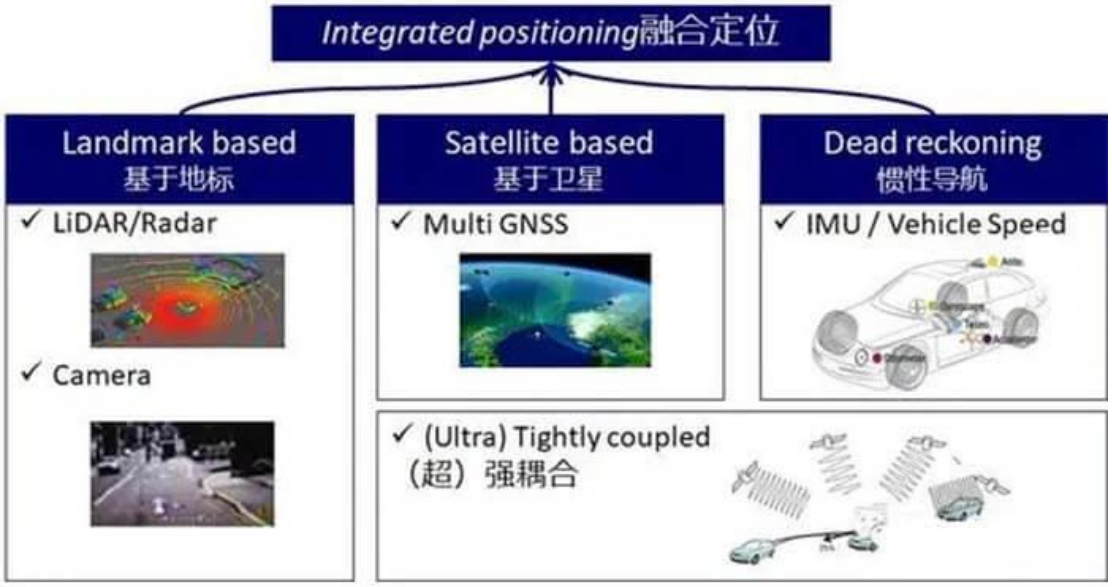
6 Ways of Integrated Positioning Technology



What is integrated positioning technology?

The integrated positioning technology integrates all positioning methods on the market, including GPS, base station positioning, Wi-Fi positioning, Bluetooth positioning, and sensor positioning, which can be described as integrated positioning technology sets.

In our daily lives, more than 80% of the information belongs to related information with spatial location features. Location information and people's production and daily life, both in indoor or outdoor environments, quickly and accurately obtain location information of a mobile terminal, and the need to provide location-based services is becoming increasingly urgent.

Demand for positioning has been more than just a rough track, navigation, all in the era of the Internet, high-precision positioning is becoming just a need.

In the current practice, increasing the positioning function requires a separate positioning technology, which will also mean additional costs. Therefore, it is destined to the users consider the positioning scheme to generate tangible value, such as security monitoring, vehicle monitoring, prison guard, unmanned aerial vehicles, agricultural machinery, construction machinery, surveying and mapping equipment, machines and objects networked terminals.

With the emergence of new applications (such as autonomous vehicles and unmanned aerial vehicles), development of technological breakthroughs (such as dual-band chipsets for the mass market) and market services optimization (in some countries, high-precision positioning service cheap or even free), high-accuracy location-based services market is developing very rapidly, and its application will be more than just a professional level of service, it will become a popular level

Please Contact us for more information, thank you.
Contact Person: Coco Lu coco@ctrfantennasinc.com (+86)13412239096

of service.

Therefore, the precise time and space services are gradually replacing the current location services become the core direction of industrial development, the popularity of high-precision application of innovative development of the industry has become an inevitable trend.

Bluetooth radio technology to release high-precision positioning of charm

The high-precision positioning is becoming just need, this demand can be achieved is also dependent on precipitation technology for a long time, along with advances in communications technology and the popularity of Bluetooth, WiFi, UWB, 5G, and so on, each communication positioning solutions provider in precision aspects in constant progress, improve technology provides the basis for the application of high-precision positioning.

Bluetooth communication capabilities for its initial public known, the four major applications of Bluetooth are: audio transmission, data transmission, location services, Mesh network. Now, location-based services will be the fastest-growing application of Bluetooth applications.

According to SIG recently released "2021 Bluetooth market the latest information," while the new crown outbreak travel and work restrictions and the consequent results in the amount of short-term deployment of Bluetooth location-based services have declined about 25 percent. However, as the market for indoor location and asset tracking use cases continued to have interest, analysts expect Bluetooth location service deployments will bounce back by the end of 2021, and between now and 2025 to achieve a 32 percent compound annual growth rate.

By the end of 2021, the total position of Bluetooth service deployment will reach 262,000.

Only from the point of view in 2021, more than other indoor navigation location services deployments: While location-based services solutions support from near class service to many different use cases such as asset tracking, but indoor navigation services are deployed at each location necessary. At present, nearly 80% of Bluetooth deployment of location-based services includes indoor navigation.

Retail Bluetooth use cases to lead the deployment of location-based services: a decent amount of Bluetooth technology in a number of different vertical areas emerged as a strong growth trend. At present, 66% of the amount of the deployment of Bluetooth support retail use case, is expected to deploy Bluetooth amount will double in the next five years.

Bluetooth technology has now become a huge ecological, 2025, in the Bluetooth device shipments will reach 6.4 billion. Emerging Bluetooth AoA / AoD technology will lead to higher more excellent positioning performance, and Bluetooth-based massive ecological, this new technology will help accelerate the adoption and landing.

Only from the location services application point of view, 2025, Bluetooth with real-time asset tracking deployments will reach 516,000 cases; deployments indoor location services will grow by 2 times; Bluetooth medical location service solutions will grow by about 5 times, to about 380,000.

In addition, a smartphone that is digital keys, and now it has been very acceptable to the phone as a digital wallet payment, smartphones will continue to expand its role in the daily life of.

Dispute positioning technologies: integrated positioning technology is the way

Fragmentation is the biggest feature of the networking industry, networking applications have

different requirements that vary widely, like all networking applications no one communications technology adaptation, like, no one can meet all targeting positioning technology scene and in many applications scene, after the functional needs, in order to pursue better value for money needs to be more integrated positioning technology of location applications, integrated positioning technology has gradually become a trend in the industry.

At present, with the integrated positioning technology, many manufacturers have considered or are trying in the system development process.

Bluetooth AOA + UWB integrated positioning technology

The former advantage is that small area of the scene, and the latter even greater advantage of large areas of the scene, their cost advantages and disadvantages of the two scenarios huge difference.

To address the limitations of a single system two or more, plus a targeting site diverse scenes even complex, so the fusion of two isomers positioning scheme, to improve the reliability and confidence in the results of the Bluetooth AOA + UWB integrated positioning technology, the integrated positioning system to solve a single anti-blocking ability UWB difference, positioning data transitions becomes large;

And solve big problems assuming that the error caused by a single terminal height AoA positioning systems, while fully meeting the positioning needs effectively reduce the cost of deployment.

It is reported that there are already a number of projects using the Bluetooth AOA + UWB integrated positioning technology such as the floor, covering prisons, nursing homes, hospitals, substations, oil and gas pipelines, and other industries. The future will also carry out more in-depth research work and achievements in the field of indoor positioning.

5G + Bluetooth AOA integrated positioning technology

5G allows service providers to see the value of indoor positioning technology and a combination of 5G since operators have a natural ability to indoor communication network construction and operation and maintenance.

5G operators to deploy in accordance with the order after the first indoor-outdoor, which is the first deployment of an outdoor macro base station, after the deployment of small indoor base stations. With 5G indoor network coverage construction, operators began to consider the deployment of a precise position 5G Communications + network, which will locate a base station and base station deployment of converged communications.

Bluetooth AOA + iBeacon integrated positioning technology

The Bluetooth AOA + iBeacon integrated positioning technology relies on a multi-source fusion location algorithm, supports Bluetooth, inertial navigation, satellite positioning, AOA, and other integrated positioning technology to provide high-precision positioning and dynamic integration of indoor and outdoor navigation, it can be used in medical, transportation, culture, commerce and other industries.

For Quectel, parks, transportation hubs, museums, galleries, shopping centers, parking lots, and other large indoor scenes, with indoor and outdoor integrated maps, location and navigation services, and the associated location was long-lasting, reliable personnel and asset location IoT

services.

Geomagnetic / INS + Bluetooth AOA integrated positioning technology

The Geomagnetic / INS + Bluetooth AOA integrated positioning technology positioning system is the core of the magnetic field positioning scheme fusion, wherein the magnetic field produced by the geomagnetism case the building structure, with the non-uniform change in spatial position, are stable over time.

The integrated positioning technology products with the inertial positioning, field orientation, and fusion algorithms, by obtaining a magnetic field, acceleration, angular velocity, and Bluetooth signal strength data, the user position information resolver.

Bluetooth MESH Lamp Network Region + High Precision integrated positioning technology

The lighting system as carrier decentralized AI Mesh technology and communication technology, to build an efficient, easy to use, low cost indoor wireless network, the integration things, network position, sensor networks, and other networks, is space is an important part of digital solutions.

Positioning accuracy of the Bluetooth MESH Lamp Network Region + High Precision integrated positioning technology of different regions may be selected according to different requirements and cost constraints, and may also continue to adjust the system without affecting the deployed landing after the project.

Large capacity + full duplex + high precision integrated positioning technology

The Large capacity + full duplex + high precision integrated positioning technology positioning system uses software radio technology, Bluetooth technology uses a frequency band with a high-capacity, wide-coverage, accurate positioning, full-duplex features to address the limitations of Bluetooth cannot be limited to large-scale deployment in the region.

The base station is achieved by positioning the form of closed-loop operation, the sensor data acquisition, and control device, to solve the problem "last meter" multi-duplex communication device, to enhance the true horizon of fire, industrial, medical, security, industrial, and other sectors the ability to control and create more scenarios.

Currently, the industry's most popular high-precision indoor positioning technology mainly is AOA Bluetooth and UWB two technologies. By 2020, high-precision indoor positioning technology is a hot UWB, and with Bluetooth with iterative standards and protocols, Bluetooth AOA technology began to emerge. AOA Bluetooth technology, while only high accuracy location technology in a small branch, but has a vast market opportunity.

Besides the 6 Ways of Integrated Positioning Technology article, you may also be interested in the below articles.

About Wi-Fi, You Did Not Know

What is the difference between WIFI and WLAN?

Summary of 41 Basic Knowledge of LTE

What Spectrum Is Used In 5G?

What Is Wi-Fi 7?

How To Choose 2.4G And 5G?

What Are The Advantages And Characteristics Of NB-IoT And LoRa?

Please Contact us for more information, thank you.
Contact Person: Coco Lu coco@ctrfantennasinc.com (+86)13412239096

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Contact Person: Coco Lu coco@ctrfantennasinc.com **(+86)13412239096**