UHF RFID Campus Safety & Access Control System

System Construct Presentation

UHF RFID Features

- **WENSHING Electronics Co., Ltd was established in 1987, our major business line ranges from computer, electronics to communications including the design, manufacturer, production and sales in this related fields. We provide fourth UHF RFID long range readers, including Industrial Reader, Handheld Reader, Out-door Reader and In-door Reader operate in 840~960MHz and complies with industry standard.**

- **Industrial Reader reading range able to reach 35 meters, 7 meters for Handheld Reader and 30 meters for Out-door and In-door Reader. Suitable in different passive tags and interfaces, complies with the industry standard.**

- **RFID readers can both write and read the tag, capable of handling above 200 tags, fast processing. Adapt to warehouse management requirement of supply chain. No need for extra human labor cost, it greatly improves tracking quantities and directions, step further for making the cost down and more efficient.**

- **Passive Tag features highly security, greater storage data capacity compared with traditional bar code and not easily been counterfeited. More than million times of re-write and read functions, it is able to withstand in harsh environment owing to a special-made material of TAG proofing longer product lifetime with additional features as non-directional limitation and cost-effective.**

System Introduction

WENSHING electronics applies the UHF RFID technology into "RFID Campus safety & access control system", It provides comprehensive applications including procedure of material preparation, assembly, packing, QC, rapid inventorying check to all inventory work.

The management system is mainly apply to the equipment like UHF RFID Tag, industrial reader, handheld reader, mainframe integrate and digitized production management system.

RFID technology is with great advantage and development for supplier chain management, it achieves automatic sorting, avoid manual work and product line tracking.

Advantages:

High Efficiency	Security & stability	Pass & Release	Information Sharing	Serial no. Analysis
Solve block	Cost Down	Enhance Management	Recycling	Environmental Protection

System Structure

UHF RFID Human Network Mainframe

- Full range monitoring staff location.

Android Smart Phone

- Using smartphone to connect with mainframe, comprehensively monitor campus movement.

UHF RFID Industrial, Aisle, Out-door Reader

- Connect with system mainframe, immediately monitoring campus movement.

Mainframe System

- integrated campus management system software.

UHF RFID Industrial Reader

- **WS-UHFRFIDANT4 Industrial Reader :**
  Size：160*160*55mm (W*D*H)
  Frequency：902~928MHz (adjustable)
  Sensitivity：-90dBm
  RF Output power：2W (33dBm)
  Distance：35m (MAX.)
  Interface：Weigan26/34、RS232、RS485、Wi-Fi、Ethernet
  Power supply：DC 12V 1A
  Protocol：EPC Class 1 Gen 2 ISO18000-6C IS18000-6A/B
  Wi-Fi：IEEE802.11b/g standard

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UHF RFID Out-door Reader

- **WS-RFIDIP6 Out-door Reader**

  Size：215*175*75mm (W*D*H)

  Frequency：902~928MHz (Adjustable)

  Sensitivity：-86dBm

  RF Output power：1W (30dBm)

  Distance：30m (MAX.)

  Interface：維根26/34、RS485、RJ-45、Wi-Fi

  Power Supply：DC 12V 1A

  Protocol：EPC Class 1 Gen 2 ISO18000-6C IS18000-6A/B

  Bluetooth：Bluetooth V2.1+EDR Class2

  Wi-Fi：IEEE802.11b/g standard

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Human Regional Network Mainframe

- **WS-READ Human Regional Network Mainframe:**

  Frequency：925~928MHz (Adjustable)

  Distance：100m (MAX.)

  Modulation: GFSK
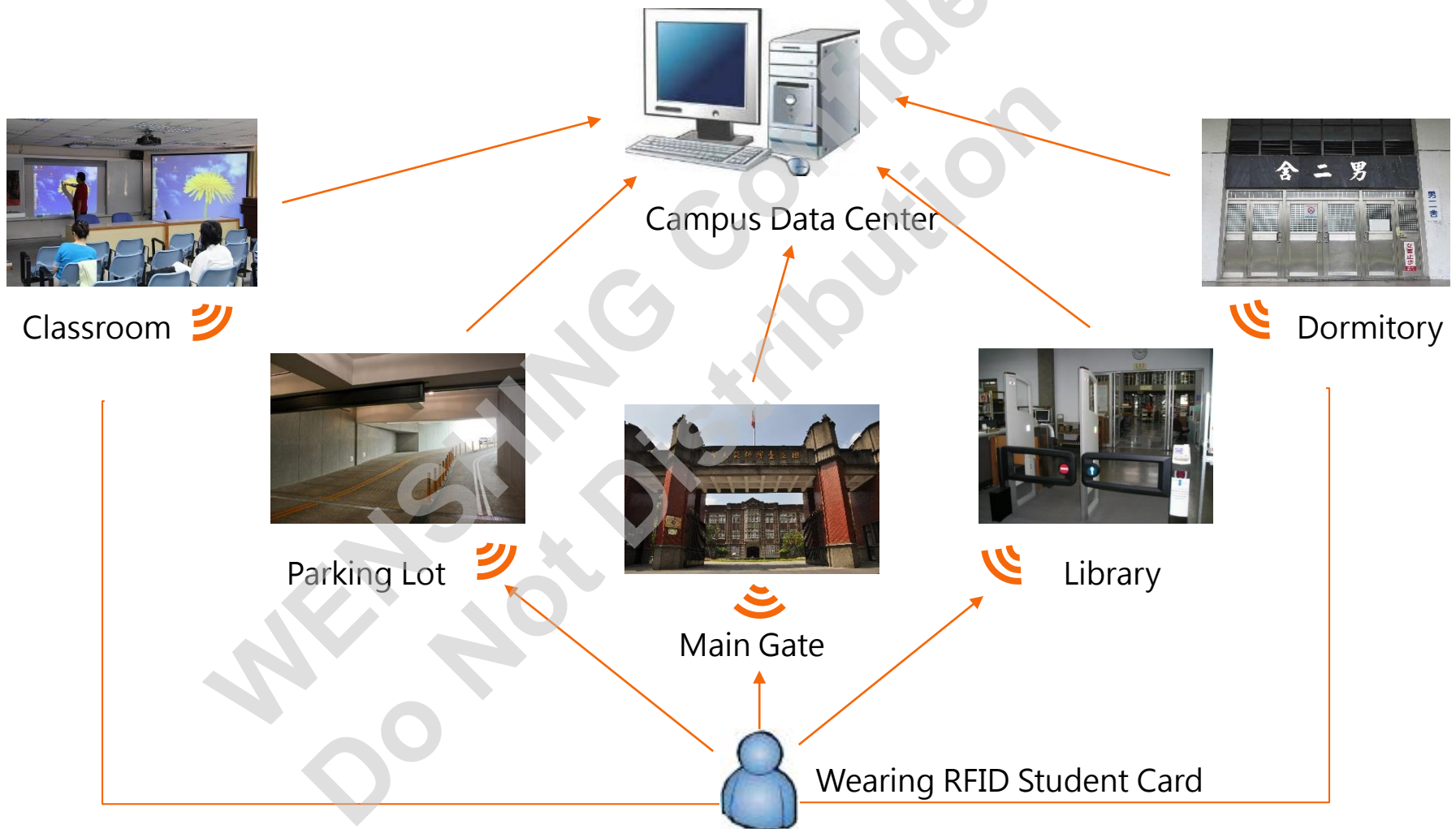
  Data Rate: 9.6~36K bps

  Host Communications: RS485

  RF Power Output: -45dBm~+10dBm

 Sensitivity: -96dBm~-108dBm

  Power: 12Vdc,60Ma

  Interface: RF Internal Antenna / Digital : RS485

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System Procedure

Campus Data Center

Classroom

Dormitory

Parking Lot

Main Gate

Library

Wearing RFID Student Card

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Dual-frequency Card

Staff ID card is a dual-frequency Tag, including LF for access control and UHF. It completely solve the trouble for staff to wearing many cards and as well for cost down.

Dual-frequency RFID card
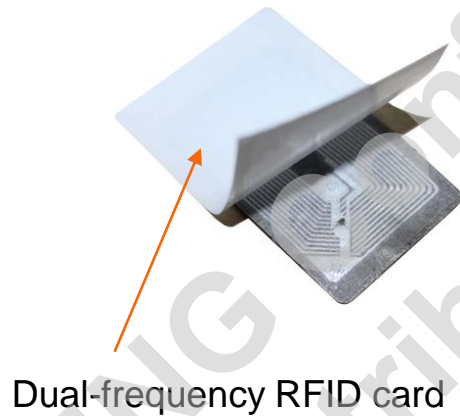
Dual-frequency Card illustrate

The ID card can be placed in a shirt pocket, and it can react even static electricity on human body, more convenient.
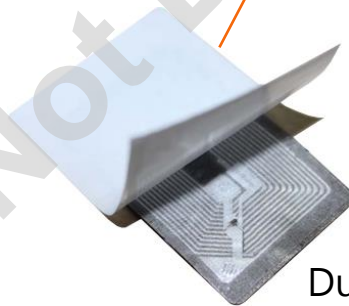

Dual-frequency Card

UHF RFID Antenna

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Teacher & Students Information

To look up teachers & students database in【System mainframe】, the system provides very strong data output and analysis function, you can easily output the data in Word, Excel and Web or the other formats based on your request.

	A	B	C	D	E	F	G	H	I
1	姓名	日期	时间					3/1	3/2
2	AA	3/1	8:29				AA		
3	AA	3/1	18:19				BB		
4	AA	3/4	8:14				CC		
5	AA	3/4	17:41						
6	AA	3/5	8:28						
7	AA	3/5	18:21						
8	AA	3/6	8:31						
9	AA	3/6	17:54						
10	AA	3/7	8:27						
11	AA	3/7	17:41						
12	AA	3/8	8:28						
13	AA	3/8	17:34						
14	BB	3/1	8:42						
15	BB	3/1	17:45						
16	BB	3/4	8:32						
17	BB	3/4	17:42						
18	BB	3/5	8:38						
19	BB	3/5	17:33						
20	BB	3/6	8:40						
21	BB	3/6	17:38						
22	CC	3/1	8:48						
23	CC	3/1	17:35						
24	CC	3/4	8:47						
25	CC	3/4	17:32						
26	CC	3/5	8:41						
27	CC	3/5	17:31						
28	CC	3/6	8:33						
29	CC	3/6	17:41						

Main Gate Access System

Main gate system combine with 【Industrial Reader】 and 4 reader antennas, when the teacher or student access to the main gate, it will read and record the database to release.

RFID Reader Antenna

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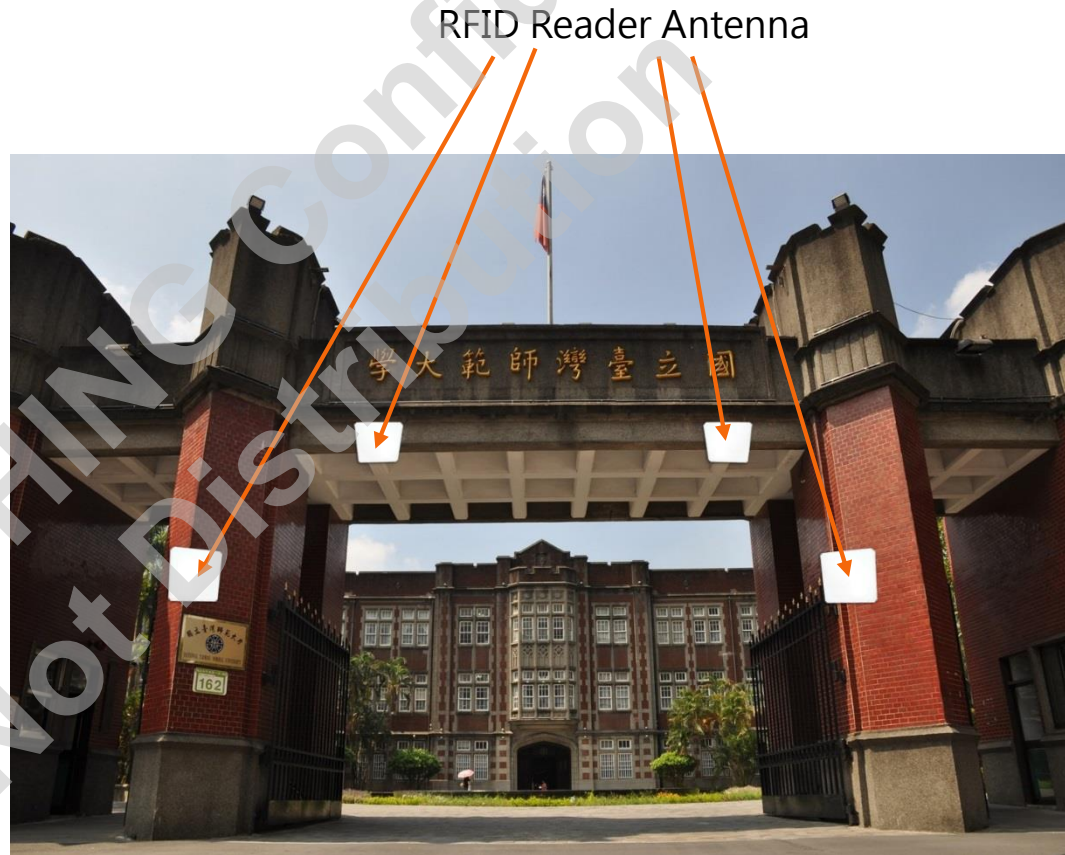
Real-time Tracking

Staff Access Record

Main Page						
Function Instruction						Columns...
User Administration						
	No.	Card Num.	Gate	Check-in	Check-out	Time
Card Record	1	A0000001	G1	●		20141030 1350
Access record	2	A0000001	G1		●	20141030 1650
	3	A0000001	G1	●		20141031 1350
Setting	4	A0000001	G1		●	20141031 1350
	5	B0000001	G2	●		20141101 1350
	6	B0000001	G2		●	20141102 1350
	7	A0000002	G1	●		20141103 1350
	8	A0000002	G1		●	20141103 1550
	9	B0000002	G1	●		20141105 1350
	10	B0000002	G1	●	●	20141105 1750

Library Access System

Library access system combine with 【Out-door Reader】 and 2 reader antennas, when the teacher or student access to the main gate, it will read and record the database from the tag to release.

RFID Reader Antenna

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Classroom Attendance, Monitor

Classroom attendance, monitor system combine with 【Out-door Reader】 and 2 reader antennas, when the teacher & student in the classroom, it will read and record the database from the tag to prevent absence.

RFID Reader Antenna

Dormitory Access System

Dormitory access system combine with【Out-door Reader】and 2 reader antennas, when students access to the dormitory, it will read and record the database from student's ID card to decide accuracy.

RFID Reader Antenna

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Aisle Monitor System

Aisle Monitor System combine with 【Out-door Reader】 and 2 reader antennas, when students access to the dormitory, it will read and record the database from student's ID card to decide accuracy.

RFID Aisle Reader

Lane Access System

Lane access system combine with Out-door Reader and 2 UHF RFID Antenna. When vehicle pass through the front gate, it upload the Tag information and check the accuracy to release.
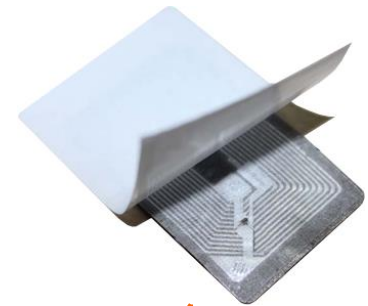
RFID Reader Antenna

Bicycle Management

Bicycle management system combine with Industrial Reader and 4 piece UHF RFID Antennas. When teachers and bicycle pass through the gate, the Industrial Reader reads the information of Tag and quickly verify and record, check correct to release or error to alarm.

UHF RFID Antenna

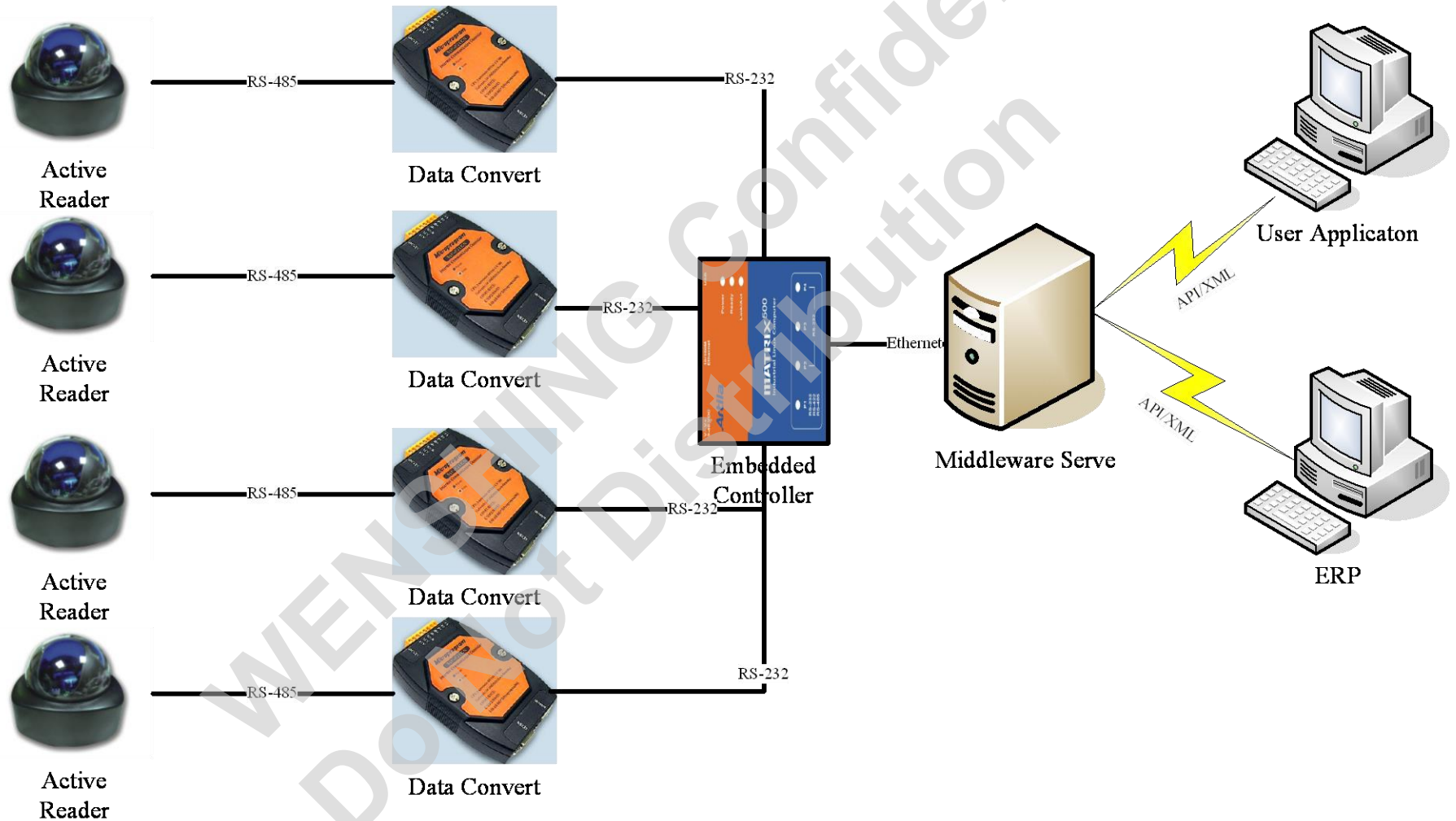Dual-frequency card

Staff Area Location

Staff area location system read the tag information via the UHF RFID Human Area Network Mainframe to know the staff's current location.

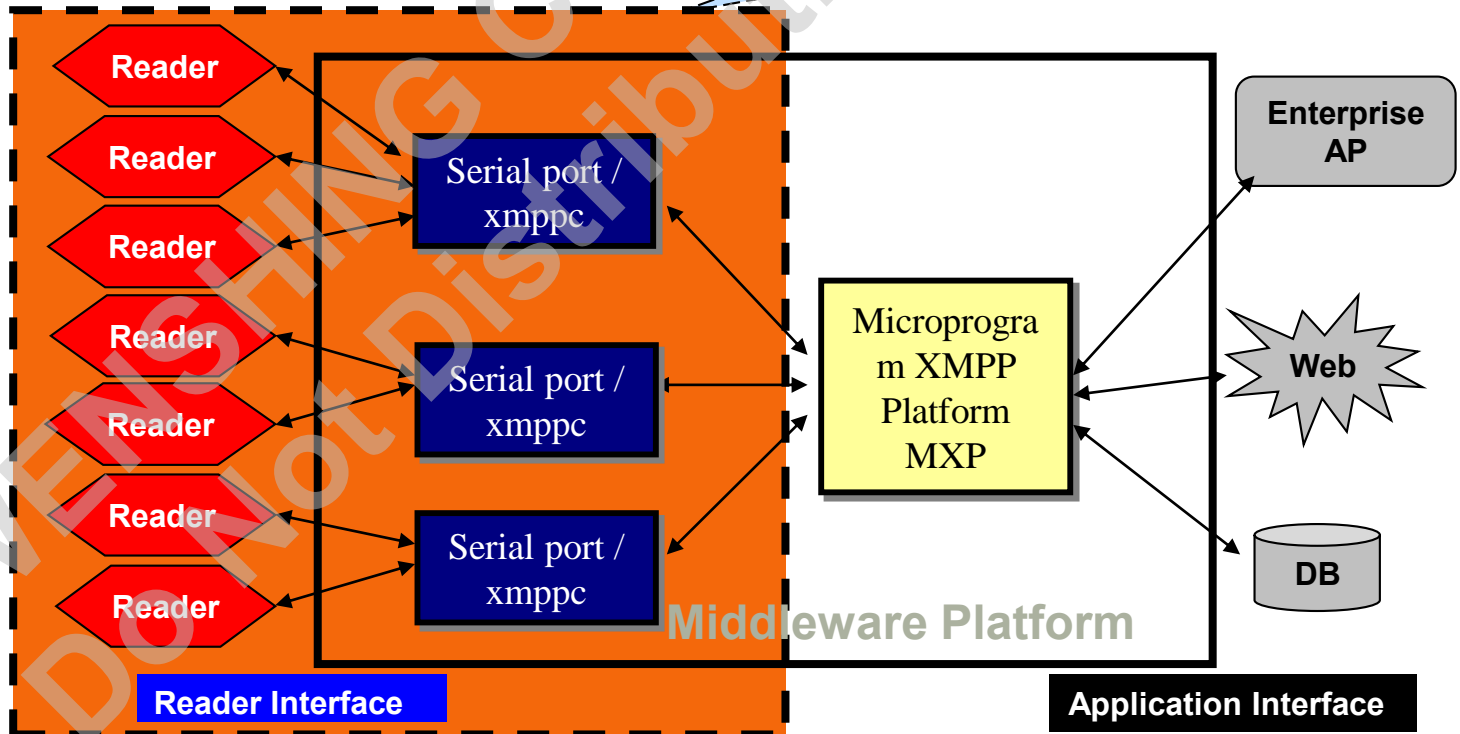UHF RFID Human Area Internet Mainframe

Active Reader

130mm

105mm

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Staff Area Location System Structure

Staff Area Location System Structure

☑ Data filtering and collection, improve data read rate

☑ Reduce over load of Server and improve data processing capabilities.

Integrate the function and software of data collection, filtering and processing to the single platform.

Reader

Reader

Reader

Reader

Reader

Reader

Reader

Serial port / xmppc

Serial port / xmppc

Serial port / xmppc

Microprogram XMPP Platform MXP

Enterprise AP

Web

DB

Middleware Platform

Reader Interface

Application Interface

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Staff Area Location System Structure

1. Enter staff data to the system.

2. Staff current locate.

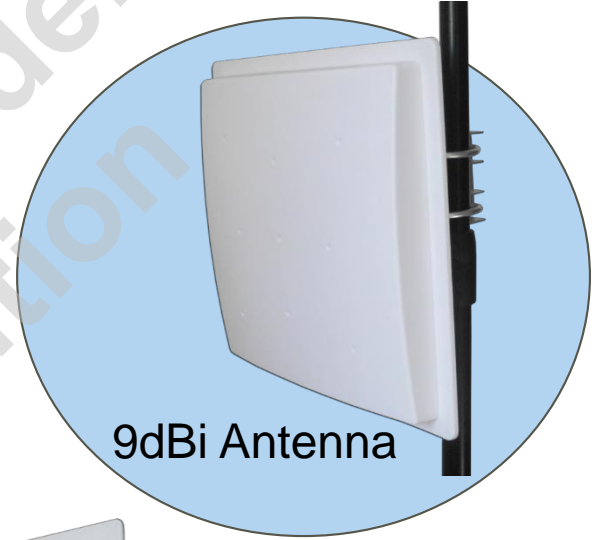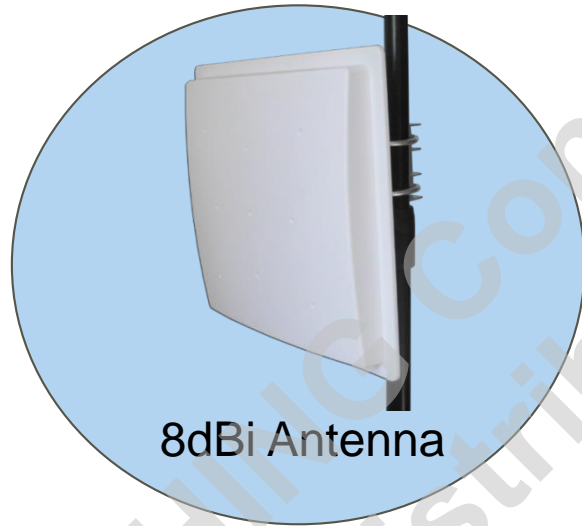3. tracking staff moving locate

Accessory

8dBi Antenna

9dBi Antenna

2.4G Antenna

12dBi Antenna
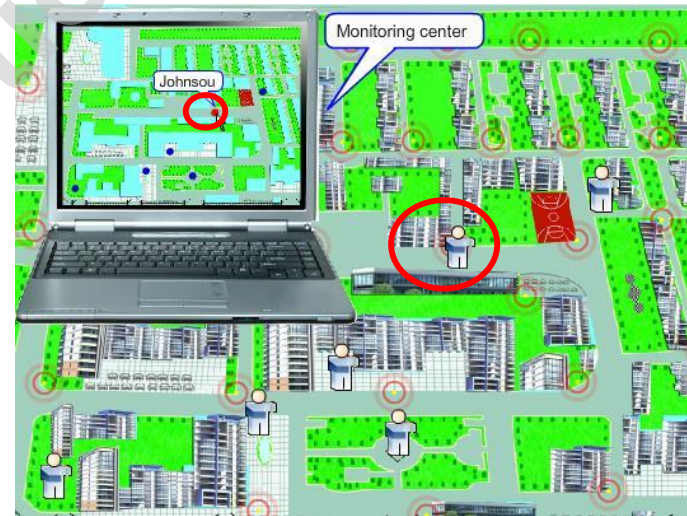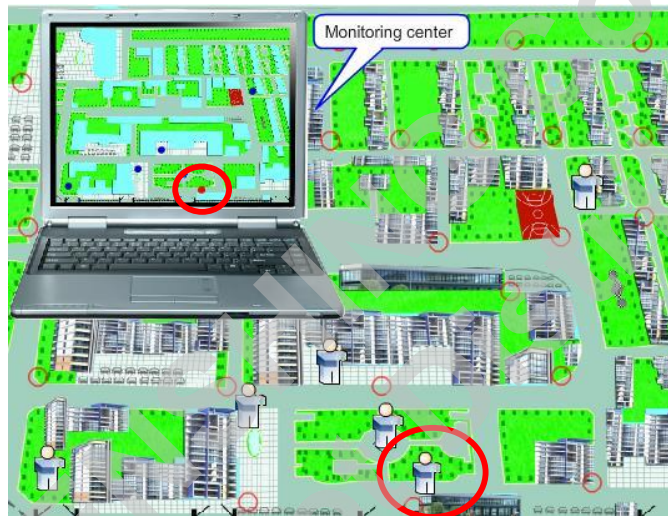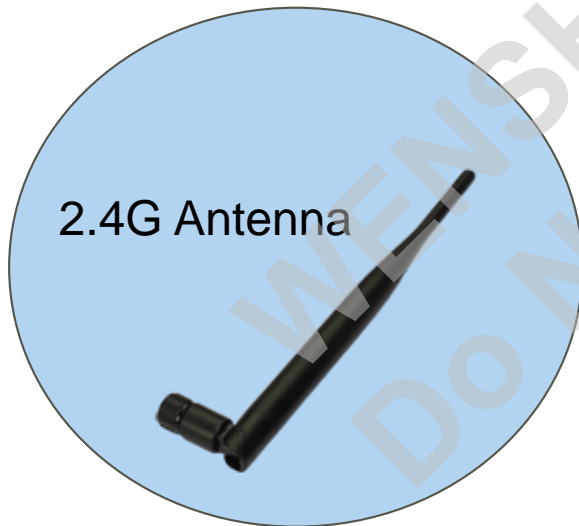
Directional Antenna 8dBi

Technical Specifications	
Frequency (MHz)	902~928
Bandwidth (MHz)	26
Voltage Standing Wave Ratio (VSWR)	≤1.25
Antenna Gain (dBi)	8
Antenna Length (mm)	225*225*30
Polarization	Circularly polarized
Maximum Power (W)	100
Input Impedance (Ω)	50
Horizontal Lobe width (˚)	60
Vertical Lobe width (˚)	60
Front to Back ratio（dB）	25
Half-Power Angle E-Plane	68
Half-Power Angle H-Plane	68
Connector	SMA
Antenna Cover Material	ABS

Directional Antenna 9dBi

Technical Specifications	
Frequency (MHz)	902~928
Bandwidth (MHz)	26
Voltage Standing Wave Ratio (VSWR)	≤1.25
Antenna Gain (dBi)	9
Antenna Length (mm)	280*280*40
Polarization	Circularly polarized
Maximum Power (W)	100
Impedance (Ω)	50
Vertical Lobe width (˚)	60
Horizontal Lobe width (˚)	60
Front to Back ratio（dB）	20
Connector	SMA
Antenna Cover Material	ABS

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Directional Antenna 12dBi

Technical Specifications	
Frequency (MHz)	925
Bandwidth (MHz)	26
Voltage Standing Wave Ratio (VSWR)	≤1.25
Antenna Gain (dBi)	12
Antenna Length (mm)	445*445*40
Polarization	Circularly polarized
Maximum Power (W)	100
Impedance (Ω)	50
Horizontal Lobe width (˚)	40
Vertical Lobe width (˚)	38
Front to Back ratio（dB）	25
Half-Power Angle E-Plane	38
Half-Power Angle H-Plane	40
Connector	SMA
Antenna Cover Material	ABS

Thank for your attention and your faithful support !