Realtime Tracking System(RTLS)
ระบบติดตามพิกัด

By

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3 ระบบติดตามพิกัด

Feature	BLE AoA	UWB	BLE Beacons (RSSI)
Accuracy	<50 Cm.	< 30 CM.	2-5 M.
Cost	ปานกลาง	กลางถึงสูง	ถูก
Power Cons.	ต่ำ	กลาง	ต่ำมากๆ
Range (Optimal)	10-30m.	20-50m.	10-30m.
สภาพแวดล้อมที่ยาก	กลาง	ดีมาก	กลาง-ต่ำ
Latency	กลาง(วินาที)	เร็วมาก(มิลลิวินาที)	กลาง(วินาที)
ความยากในการติดตั้ง	กลาง	ยาก	ง่าย
Compatibility	ดีมาก BLE 5.0+	น้อย	ทุกชนิดของ BLE
Best Use Cases	Asset Tracking, Moderate Precision	Automation, Robotics, High Values Asset, Secure Access Control	Proximity, Simple Tracking, Zone Tracking

RTLS – Real-time Tracking System
ระบบติดตามแบบตรงตามเวลาจริง
ด้วย Bluetooth AoA ความแม่นยำสูง

RTLS แบบ AoA คืออะไร
คือการหาพิกัดด้วยเทคโนโลยี
องศาของสัญญาณที่มาถึง(Angle of Arrival)

ใช้ในการติดตามพิกัด บุคคลและสิ่งของต่างๆ
แบบ realtime และมีประวัติย้อนหลัง

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Software

ระบบแสดงผล — Blueiot Platform

ระบบคำนวนพิกัด — AoA Engine

Hardware

อุปกรณ์ตรวจจับ — Blueiot Anchor

แท็กรูปแบบต่างๆ — Blueiot Tags/Partner Tags

Personal Tags

	BT1000-w	BT1000-g	BT4500-b	BTS1000-w
Appearance	54.5mm * 40mm * 17mm	85mm * 54mm * 6mm	45mm * 40mm * 20mm	56mm * 45mm * 15mm
Battery Type	Rechargeable	Rechargeable	Rechargeable	Rechargeable
Working Hour	4 ~ 6 months	4 ~ 6 months	3 ~ 4 months	10 ~ 15 days
Ingress Protection	IP65	-	IP67	IP65
Working Temperature	-20 ~ 70℃	-10 ~ 70℃	-20 ~ 70℃	-20 ~ 70℃

	BT1000-d	BT2000-z
Appearance		
	44mm * 44mm * 7.5mm	42mm * 42mm * 40mm
Battery Type	Disposable	Disposable
Working Hour	8 ~ 10 months	4 ~ 5 years
Ingress Protection	-	IP67
Working Temperature	-20 ~ 70℃	-20 ~ 70℃

Technology Overview

blueiot
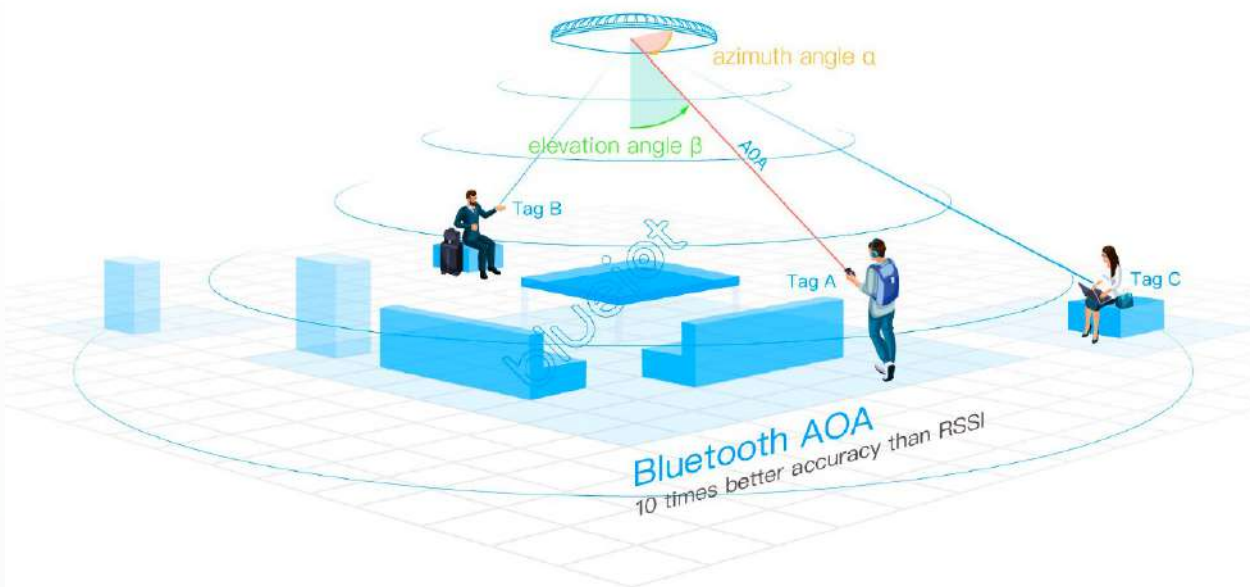
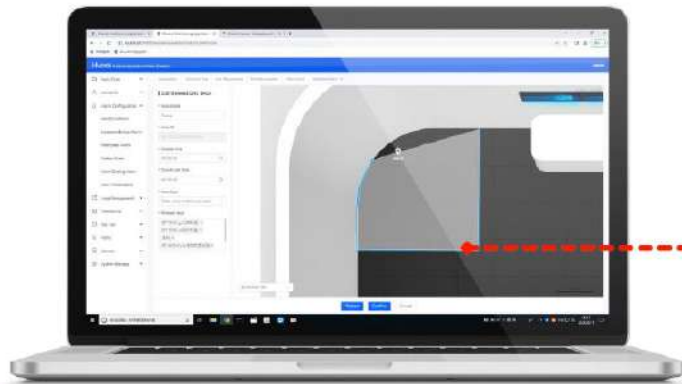Typical accuracy: 0.1 ~ 0.5m

ความแม่นยำ 0.1-0.5 เมตร

- Locating with one anchor and two angles
- Accuracy level down to 10cm
- Support Bluetooth 5.1
- Compatible with BLE 4.0 tags or above
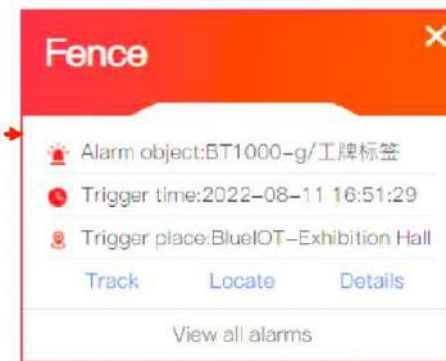- Compatible with mobile phones

Function 1 : Geo Fence

blueiot

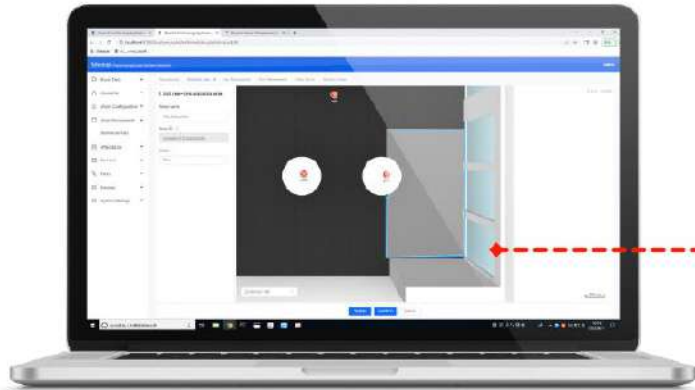**1. Draw an Alarm Fence in the system**
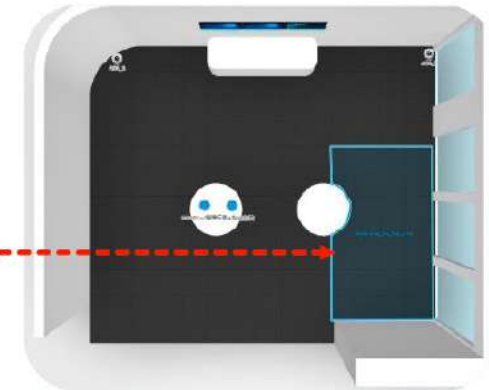
2. When it is finished, the fence will turn to the red;

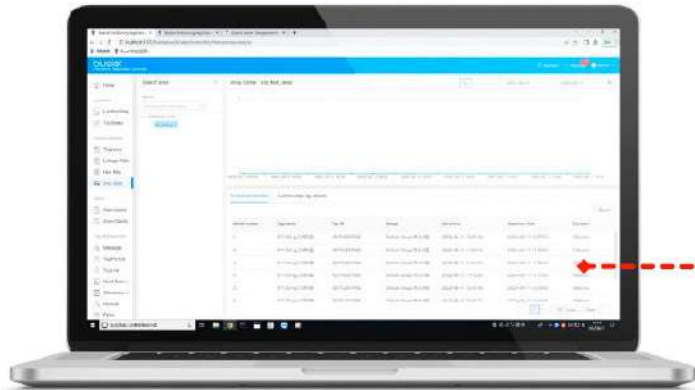**3. When the tag touches the geo fence, an alarm will be triggered on both the application software and the tag.**

Fence ×

Alarm object:BT1000-g/工牌标签
Trigger time:2022-08-11 16:51:29
Trigger place:BlueIOT-Exhibition Hall

Track   Locate   Details

View all alarms

Function 2: Regional Statistic

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1. Draw a statistic region in the system
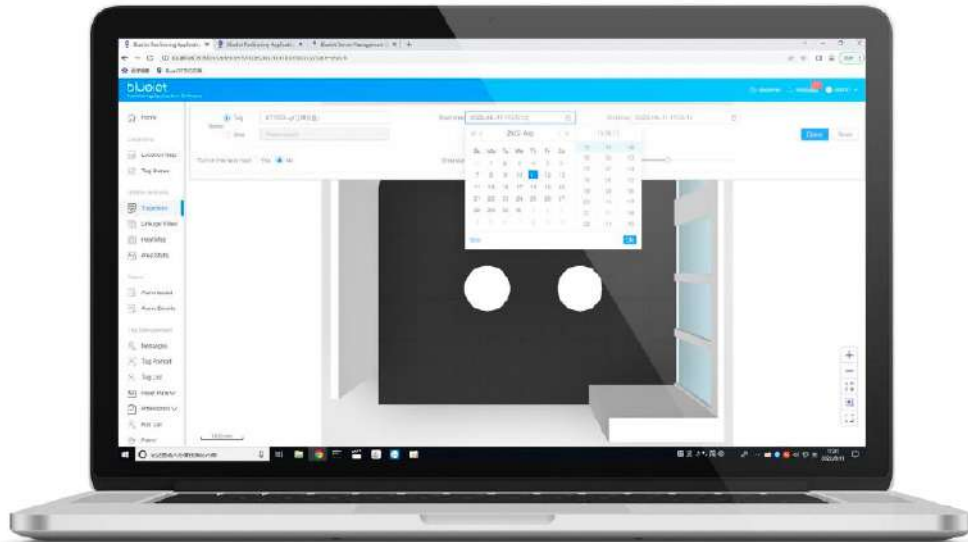
2. When it is finished, the fence will turn to the blue;

3. The tag information including **entry time**, **departure time**, and **staying duration** will be recorded.

Function 3: Trajectory

1. You can query positioning information of any tag in the system after setting the start time and end time.
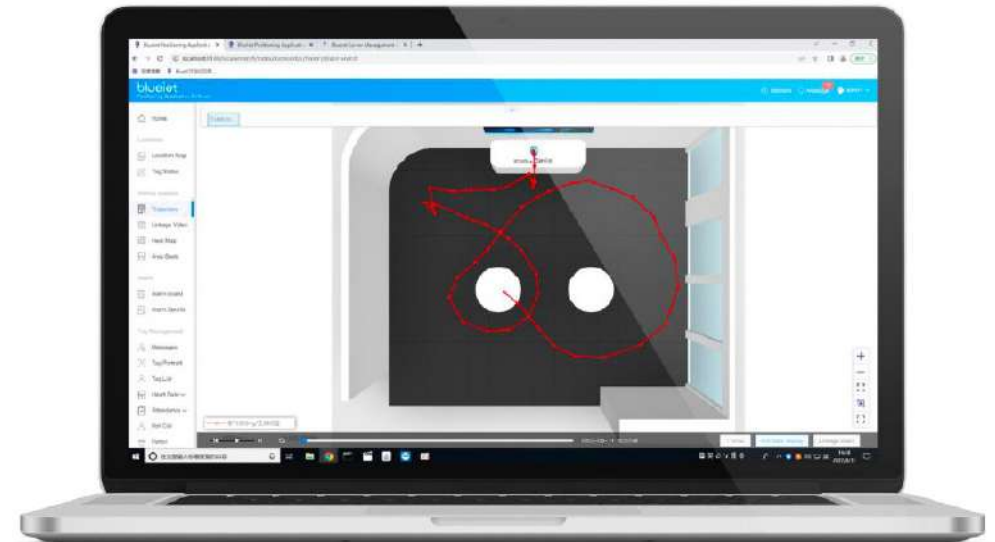
2. You can play the trajectory through a play bar or see the full trajectory by clicking the " full track display" button.

- Support video linkage with security cameras, quickly lock the video surveillance screen of a particular tag.
- Track designated personnel simultaneously with multiple objects.
- Support the world's five major security surveillance cameras including Dahua, HIKVISION, Tiandy, Uniview, and Kedacom.

Live Demo Session

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RTLS Industry 4.0 Solutions to Upgrade Your Manufacturing Processes

A manufacturing workplace involves innumerable people, vehicles and other types of assets. Blueiot RTLS Manufacturing solutions using BLE AoA technology satisfy the need for creating a safe, orderly and productive working environment and accelerate the integration of industry and information.

Sub-meter precision

Electronic fence

Individualized tracking

Guarantee safety

Zonal management ⌃

- A workplace is invisibly divided into different zones by electronic fence.
- Alarm will be sent when people or vehicles are approaching a dangerous or banned area.

Immediate rescue ⌄

Epidemic prevention ⌄

Industry Solutions

Maintain order

Make an inventory

- Assets including vehicles, equipment and materials can all be matched with corresponding tags.
- Data about where they are and how many there are will be collected and analyzed.

Personnel management

Real-time tracking

Industry Solutions

Boost efficiency

Accurate location ⌃

- A mobile equipment is convenient to use, but looking for one is time-consuming.
- Only when a machine is located and found fast enough can they be put into use fast enough.
- Calling for and allocating a right person to the right position also matters in improving productivity.

Automatic inspection ⌄

Attendance checking ⌄

Indoor Position Tracking to Improve Efficiency in Logistics

In logistics, RTLS tracker can be used to optimize the movement and utilization of assets such as vehicles, containers, and inventory. Blueiot provides high-precision indoor positioning solutions based on Bluetooth AoA technology, for retail & logistic industry to be organized and efficient at minimum cost.

Sub-meter precision

Electronic fence

Individualized tracking

Logistic Solutions

People management

Attendance checking

Ensuring safety

Real-time surveillance

- Fast to know where a worker is and where he/she went in case of loaf on the job.

- Data helps to analyze who is liable in case problems occur.

Vehicles and mobile equipment

Minimize the search time

- Locate the vehicle immediately and lead you to the location as soon as possible.

- Provide guidance and navigation services for AGV to keep in right direction.

Reduce accidents

Visualized supervision

Logistic Solutions

Goods and materials

Real-time tracking ⌃

It is clear to see where goods and materials are placed and whether they are misplaced.

Make an inventory ⌄

Automatic inspection ⌄

BLE Indoor Positioning Empowers Public Security Sector

Blueiot solutions apply high-precision BLE indoor positioning technology to law enforcement agencies to keep staff and detainees safe, and to modernize and standardize law enforcement process.

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Healthcare
Maximize patient & staff safety
with RTLS tracking

Manufacturing
Transform your production line
with Blueiot RTLS

Museum
Efficient museum management
with RTLS tracking

Entertainment
Experience the ultimate entertainment
with RTLS solutions

Safety and security

Empower your security management
with RTLS technology

Sports and events

Maximize performance, enhance safety
with RTLS solutions

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Logistics

Revolutionize your logistics operations
with Bluetooth RTLS

Parking space

Streamline your parking process
with Blueiot RTLS

Transportation

Real-time insights for optimized
transportation with RTLS

Use Case

Employee & Visitor Tracking

Asset Tracking

System Integration

RTLS

A high-precision locating system can be applied to various warehouse scenarios alone.

RTLS+MES

Blueiot RTLS can be integrated with the manufacturing execution system for tracking people and equipment in real time.

RTLS+OMS

Blueiot RTLS linked with the order management system can dramatically improve logistics productivity.

staff performance & tracking

Automatic Clock-in/out

Employees wearing a tag (badge or wristband) can clock in or out automatically.

Inspection Management

The system can assign inspection tasks, inform staff in time, and check punctuality or duration.

✓ **ตรงเวลาและเป็นข้อมูลจริง**

staff locating & tracking

Accurate Locating

The real-time locating of employees allows companies to check or find where they are at any time.

Trajectory Analysis

The movement of employees can be recorded for necessary analysis in case of accidents.

✓ การนำมาใช้ประโยชน์ เช่น นับเที่ยว นับระยะ เป็นรายบุคคล

Bluetooth Asset Tracking

Materials, vehicles and equipment are all valuable possessions of an enterprise. RTLS indoor asset tracking solutions enable enterprises to optimize their asset management, thereby helping to reduce costs and increase productivity.

✓ **การติดตาม รถ พาเลท ทรัพย์สิน**

Asset Tracking

Trajectory Analysis

How assets are used is visualized when their location or movement can be recorded for a playback.

Inventory Checks

Entry or exit of assets will be sensed and recorded, and the real-time change in number can be displayed.

✓ Realtime Inventory, Asset Movement Analysis เพื่อเพิ่มประสิทธิภาพการจัดวาง

Asset Tracking

Accurate Locating

Save time in finding a specific item, even from piles of different materials or equipment.

Panoramic Map

Camera linkage in the location system provides a full view to supervise a company's daily operation.

เปิดกล้องอัตโนมัติตาม Asset / Staff

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Regional Management

Misplaced material, vehicle or equipment will be detected and trigger alerting.

Inspection Management

The system can assign inspection tasks in time, and check their arrival, frequency and duration at the spot.

✓ การจัดการพื้นที่ ของอยู่ผิดที่, รปภ. ต้องเดินตามจุด ตามการกำหนด

Indoor Navigation

Optimal Route

For new comers, it is convenient to follow the recommended route with audio narration.

Trajectory Analysis

Operators adjust strategies or upgrade services accordingly by telling the popularity of different places.

✓ สำหรับพนักงานใหม่ การบอกเส้นทางที่ดีที่สุดให้ ก็จะทำให้ประสิทธิภาพดีขึ้น

✓ การวิเคราห์เส้นทางการเดินวิ่งของคนและรถให้ได้ประสิทธิภาพสูงขึ้น
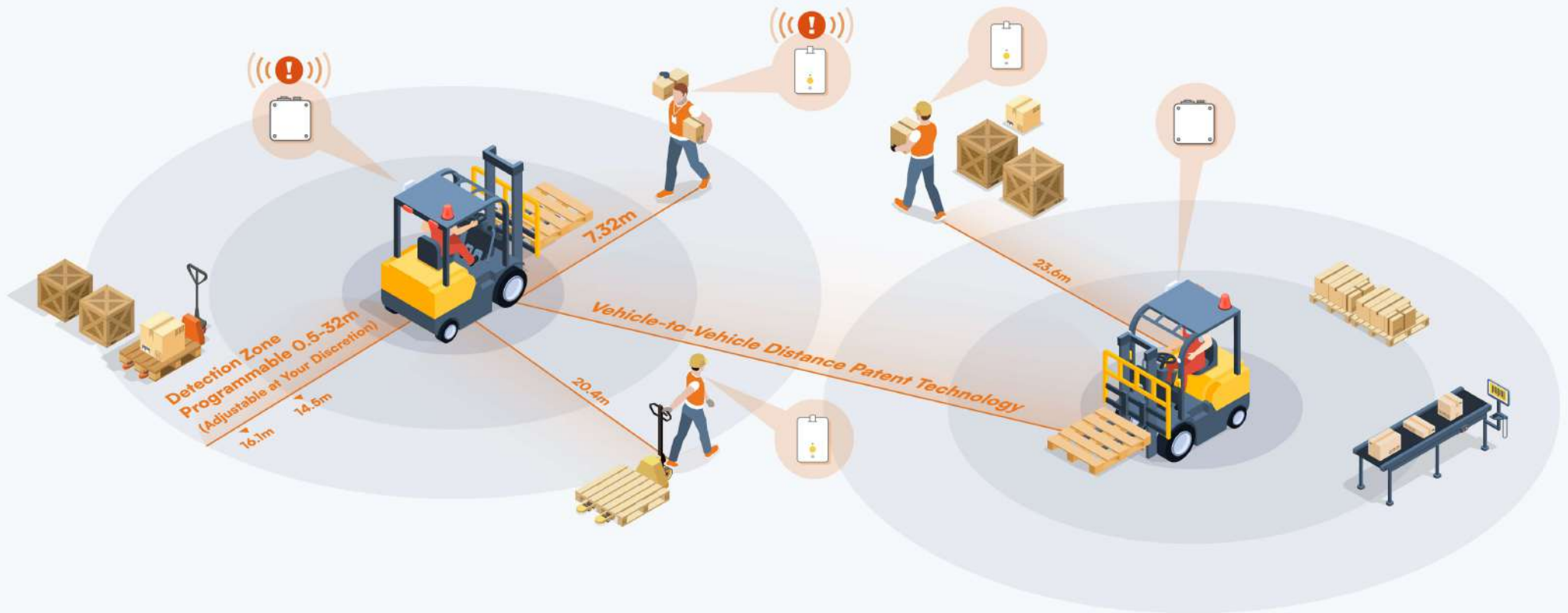
✓ Staff Safety

Forklift Tracking

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Detection Zone Programmable 0.5-32m (Adjustable at Your Discretion)

16.1m 14.5m

7.32m

20.4m

Vehicle-to-Vehicle Distance Patent Technology

23.6m

✓ Staff Safety

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Vehicle-vehicle Ranging

If two vehicles drive closer within a certain range (adjustable), audio and light alerting will be triggered.

People-vehicle Ranging

If someone stays near a forklift, the alerting system like buzzing or flashlight will be triggered.

✓ รถใกล้กัน รถใกล้คนต่ำกว่าที่กำหนด

Forklift Tracking

Vehicle-corner Ranging

A forklift approaching a corner will trigger the alarm in the way of buzzing or flashlight.

รถเข้าใกล้มุมเลี้ยว ให้สั่งไฟเตือนในจุดที่ต้องการ

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Smart Warehouse in Turkey

- Blueiot partner has brought the smart warehouse solution to Turkey. One of their projects involves 6 local factories with a total area of 150,000 square meters. There were 60,000 boxes in the warehouse (20,000 boxes in the work area and 40,000 boxes in the warehouse area) that needed precise monitoring.

- After the deployment of the Blueiot high-precision positioning system, the staff can see the real-time location and historical track of each box on the location map when it is transferred from the work area to the warehouse area, helping the company make an inventory accurately, save manpower, and improve the management efficiency of goods and vehicles.

Accurate

Long-lasting

Low-cost

Small

High Concurrence

Open Ecology

blueiot

Fall-Prevention Equipment Manufacturing Giant

- **Shanghai Research Institute of Building Sciences Co., Ltd** (SRIBS) is one of the first companies to be titled with "Shanghai Brand" and one of the largest manufacturers of fall prevention equipment for construction hoists, accounting for 40% market share. Blueiot system not only helped save labor, which is, 50% time spent in object finding and route optimization for workers, but also increased the production capacity by 65% and productivity by 40%, along with a 30% decrease of production cycle time and 50% reduction of floor space.

Accurate

Long-lasting

Low-cost

Small

High Concurrence

Open Ecology

Use Case

blueiot

World-Leading Material Handling Equipment Manufacturer

- **HANGCHA Group** is one of the leading material handling equipment manufacturers globally. Ranking 8th in the world in terms of sales volume according to MMH (Modern Material Handling) magazine, it accounts for more than 8% sales volume in the world in terms of industrial vehicles.

- Blueiot high-precision positioning system shortened the average search time for a vehicle to merely 1 minute, nearly a 90% increase! Besides, the battery life of a tag reaches up to 5 years and the daily cost is only $0.016.

Accurate

Long-lasting

Low-cost

Small

High Concurrence

Open Ecology

blueiot

Digitalization of International Air Logistics

- **China Southern Air Logistics** operates more than 860 passenger and cargo aircrafts, ranking 1st in Asia and 3rd in the world. So far, it has opened 19 air cargo routes to provide international transportation services. Blueiot solution was adopted in December 2021 and more than 600 AoA anchors and over 3000 AoA tags were deployed at the airport of 140,000 square meters. The positioning accuracy of indoor scenes reached less than 1 meter and the outdoor accuracy is also controlled within 3 meters.

- With this high-precision positioning system, functions like real-time location, status tracking, and process monitoring of containers were all provided, and a customized container information management solution enabled the visual management of container distribution and statistics (thermal power, aggregation, layering).

Accurate

Long-lasting

Low-cost

Small

High Concurrence

Open Ecology

For Forklift

Our Clients

Linde Forklifts have listed LOCALSAFE® as a standard accessory product.

Our Client

PrezON

blueiot

Mercedes-Benz	一汽-大众 FAW-VOLKSWAGEN	SAIC 上汽集团 SAIC MOTOR	上海通用汽车	TOYOTA	Tencent 腾讯	阿里巴巴 Alibaba.com	德邦
BOSCH	FOXCONN	中国航天 CASC	上海证券交易所 SHANGHAI STOCK EXCHANGE	中国中车 CRRC	CORNING	京东方 BOE	Midea
中国石油	中国商飞	中国中铁	中国大唐集团公司 China Datang Corporation	HollySys	GREE 格力	YCIH 云南建投	dahua TECHNOLOGY
国家电网 STATE GRID	TIANDY 天地伟业	中国交通建设 CHINA COMMUNICATIONS CONSTRUCTION	中国南方电网 CHINA SOUTHERN POWER GRID	BAOSTEEL	Budweiser SUPREME	蒙牛

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Q&A

Thank you

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