGE READER?

Do we need really need a long range reader. As the name implies, it is the device that reads the card, tag or any associated credential of the same frequency as that of the reader from a certain distance, the distance of detection determines the prefix of the reader. It could be short, mid and long range. But what is long and how long is the distance in case of UHF RFID readers. In general the small range is 5 Meter or less, mid is between 5 ~10 Meter and anything beyond 10 Meter is long range. There is an unlimited application of the UHF long range readers in access control and other industrial areas. Be it identification of tags at the parking zones or detection of tags in the fashion industry etc. The few reasons for using UHF RFID long range readers are briefly mentioned below

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HANDS FREE OPERATION

The motorist does not need to show or pick the tag while entering the parking area as the tag is either fixed permanently on the headlight or grille or front glass. Once the tag comes in the range of the detection zone, the access controller is activated which in turn triggers the parking barrier. This way the motorist enters the parking area without any let or hindrance. The whole process is hands free as everything happens at the comfort of the motorist. The general issues like loss & misuse of tags or cards are eliminated as the tags are stuck to the headlight etc. Anti passback function of the access control panels is used effectively in practice. The tags stick to glass are secured efficiently as any vandalism or stealing of the tags cause the tag to get destroyed hence the chance of misusing the tag becomes null & void.

Cards/ tags	Hard tags	Hybrid cards
Cards & security tags	IP rated tags	Hybrid frequency cards

Table 1.0 : Types of credentials for long range readers

ONE CARD FOR ALL ACCESS READERS

The UHF long range readers are technically the proximity readers and are essentially an integrated part of the access control mechanism in place. The sole aim is to use & manage the site entrances, exits and parking spaces efficiently at a very low cost, and provide the complete control & records of all operations. The use of Hybrid cards help in securing the site in a very efficient way by centralizing all the controls. The hybrid cards are a combination of several frequencies that are active in the field of access control systems.

TYPE	FREQUENCY COMBINATION (HYBRID MODE)
UHF + LF	Combination of UHF card/ tag and LF (Low frequency = 125KHz.) for long range reader & LF access control reader
UHF + HF	UHF + HF Combination of UHF card/ tag and HF (High frequency = 13.56MHz.) for long range reader & HF access control reader
UHF + HF + LF	UHF + HF + LF Combination of UHF card/ tag, HF (High frequency = 13.56MHz.) and and LF (Low frequency = 125KHz.) for long range reader, HF reader & LF access control reader

Table 2.0 : Hybrid card nomenclature for long range reader applications

The combination of frequencies in a single credential tag or card helps in eliminating the use of multiple cards for the same site. The user can be provided with the card that is used to operate the access control system active in the building as well permit them to enter the parking area. Technically it helps in keeping the complete record of people who entered the parking area as well as the building. Hence two fold security.

LOOPED ACCESS CONTROL

In a big campus like situation, the perfect management of parking lots is of vital importance. Using the parking barriers in combination with the UHF long range readers helps in maintaining the great level of discipline in managing the big sites. Imagine more than one parking area in the campus where any one can park at any location can create a mess. To avoid such issues, the UHF long range readers help in segregating the parking zones hence maintaining the decorum of the location . The brief matrix using the long range readers for a two parking areas in same premises is as below:

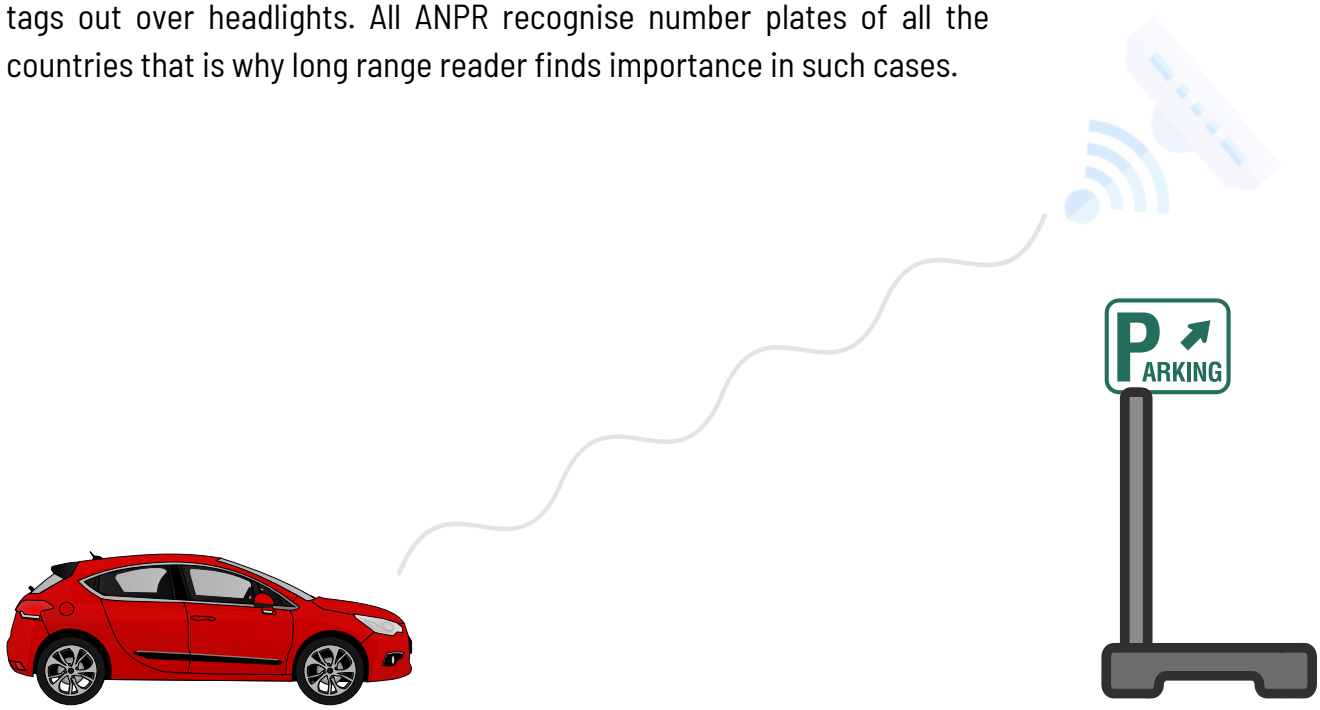
MOTORIST A	MOTORIST B	MATRIX
PARKING AREA 1	PARKING AREA 2	[1 x 1] : [A x B]
UHF long range reader 1.1 (Entry)	UHF long range reader 2.1 (Entry)	Motorist A & Motorist B cannot enter in each others zone
UHF long range reader 1.2 (Exit)	UHF long range reader 2.2 (Exit)	Motorist B & Motorist A cannot exit in each others zone

Table 3.0 : Parking area matrix using long range readers

The motorists A with parking zone 1 cannot enter the parking zone 2 as the UHF long range reader in combination with the access control panel installed at the entrance of parking zone 2 is programmed to stop the motorists from entering this zone. All the UHF long range readers are integrated with the existing card readers of the building thereby creating a very strong eco system.

REPLACE ANPR BY LONG RANGE READER

ANPR is a very advanced technology that detects the number plate of the vehicle, and compares with the database or stores the same then permits the vehicle to enter the location. The entry is based on the recognition of number plates. ANPR systems process the operation in three logical steps viz.a.viz detection of the number plate, capture of the number plate & recognition of the number plate, once the recognised number compares with the existing database the vehicle is permitted. The whole process consists of ANPR camera, software, server network and other accessories and is expensive with typically drastic maintenance procedures. In contrast, the UHF long range readers are very simple in application, use and maintenance. Like every vehicle has a different number plate, every tag or card has a unique identification code. ANPR has a limited range of application while UHF long range readers have wide application and can be integrated with any third party device using existing serial & relay ports. In some cases, we can use the well designed combination of UHF long range RFID readers and the ANPR systems. To eliminate the UV tint issues, which most of the vehicles face we can use tags out over headlights. All ANPR recognise number plates of all the countries that is why long range reader finds importance in such cases.



INTEGRATION PROTOCOLS AVAILABLE WITH LONG RANGE READER

Long range readers are very easy to integrated based on API & SDK apart from hardware integration interfaces. The various communication interfaces are as below

RS485	This interface enables for the long distance communication and integration of the long range readers.
RS232	Used for short distance communication and practically for one unit of long range reader.
WIEGAND	This is a defacto protocol enables to integrate the long range readers with anythird party access control pannels with same port.
SDK	This is a software development kit or called as DEV KIT also. This helps in integrating the long range readers practically with every equipment.
API	This is Interface kit or we can call as utility, it helps in integrating a certain port or portion with the web application or other utilities to programe the long reader readers if needed.
NO/NC	O/NC are available with most of the long range reader and are much used for integration with similiar ports of the control panel.

Table 4.0 : Generic ports and Interface protocols for access controls

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