



AIOT



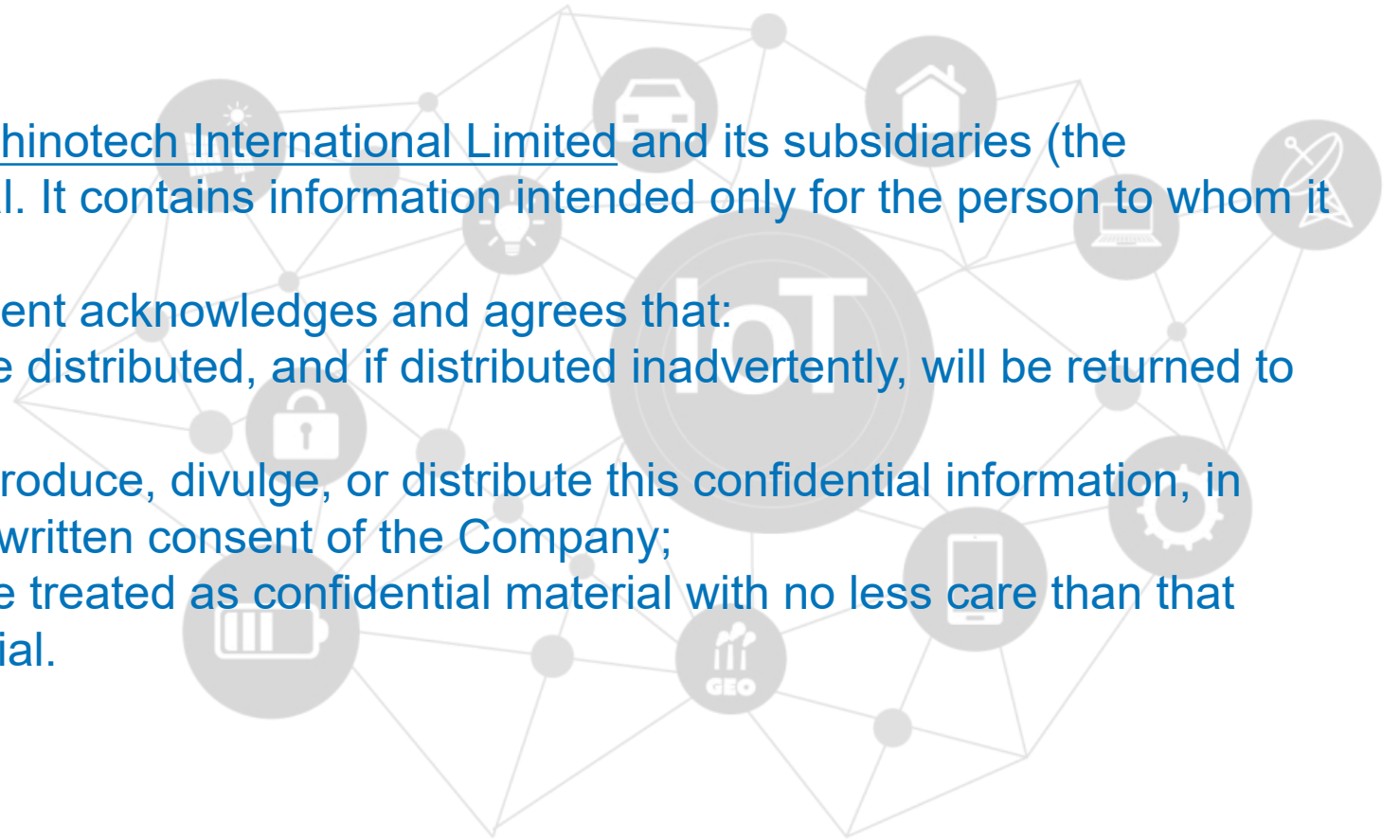
High Accuracy Real Time Location System

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SMART IOT SOLUTION

Our Partners & Customers

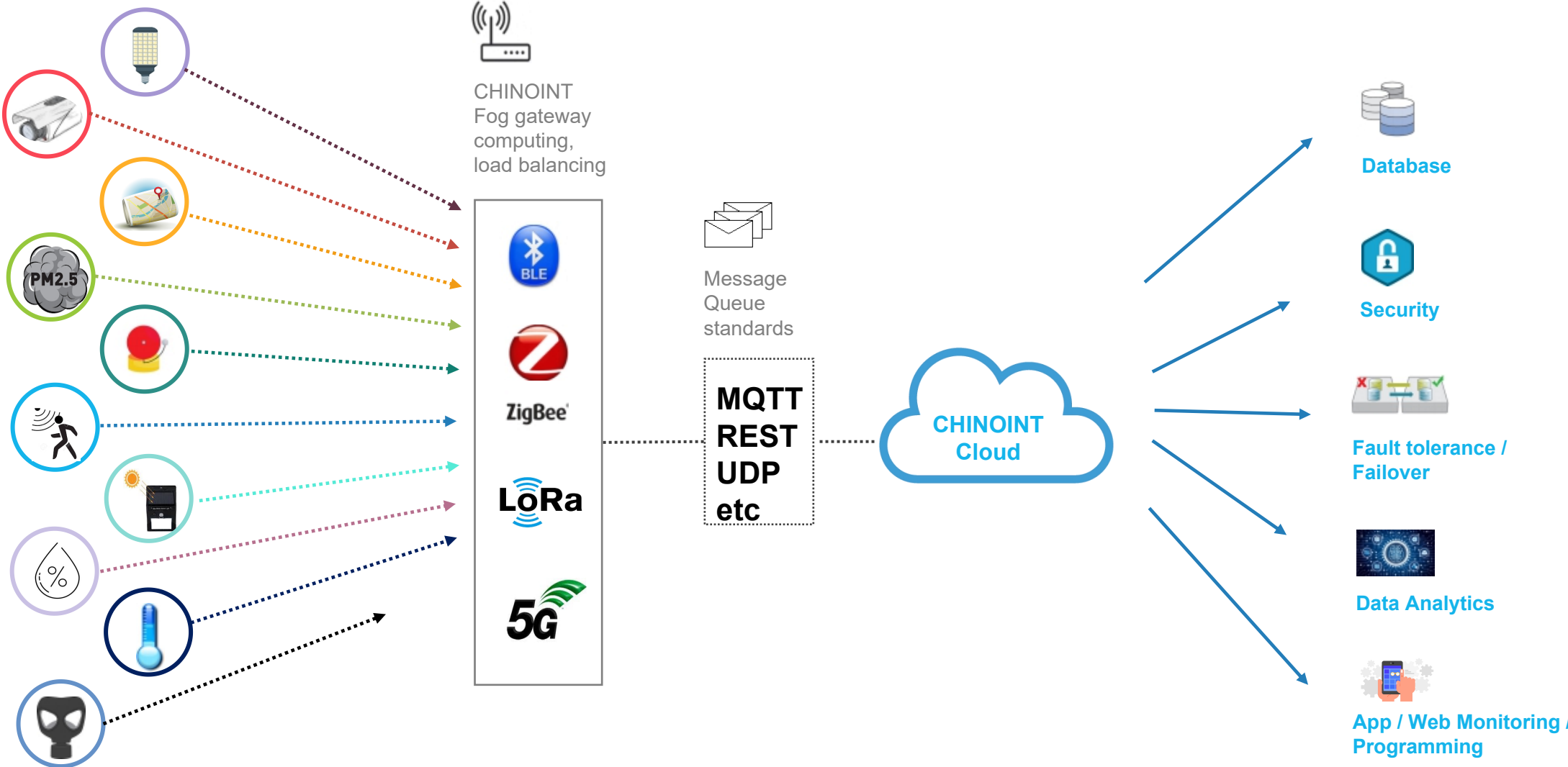




CHINOINT
SENSE CONNECT

IoT Platform

CHINOINT : IOT PLATFORM ILLUSTRATION



ZIGBEE + LORAWAN + Bluetooth



City & Building Wide Sensor Deployment

- Uni-directional sensor data
 - control of sensors not favorable (LoRa constraints)
 - in-frequent monitoring (e.g. once per day)
- e.g. water meter



Smart Home / Office Controllable Sensor Deployment

- Bi-directional sensor data, setting
 - Control signal is included in Zigbee spec
 - frequent monitoring
- e.g. electric meter with on / off feature



Short range low data rate personal area network

- Bi-directional sensor data
- Device remote control
- BLE spec improves power consumption e.g. headset, personal computer, etc

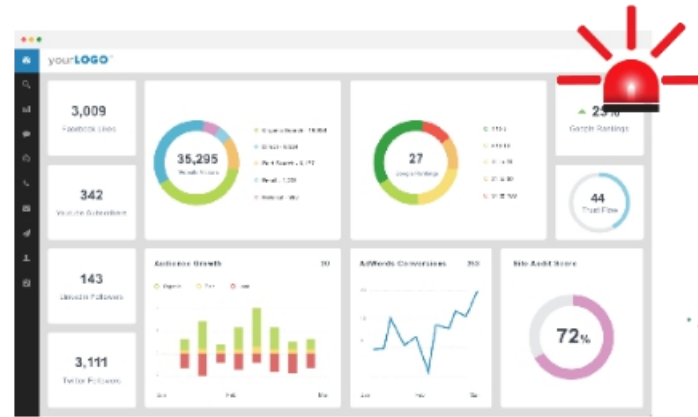


AI / Predictive Maintenance

- Light
- CCTV
- GPS
- PM2.5
- Smoke/Fire
- Motion
- Order
- Humidity
- Temperature
- Hazardous gas

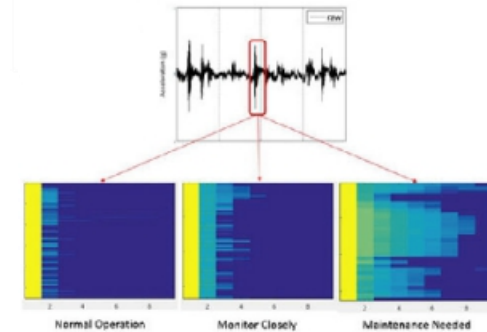


Parts replaced before failure happens!

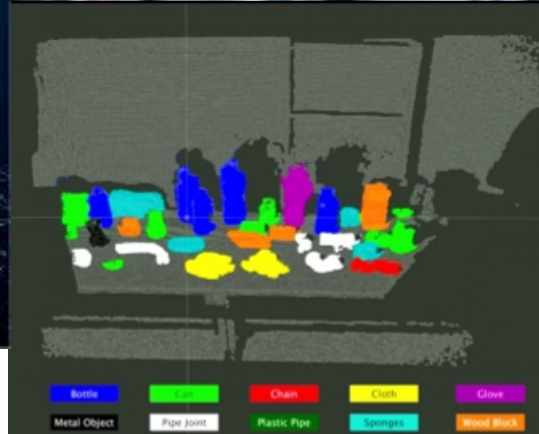
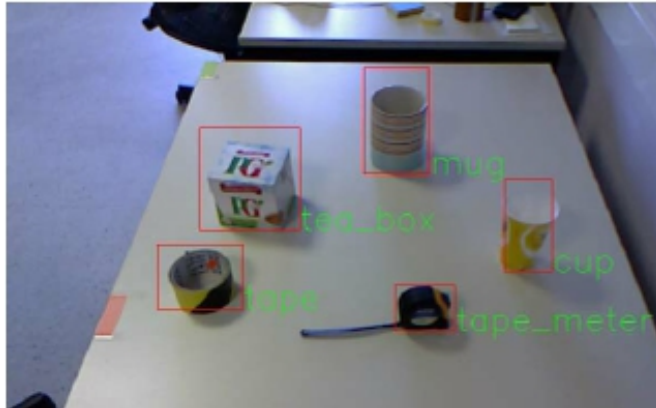


From the data analysis, the predictive maintenance platform produces real-time alert

Predictive Maintenance



AI / Video Analytic



Object Recognition

Facial Recognition

Video Security



Services

OUR SERVICES



Consulting



Design In



Deployment



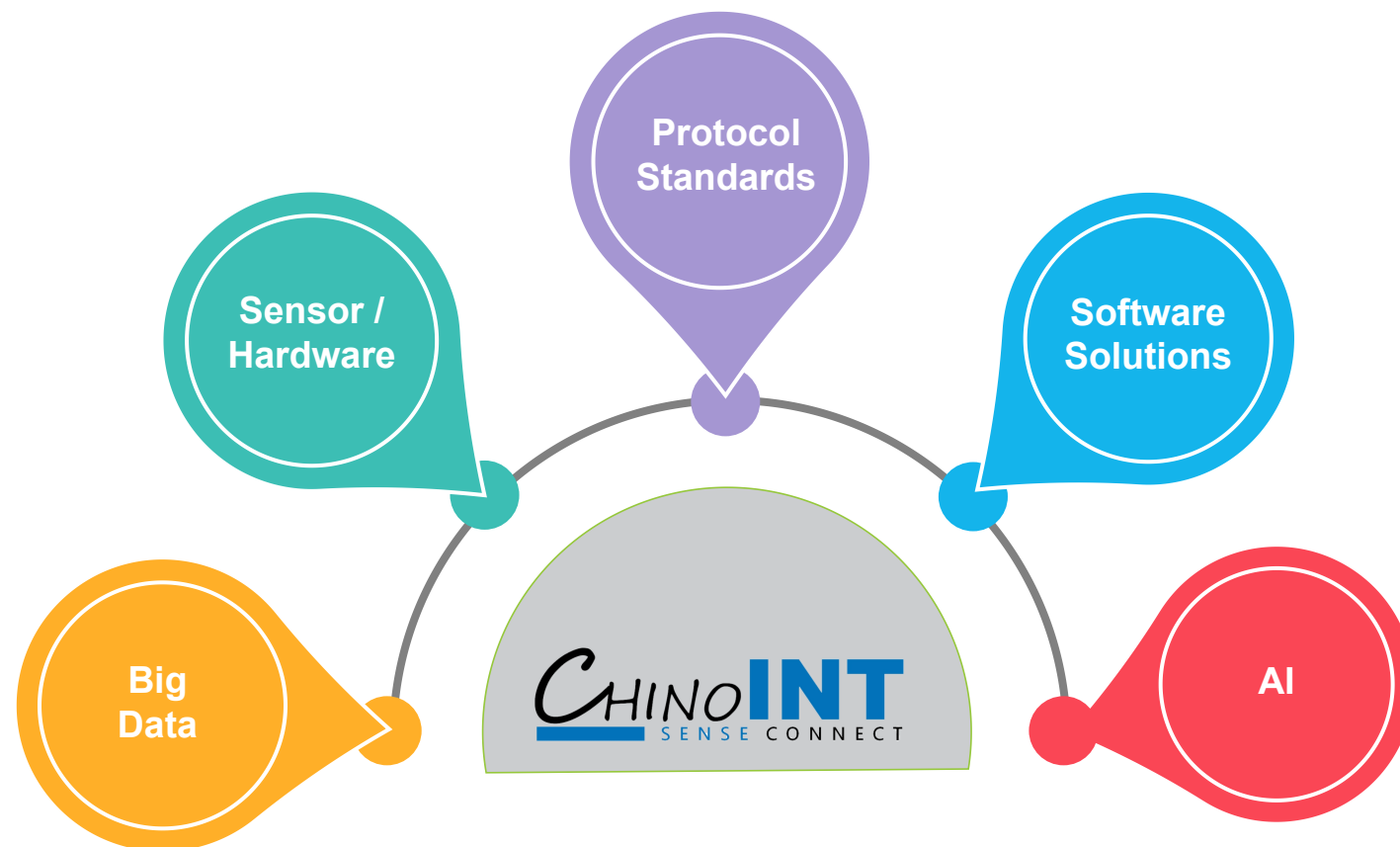
Maintenance



SMART INTEGRATION DONE SMARTLY

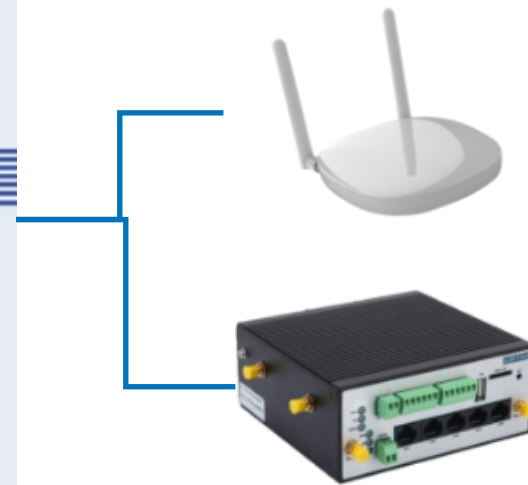
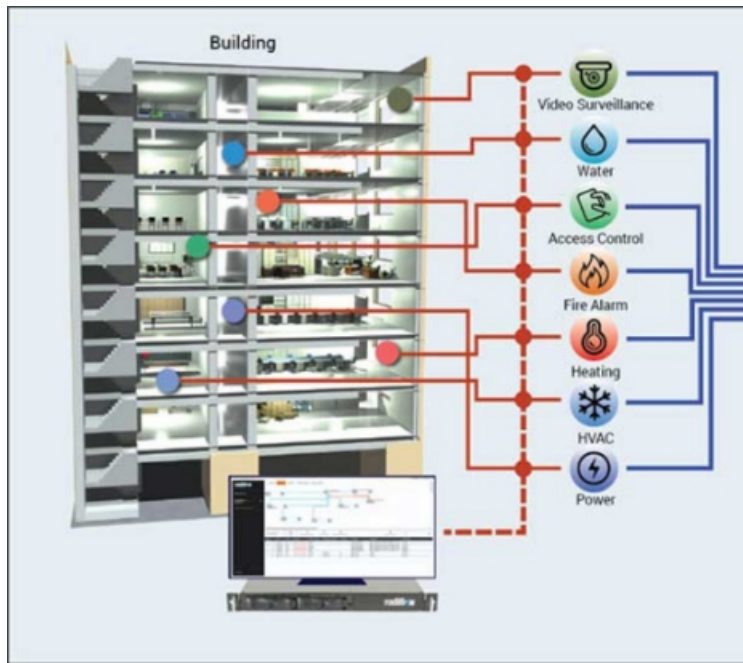


ChinoInt is positioned to be a System Integrator for Smart Building and Smart City solutions. ChinoInt will master the IoT technologies such as Protocol Standards, Hardware, Software solutions, Big Data, AI, etc. The aim is to integrate them into a single system, in order to offer a total solution to our customers.



Data Integration

Generally speaking, **ChinoINT** is able to gather sensor data and feed them back to the BMS, or provide data transformation and dashboard for easy checking



IoT Gateways



Numerous sensor type to produce reliable data, such as water leakage, occupancy, IAQ, light intensity, etc

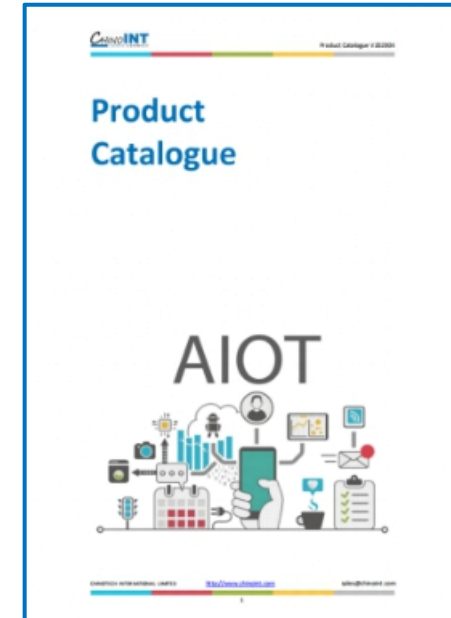
Sensor Selection



ChinoINT offers a rich selection of sensors, in order to provide the best-in-class solution
 Feel free to visit our latest product catalogue



People Counting Sensors
 IAQ and Gas sensors
 Lighting Control
 Control
 Status Sensors
 Nursing System
 RFID System
 Access Gate
 Sensor Integration



Click to Download

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Real Time Location System Indoor

Real Time Location System



People Tracking



Asset Tracking



Navigation



Visitor Management



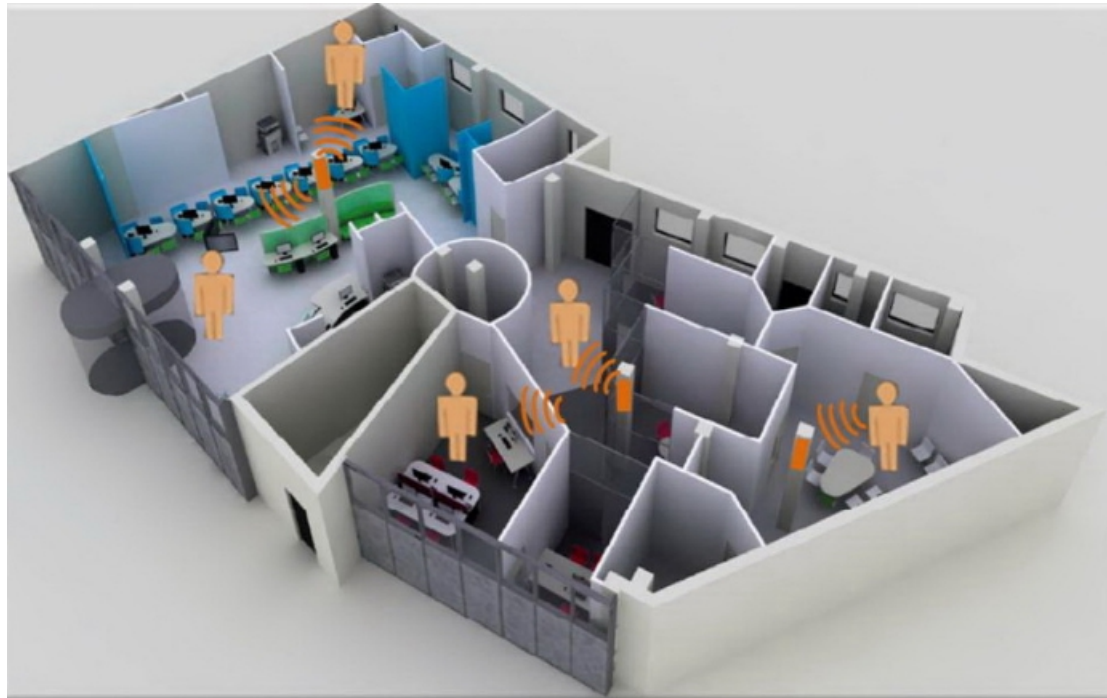
People Tracking and Tracing



People tracking can be done in different ways. It could be video based, or sensor based.

The tracking information is useful when someone is confirmed infected.

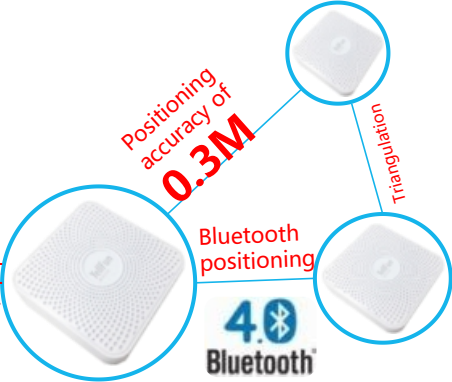
The tracking information can be used to trace those in close contact, and help to stop spreading further.



Navigation



Bluetooth indoor switch-free visualized parking level positive induction and reverse car searching



- Based on indoor Bluetooth positioning and navigation technology
- Realize one-click find car APP guiding
- Integrated Bluetooth beacons do not need to be deployed separately
- Support cross-floor, public facility navigation
- 2D, 3D map, AR real-time navigation

Accuracy Comparison

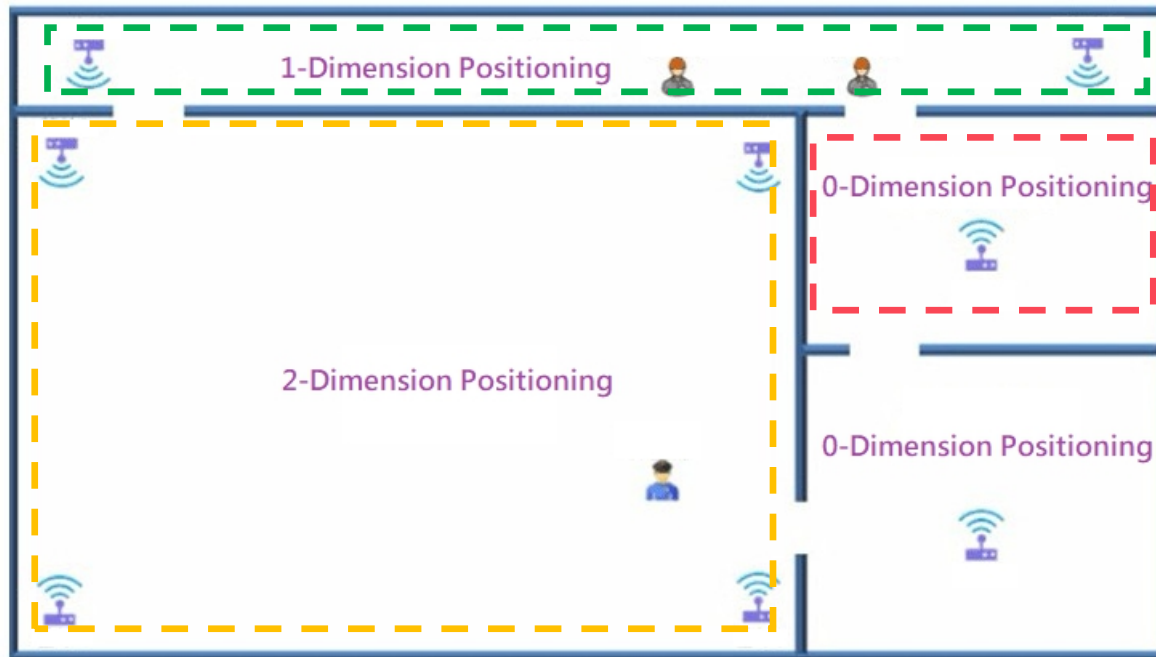


	BLE Beacon	WiFi	ChinoINT UWB	ChinoINT BLE
Accuracy (m)	2 - 5	10 - 20	~0.1	0.3 - 1
Pros	<ul style="list-style-type: none"> Common technology 	<ul style="list-style-type: none"> Commonly available 	<ul style="list-style-type: none"> very high accuracy 	<ul style="list-style-type: none"> Base on Bluetooth 4.0, 1 gateway provides high accuracy
Cons	<ul style="list-style-type: none"> Need a lot of gateways 	<ul style="list-style-type: none"> Short battery life 	<ul style="list-style-type: none"> medium battery life 	<ul style="list-style-type: none"> -

UWB RTLS for Positioning



Application of UWB:



0-Dimension

- Attendance system
- Simple asset tracking

1-Dimension

- Geo-fencing
- Distance estimation

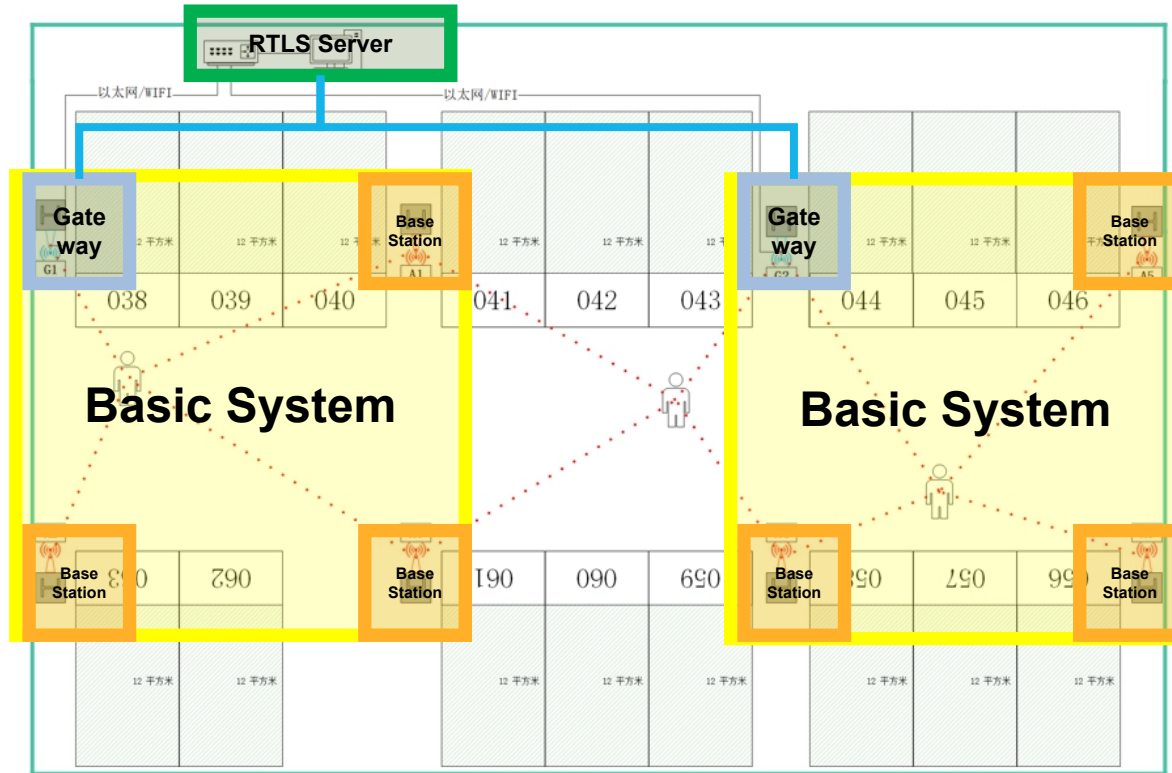
2-Dimension

- Positioning
- Navigation
- People Tracking
- Asset Tracking

UWB RTLS for Indoor Positioning



A basic UWB RTLS system consists of 1 Gateway + 3 base stations. Only the gateway needs internet access. The systems cascade to form a large monitoring area.



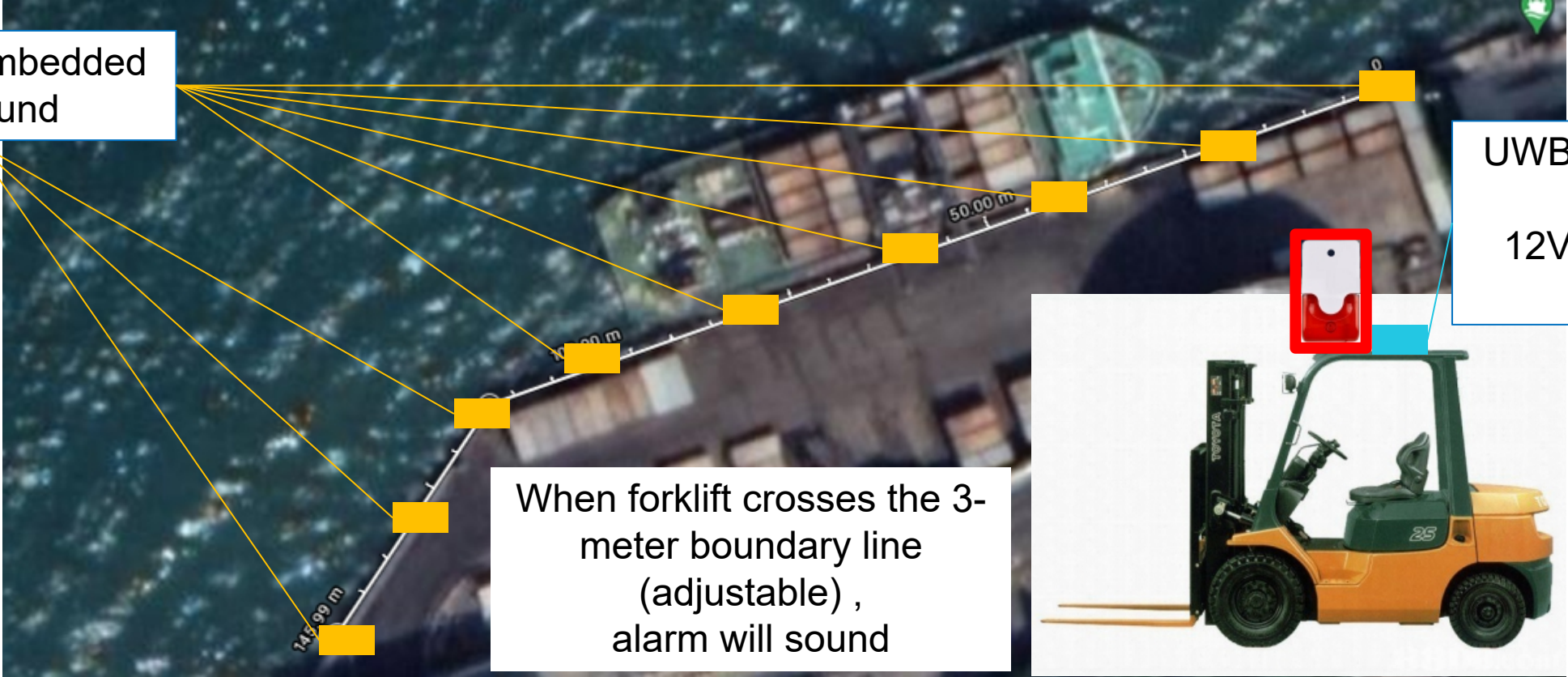
Characteristic	Parameter
Technology	TDOA (Time Difference Of Arrival)
Frequency	3.5 - 6.5 GHz
Accuracy	10cm CEP90
Coverage	40 x 40 m ²
RF power	0dB / 1mW
Algorithm	3-point / 4-point
Basic Topology	1 gateway + 3 base station

UWB has the advantage of high accuracy, with line of sight communication between tags and base station. To accommodate the complex environment onsite, BLE beacon is added as a supplement technology to raise stability.

ChinoINT UWB Geo-fencing Case Study

Localized UWB real time monitoring system with local siren on forklift to alert for critical distance from coast
1-Dimension position system is being used (Geo-fencing)

UWB tag embedded on ground



UWB receiver on forklift
12V input from forklift

When forklift crosses the 3-meter boundary line (adjustable), alarm will sound

UWB Positioning Gateway / Base Station



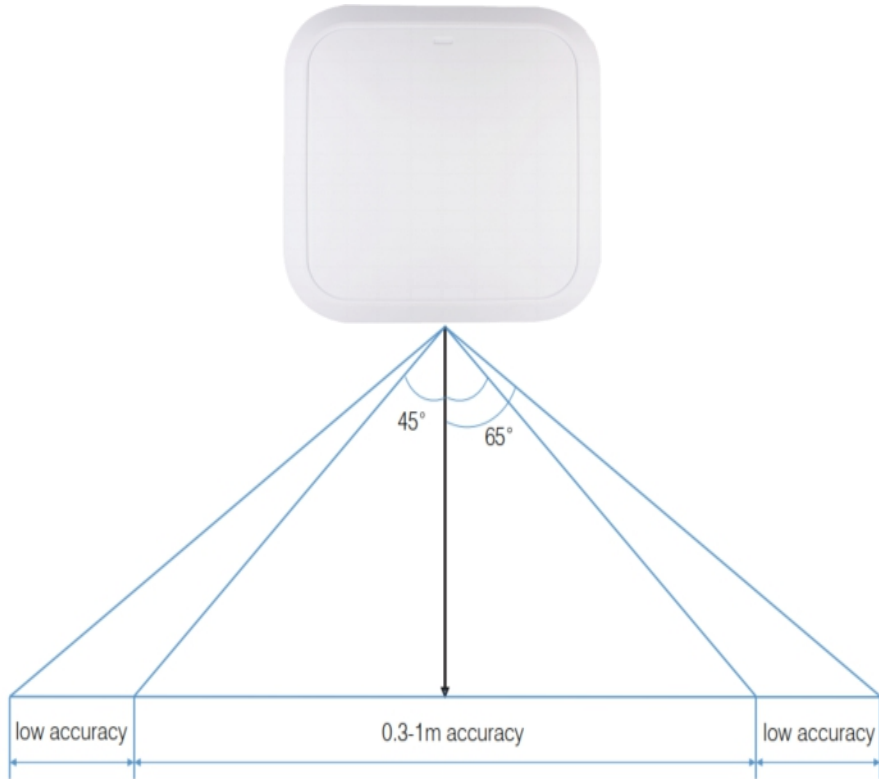
Parameter	Spec
ChinoINT Part Number	AEHRHWGWANC1
Frequency Band	3.5 to 6.5 GHz
Dimension	120 x 120 x 30mm
Input Power	DC 5V
Power Consumption	5W
TX Power	0dBm/1mW
Coverage	5m (40x40m ²)
Uplink	Ethernet / Wifi

UWB Positioning Tag



Parameter	Spec
ChinoINT Part Number	AEHRHWPTTWZ1
Frequency Band	3.5 to 6.5 GHz
Dimension	60 x 60 x 20mm
Input Power	DC 5V
Power Consumption	2.5W
TX Power	0dBm/1mW
Battery	1500mAh, 1 year @ 30s interval
Interval	100ms - 60s

BLE High Accuracy Positioning Gateway+ (0.3 - 1m accuracy)









- Talented locating engine supports 0.3-1m positioning accuracy
- Real time locating system with low latency
- Talent design ensures low EMI and strong anti-interference
- Adapts for different terminals including mobile phones and the beacons in the market
- POE connection and highly integrated engine enables simple and quick deployment
- Locating engine provides API for application development

Parameter	Spec
Name	BLE High Accuracy Positioning Gateway
ChinoINT Part Number	AECPHWGW0300 / AECPHWGW0100
Dimension	240 x 240 x 40 mm (720g)
Uplink	WAN , WiFi
Downlink	Bluetooth 4.0 / BLE
Tx Range	50m distance from gateway to sensor
Accuracy (AOA)	0.3-1m, cover up to 300 square meter
Power	POE 48V
Locating update rate	1-5Hz
Processing speed	300 locating message/s
Additional features for AECPHWGW0300	temperature, vibration, motion, humidity, gas and other sensors

**Ground-breaking AOA (Angle-of-Arrival) algorithm
base on Bluetooth 4.0 / BLE technology**

High Accuracy Positioning Beacons (0.3 - 1m accuracy)

							
Name	Positioning Beacon 10	Positioning Beacon 15	Positioning Tamper proof Beacon 25	Positioning Chest Tag 30	Positioning Beacon 40	Positioning Light & Sound Alarm	Rugged Tamper proof positioning beacon
Part Number	AECPHWBB0010	AECPHWBB0015	AECPHWBB0025	AECPHWBB0030	AECPHWBB0040	AECPHWBB0050	AECPHWBB0061
Dimension (mm)	40 × 36 × 12	41.2 x 28.8 x 8.2	35.3 x 28.3 x 10.2	99 x 66.5 x 6.2	85 x 80 x 13.5	92.5 x 40 x 19.5	92.5 x 40 x 19.5
Net Weight (g)	12	8	9.5	35	58.2	40	58
Tx Distance (m)	80	120	120	80	120	80	120
Detection Speed (km/h)	15	80	80	-	-	200	80
Protocol	Bluetooth 4.0 / BLE	Bluetooth 4.0 / BLE	Bluetooth 4.0 / BLE	Bluetooth 4.0 / BLE	Bluetooth 4.0 / BLE	Bluetooth 4.0 / BLE	Bluetooth 5.0 / BLE
Data Rate (k/bps)	250	1000 / 2000	1000 / 2000	250 / 1000 / 2000	1000 / 2000	1000	1000 / 2000
AES Encryption	Support	Support	Support	Support	Support	Support	Support
Battery Type	CR2032	CR2032	CR2032	Rechargeable 300mAh	2 x CR2450	2 x AA	CR2477
Battery Life (Year)	1 - 1.5	2 (3Hz)	2 (3Hz)	Recharge Time 2 Hr	5	3	5
Low Battery Warning	Support	Support	Support	Support	Support	Support	Support
IP Rating	IP65	IP67	-	IP65	IP65	IP53	IP68
Color	Blue, Red	Black, White	Black	Grey	Black	Black	Yellow
Button	-	-	-	Yes	Yes	Yes	-
Light & Sound	-	-	-	-	-	Yes	-
Accelerometer	-	Optional	Optional	Optional	Optional	-	Optional
Mounting	Wearable, Adhesive	Hang, Adhesive	Adhesive	Hang	Adhesive	Hang, Adhesive	Tie



Real Time Location System Outdoor

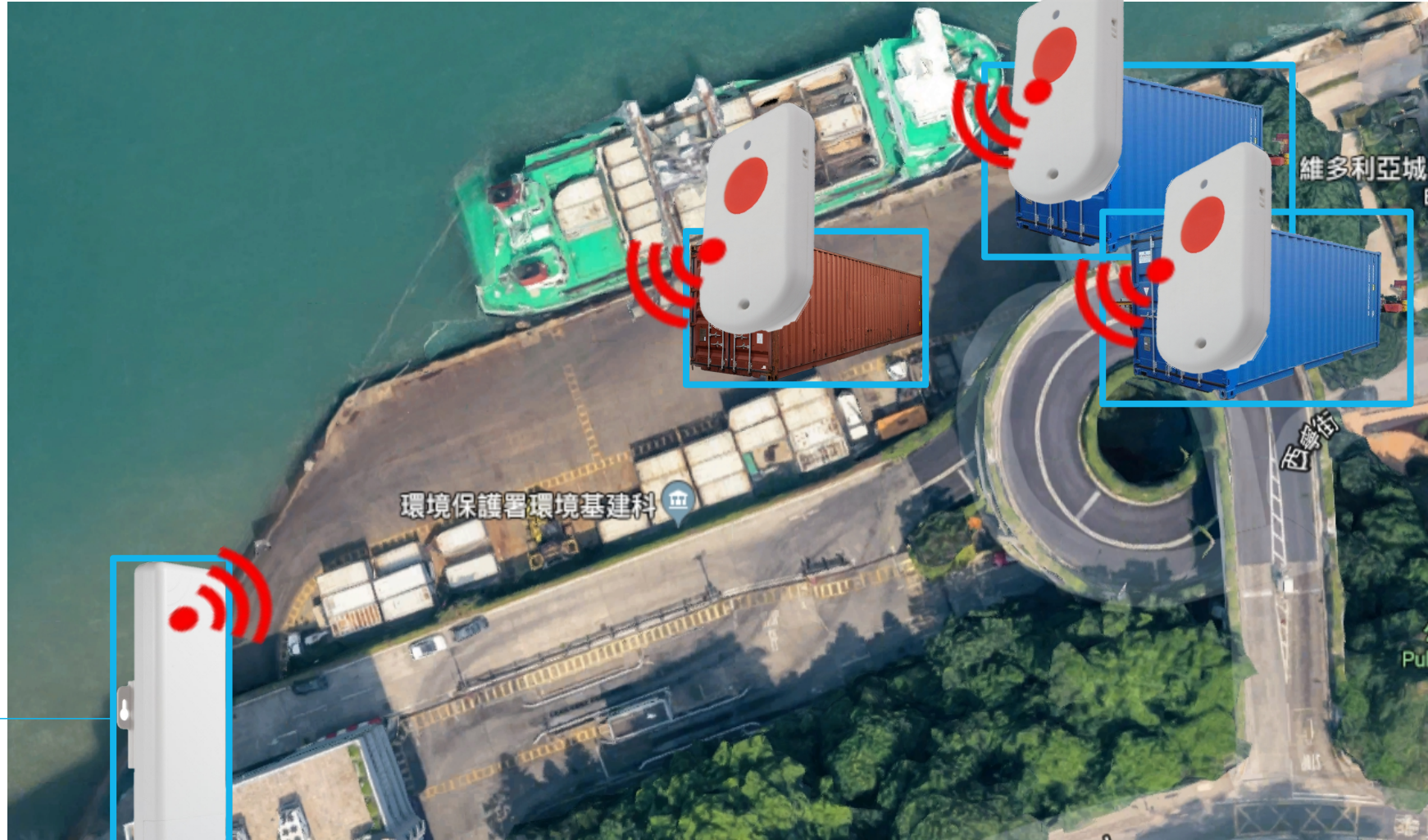
Outdoor Tracking



Data to
analytic server



5G /
4G /
Wifi /
Ethernet



Outdoor LoRaWan Gateway

LoRa / LoRaWan Gateway - AEDGHWGW020x

- LoRaWan indoor gateway
- 4G Uplink
- Proprietary technology to reduce network server
- LoRa / LoRaWan Support
- Work with LoRaWan compatible sensors
- CE / FCC

Indoor Gateway
AEDGHWGW0201



Outdoor Gateway
AEDGHWGW0203



Parameter	Spec
Frequency Band	470 / 868 / 915 / 923MHz
Protocol	LoRaWan 1.0.2
Channel	2
Class	A / C
Power	DC12V
4G Optional (AEDGHWGW0202)	LTE,UMTS/HSPA+ and GSM/GPRS/EDGE coverage
Network Backhaul	10M/100M RJ45 Ports x 2 2.4G WiFi (802.11 bgn)
Dimension	110x85x30mm
Certification	CE, FCC

LoRaWan GPS Tracker



Parameter	Spec
ChinoInt Part Number	AEDGHWPS0101
Dimension	85 x 48 x 15 mm
Weight	50g
Protocol	LoRaWan 1.0.2
Frequency	CN470/EU433/KR920/US915/EU868/AS923/AU915
Power Supply	2xAA battery or Li battery
Low Battery Alert	Support
GPS	Real-time GPS tracking
Accelerometer	Built-in 9 axis accelerometer
Certification	CE



Video Assisted RTLS

Video Analytic



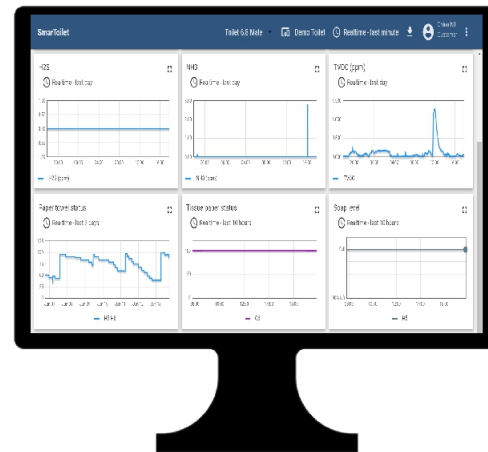
Video assisted RTLS combines the geo-location information of the camera & the captured data for each personnel / asset.





Integrated Platform

1 Single Integrated Platform



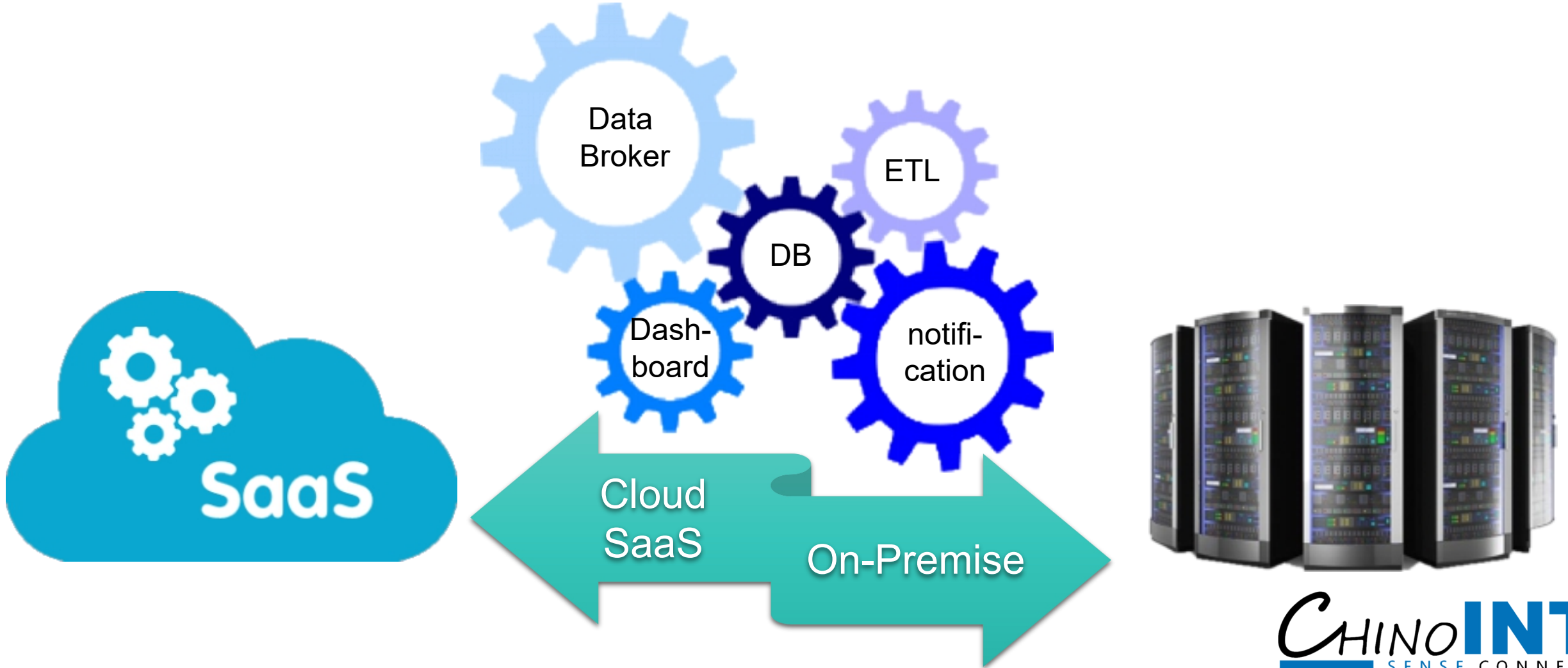
1 single analytic platform for all data

- easy to manage
- 1 single dashboard
- seamless integration
- simple topology
- economic cost

Software Platform



The Software Platform consists of Data Broker, ETL tool, Database, Dashboard and notification modules
For easy deployment, both Cloud SaaS and on-premise version is available

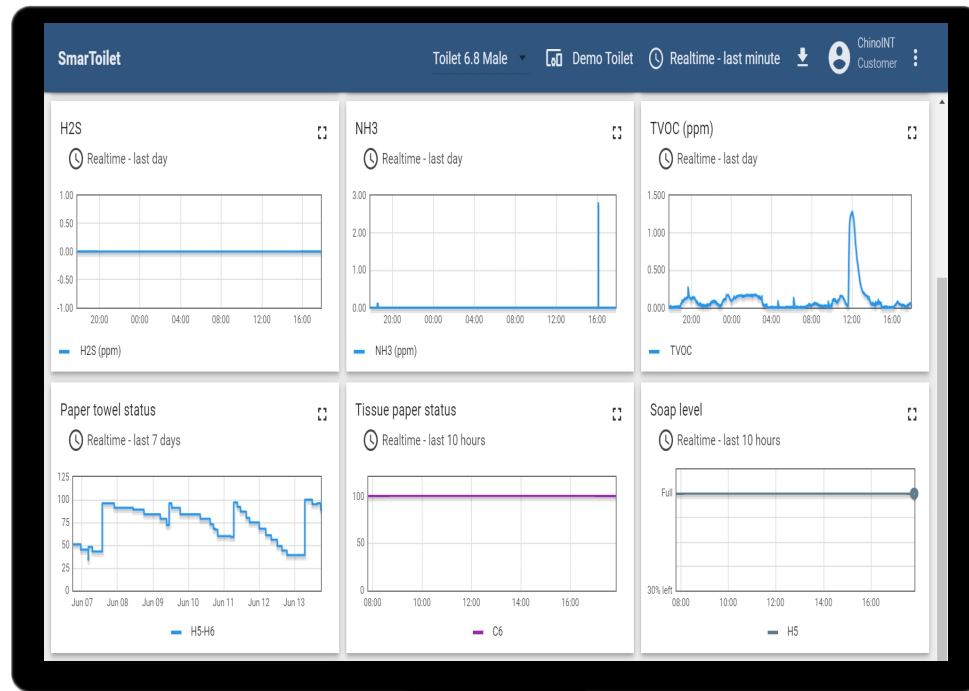


Dashboard



Clean and clear dashboarding is one of the key element in an IoT system. The ChinoINT Smart Platform provides easy to use dashboard, with multi-layer user account settings.

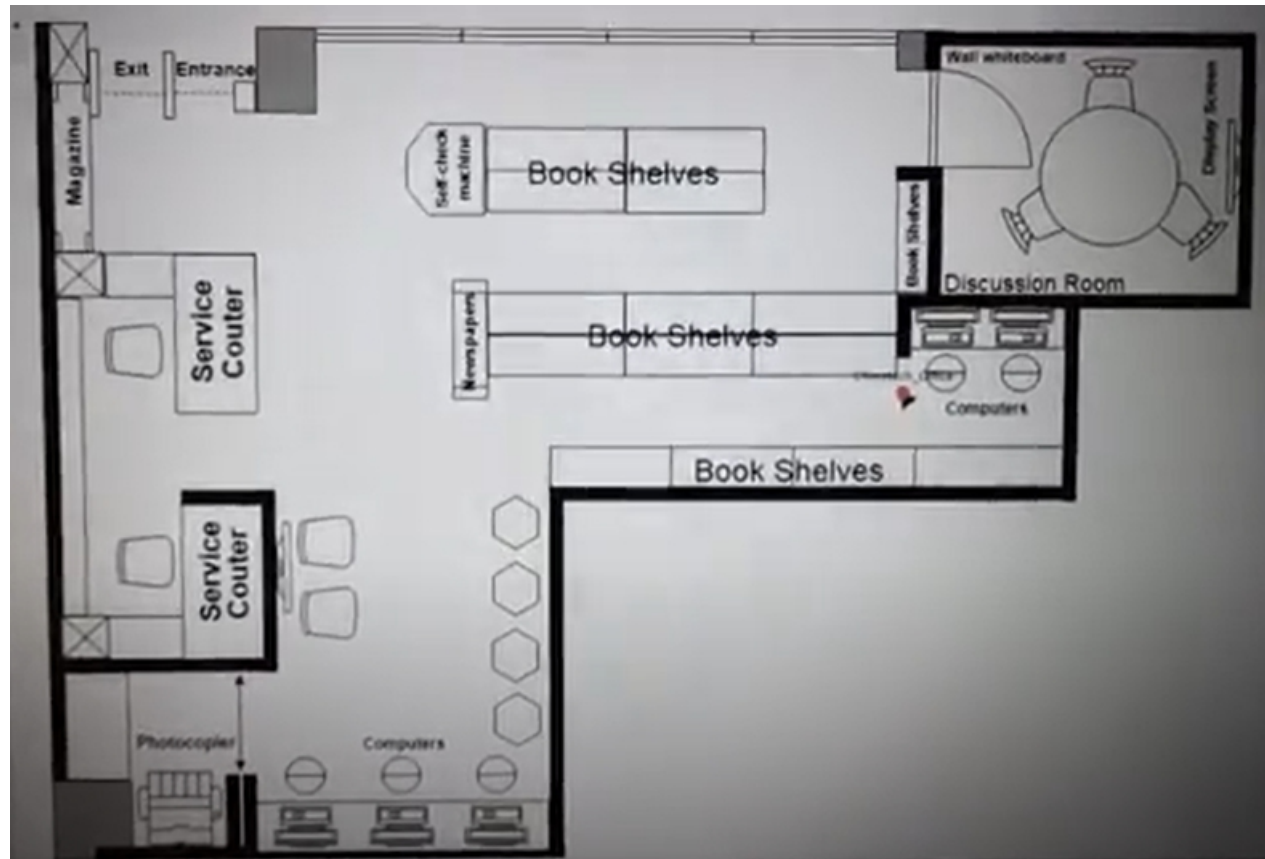
Both desktop and mobile version (Android and IOS) are available.



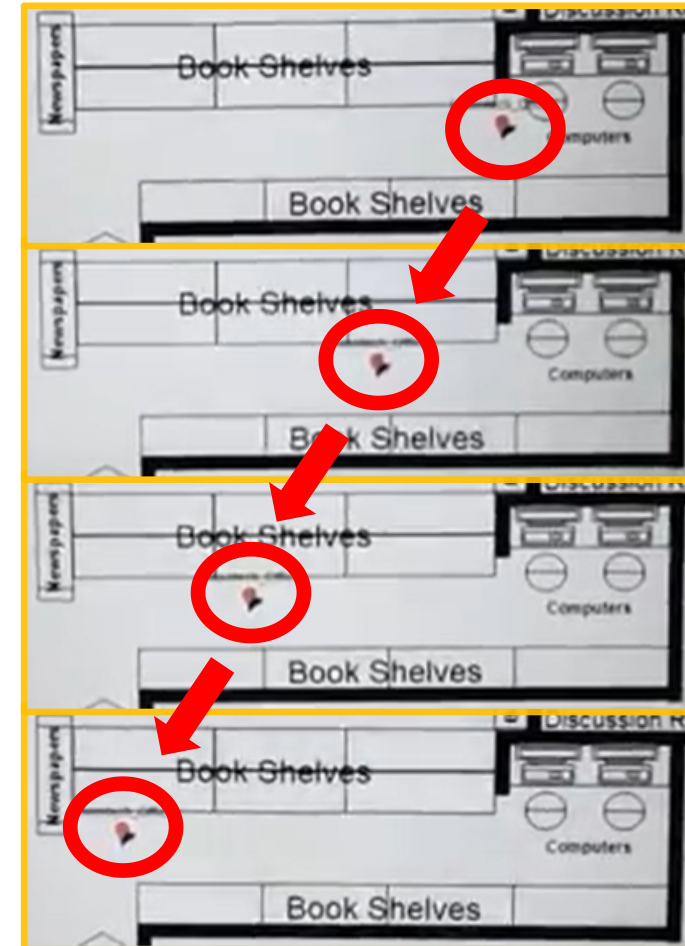
Real Time Dashboard



Real Time GUI for asset and people tracking
Easy to use interface



Real Time Tracking



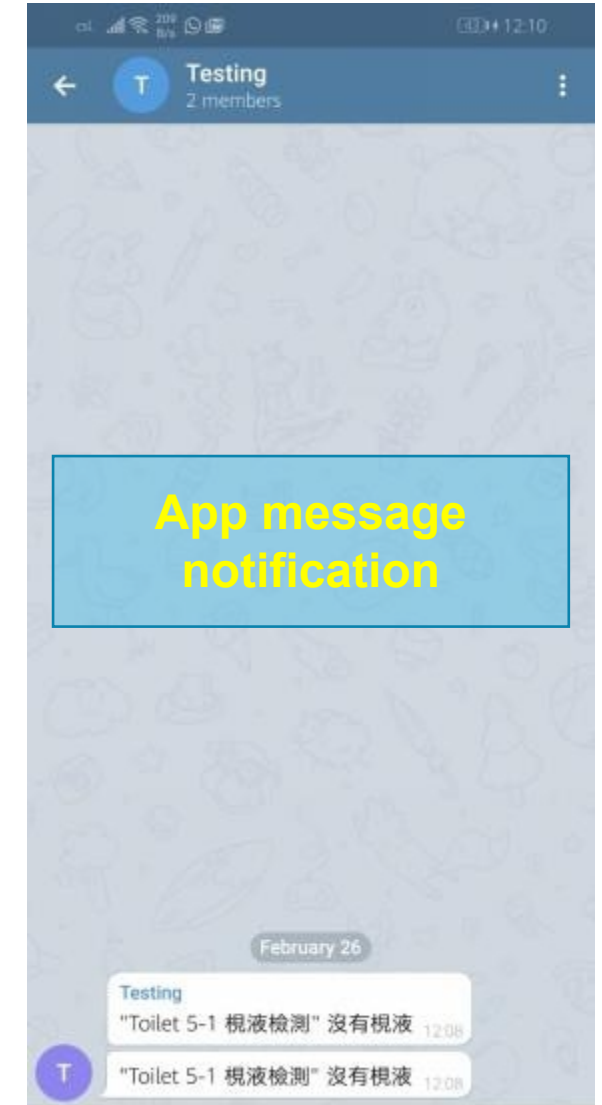
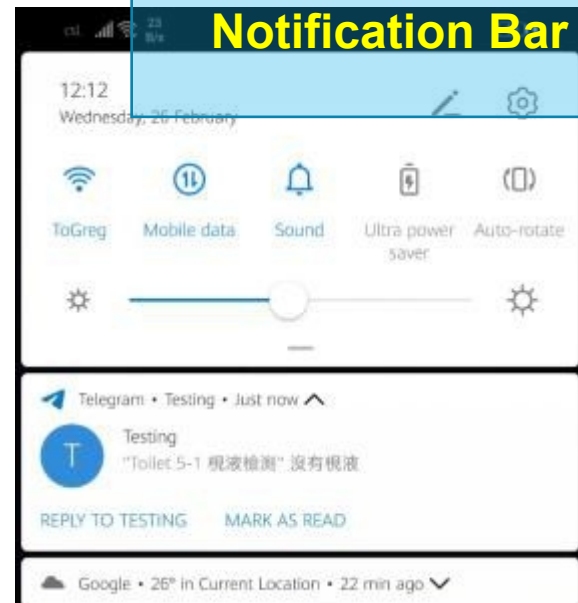
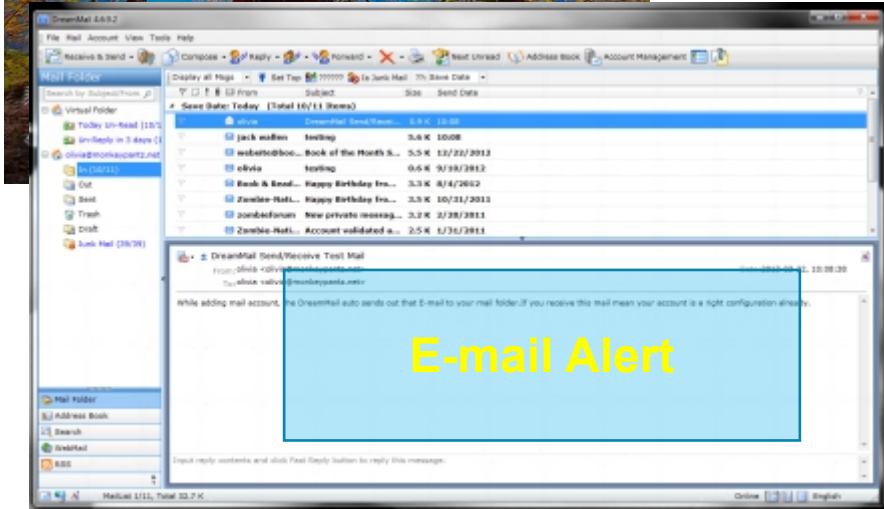
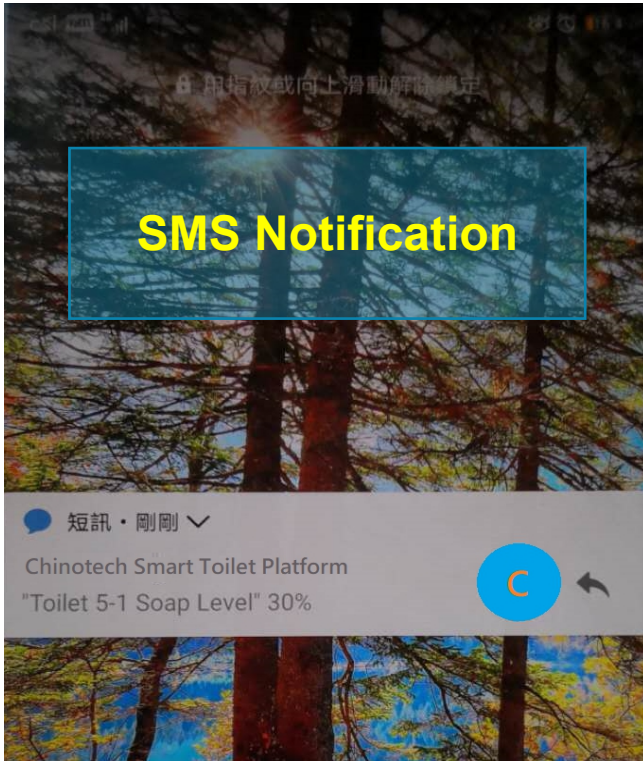
Notification



Notification is one of the crucial feature for Smart Solutions, in order to achieve on-demand management and best resource utilization.

Notification can be done through app, notification bar alert, SMS and through e-mail.

App message notification can be configured as group alert, and individual alert.





Scenario

Visitor Management System

Register
your VEHICLE



Easy Contractor / visitor registration

- On-site Kiosk
- APP

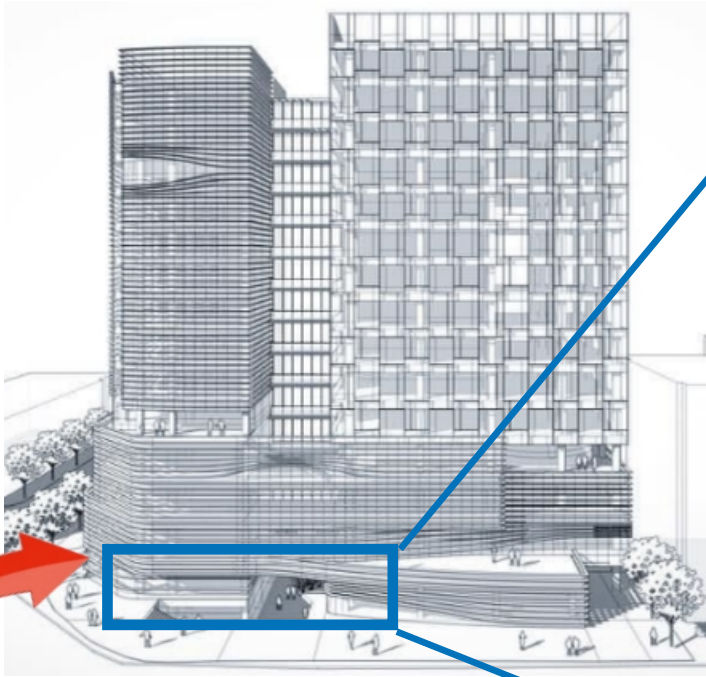
During registration, virtual key can be created by using

- photo upload (facial recognition)
- licence plate number registration
- WIFI MAC address
- Bluetooth address
- NFC

Virtual Key



Arrival Identification



Upon arrival, using the identity info / virtual key generated by registration:

Facial Recognition technology for access control

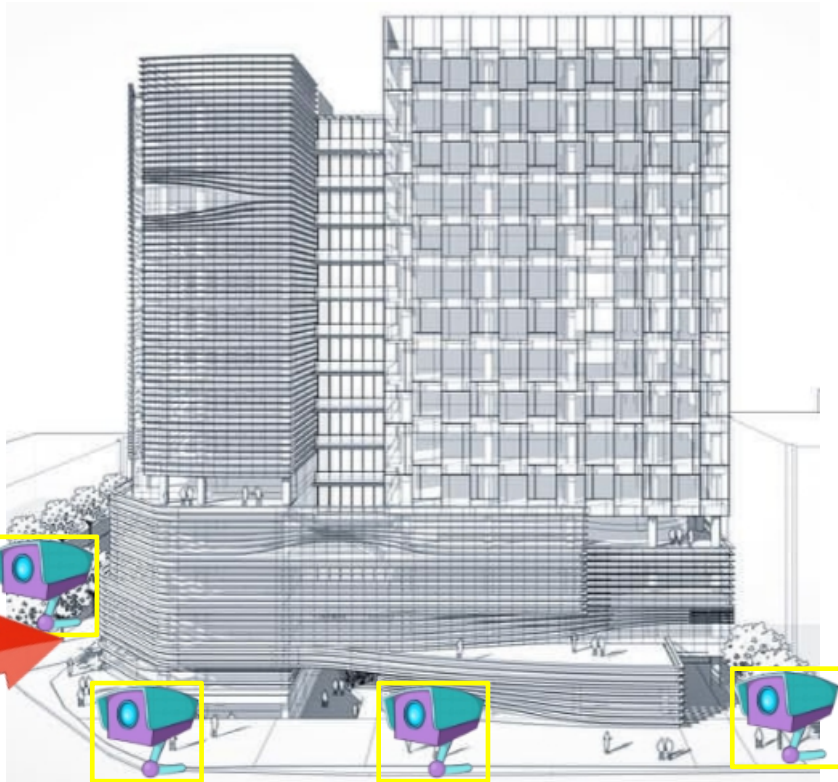
- easy registration - photo upload (through app, get MAC address at the same time)
- FR access control is able to control the gate for verified personnel

2 level authentication

- wifi probe (MAC address mentioned above)
- fingerprint
- NFC



Vehicle Identification

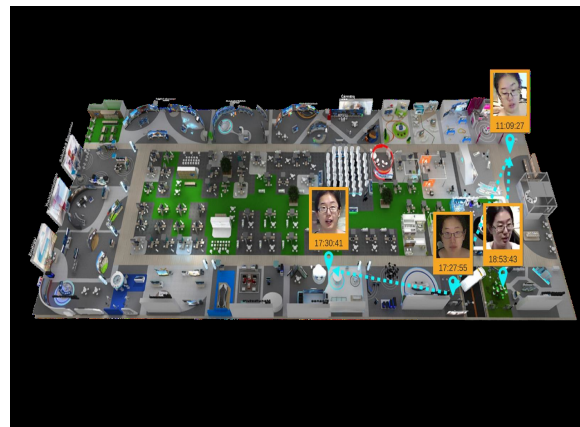


License plate recognition

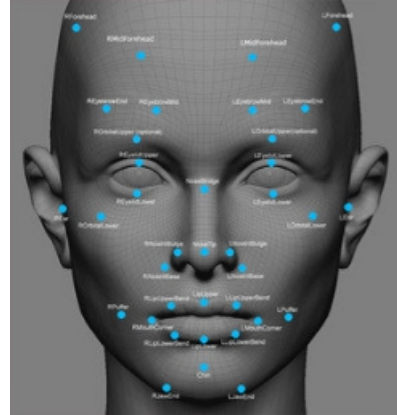
- Using the pre-registered license plate number
- share same hardware infrastructure with FR access control
- install at main entrance and road junction to track license plate
- easy installation on existing lamp pole



License Plate Recognition & Vehicle Management



Indoor Tracking



Campus indoor tracking:

Applicable technologies

Facial Recognition

- install inside building
- tracking throughout campus in indoor area

Wifi probe

- may need switched on phones from contractor staff

RFID

- could integrate with the safety helmet

Outdoor Tracking

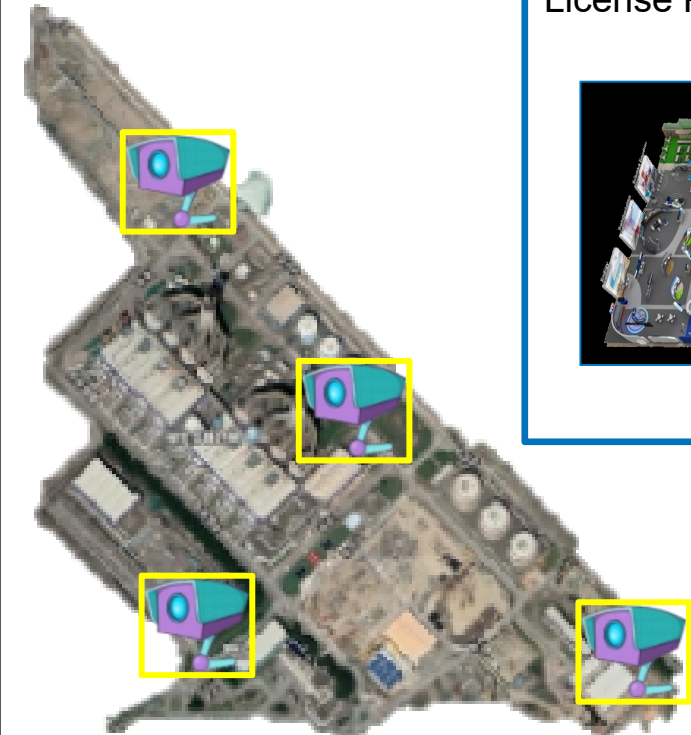
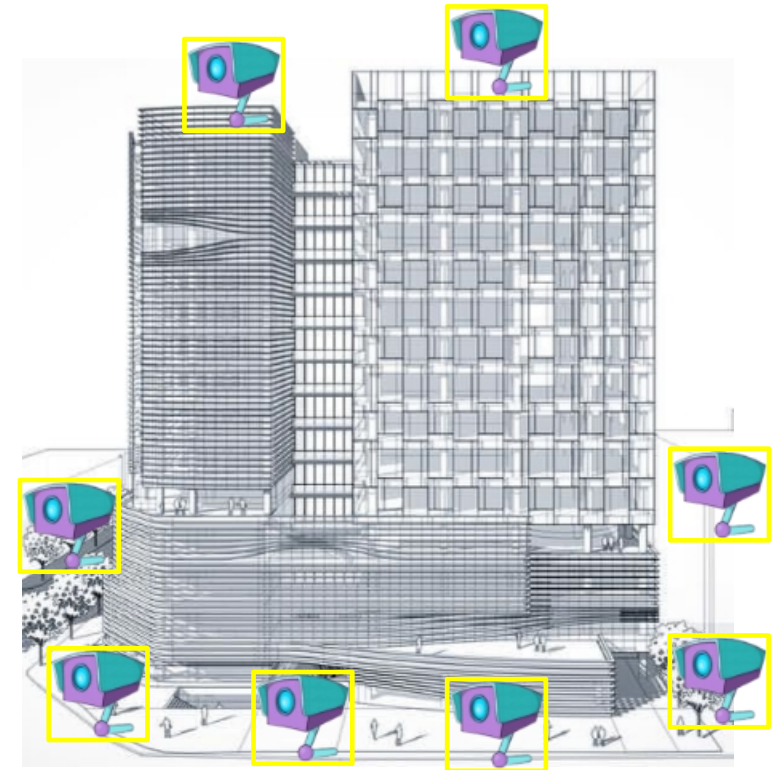
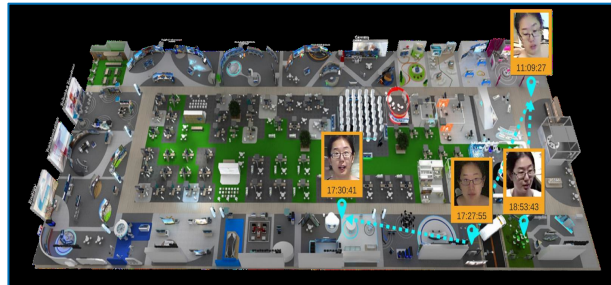


Campus outdoor tracking:

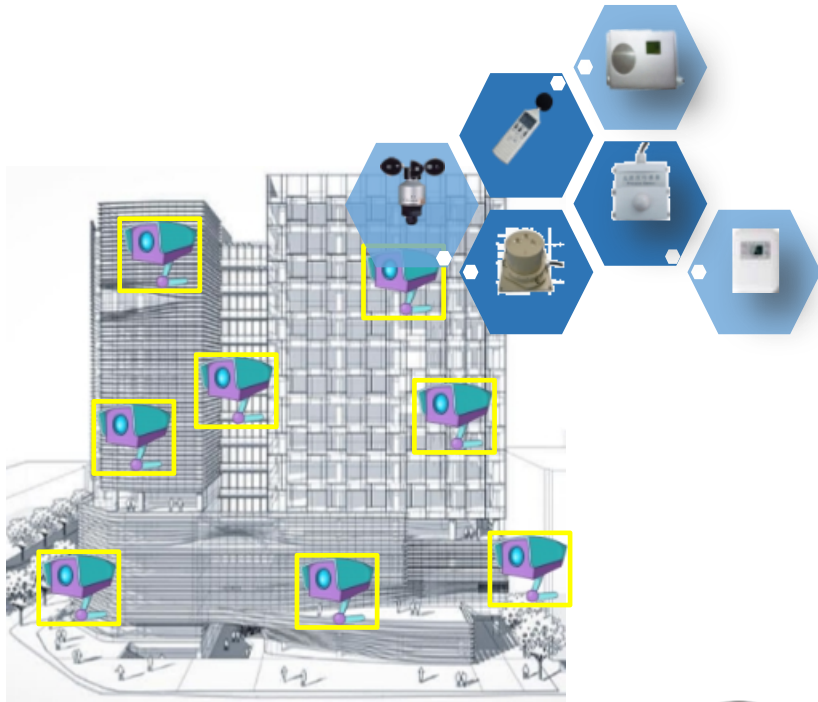
Facial Recognition technology for personnel tracking

- install on main entrance and road junction
- easy installation on existing lamp pole
- tracking throughout campus in outdoor area

License Plate Recognition tracks vehicles all over the campus



On-site Air Quality Monitoring



Installed together with camera / lamp pole

- weather station
- air quality station
- CO/CO2/NH3/H2S/etc
- SOS station
- charging station





Case Study: Smart Hospital

- Infant / Staff / Patient Realtime Location
- Anti-Wandering
- SOS Button
- Anti-removal
- Fall Detection
- Asset Tracking

Realtime Location System



Indoor Location System helps crew to understand the location for each of the elderly / patient / infant / staff, so that they won't miss or delay any necessary event, such as medication etc.

Depends on needs, the system can be designed to different accuracy, such as accurate to floor, accurate to room or even accurate to within 1 meter.

Not only persons, the system can also track assets.

Anti-Wanderer



The Anti-Wanderer system perform real time check and alert the medical crew if any elderly has passed the red line.

Real Time Call bell



Anti-Removal



Temperature at the back is a 7/24 temperature monitoring sensor for the patient. It also serves as a skin sensor for removal detection.

Real time alert signal generated on monitoring system and dashboard, together with messenger alert to nurses.

Fall Detection



Real time alert signal generated on monitoring system and dashboard, together with messenger alert to nurses.

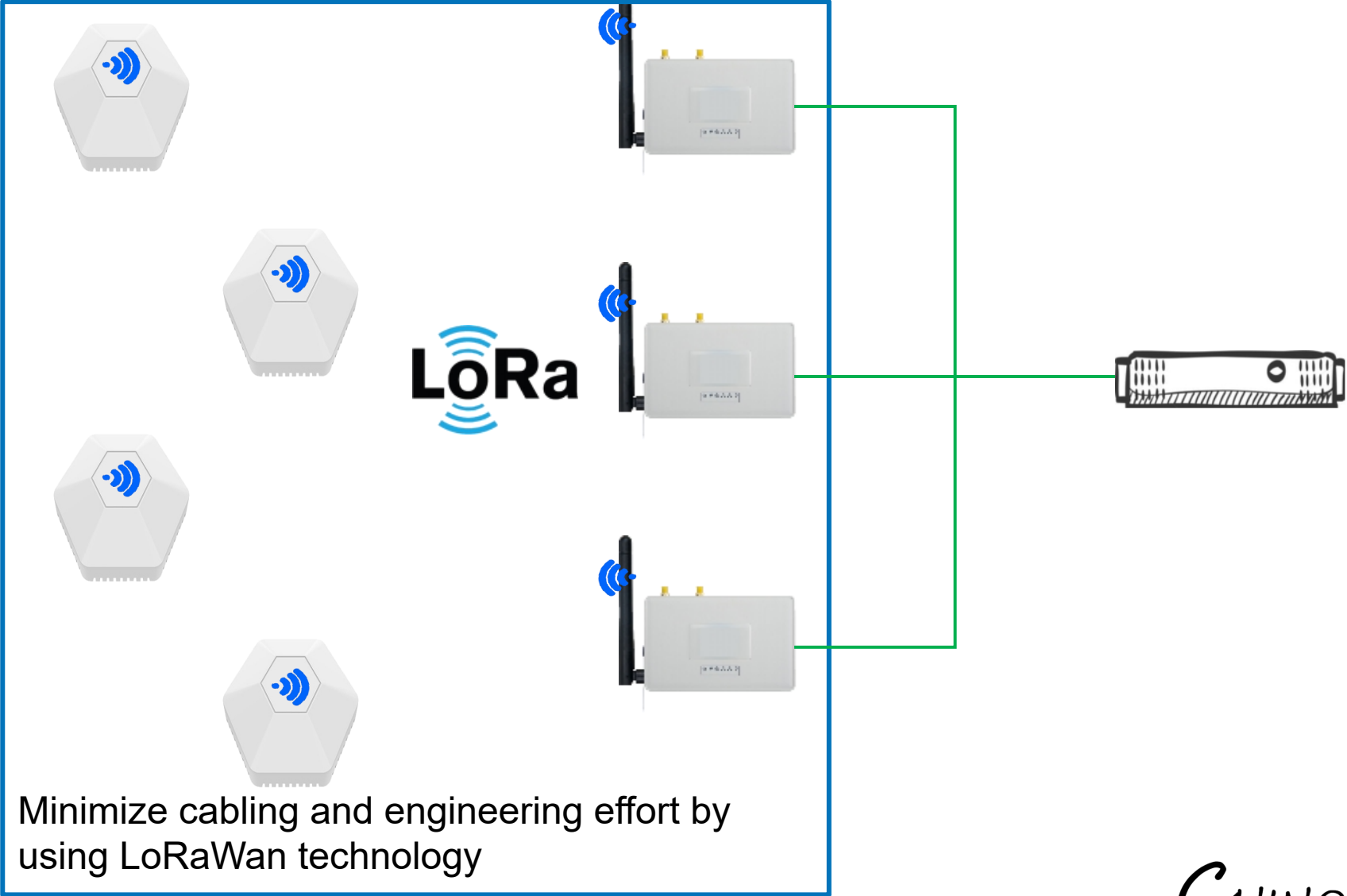
Asset Tracking



Real Time Location Map



Topology



LoRaWan Gateway

- LoRaWan indoor gateway
- Optional 4G Uplink
- Proprietary technology to reduce network server
- LoRa / LoRaWan Support
- Work with LoRaWan compatible sensors
- CE / FCC

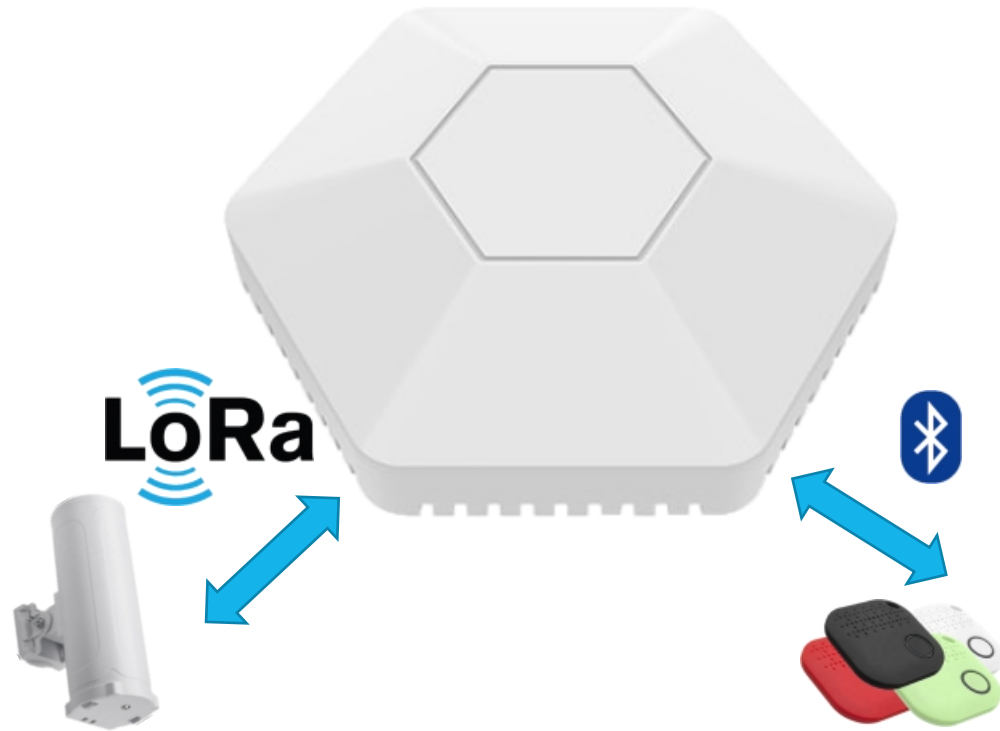
Indoor Gateway
AEDGHWGW0308



Outdoor Gateway
AEDGHWGWLOS8

Parameter	Spec
Frequency Band	470 / 868 / 915 / 923MHz
Protocol	LoRaWan 1.0.2
Channel	10
Class	A / C (Indoor) A / B / C (Outdoor)
Power	DC12V, POE
Optional 4G	LTE,UMTS/HSPA+ and GSM/GPRS/EDGE coverage
Network Backhaul	10M/100M RJ45 Ports 2.4G WiFi (802.11 bgn)
Dimension	158x114x30mm (AEDGHWGWLOS8)
Certification	CE, FCC

LoRaWan BLE Probe



Parameter	Spec
ChinoInt Part Number	AEMKHWLP030B
Dimension	123 x109x 36mm
Frequency	CN470/EU868/AU915/US915/AS923/I N865/KR920/EU433/CN470/CN779
Protocol	LoRaWan 1.0.2
Max Transmit Power	20dbm
RX Sensitivity	-142.5dBm@SF12 300bps
BLE	Beacon scanning up to 80m
Power Supply	12V DC or 5000mAh chargeable battery
Operating Temperature	-40~+70°C, 10%~90%

ChinoINT
LoRaWan Gateway

LoRaWan Probe (to ride on LoRaWan Infrastructure)
(to reduce BLE gateway and RJ45 uplink connection)

BLE Wristband Thermometer with SOS Button



Parameter	Spec
ChinoInt Part Number	AEKMHWWTK680
Dimension	Body size: $\Phi 40 \times 9$ mm Band length: 260mm (for adults)
Weight	26g
Transmission Range	30m
Low Battery Alert	Support
Power Supply	Rechargeable Li-ion Battery
Battery Life	3 months
Accuracy	$\pm 0.1^{\circ}\text{C}$
SOS button	Support
Accelerometer	Optional x/y/z accelerometer for advance application

Asset Tracking Tag - White



Parameter	Spec
ChinoInt Part Number	AEKMHWIB0105
Dimension	60*60*18mm
Weight	25g (with battery)
Transmission Range	100m (BLE4.0) 250m (BLE5.0)
Low Battery Alert	Support
Encryption	AES-128-ECB
Power Supply	2 * AAA battery
Battery Life	> 48 months, 2 seconds interval
TX power	-20~5dBm
IP Rating	IP54
Certification	FCC / CE
Protocol support	Apple iBeacon, Eddystone URL, Eddystone UID, Eddystone TLM
Temperature Sensor	error: +/-3°C , -40°C~70°C
Accelerometer	x/y/z



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For more information,
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