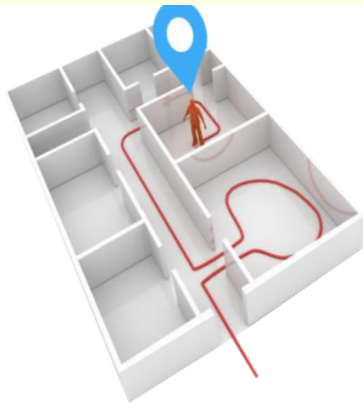




SMIMS VILS Positioning System

SMIMS VILS (SMIMS VeriPrecision Indoor Location System) is a high-accuracy positioning technology that uses UWB (Ultra-Wideband) ultra-wideband as the carrier. It is different from the indoor positioning technology that currently uses Wi-Fi or Bluetooth (such as iBeacon) as the carrier. Significantly different, iBeacon and Wi-Fi are easier to deploy due to the use of general-purpose devices such as mobile phones as media, but limited accuracy can usually only be used to promote commercial messages in specific locations, and cannot be "common grade" Positioning.



No network setup is required, as long as it is placed in an unspecified space, plug and play after power supply. The system will send the absolute distance between the tag worn by the person close to the device and the



Hardware-indoor type (also outdoor waterproof / explosion-proof type)
Optional: UWB / LoRa or UWB / NB-IOT
120 * 120 * 50 (mm)



Staff card:
89 * 55 * 7 (mm)
(Other asset-type labels)



Health check center participating VIP positioning, data collection



Workers' safety inspection staff monitoring
Work quality data analysis



Record of visitor activity at large companies



Visit records of caregivers and social workers



Elderly activity records, analysis of the elderly's activity ability, social behavior



Personnel working time, sequence management, work quality data analysis



Outsourcer monitoring in place to avoid commercial espionage



Monitoring of personnel activities in the fire

Case Study- Silver Hair Apartment

Providing healthy seniors living in general and light care institutions, the most valued by customers in addition to delicious dining, comfortable living environment, it should be is to arrange daily activities whether full, can provide at any time call for help served , the new Taipei and a construction company co-organized senior citizens apartment is in view of this, in every one bed room installed a Locator, to LoRa transmission signal, no wiring, as long as the supply is generally 110V electrical power that is available to use.



Figure: Locator



Figure: Staff Card

Locator of SoS help button, a but triggered, in addition to its own user presses cancel for help, only to let the staff dedicated to lift the card is released, to ensure that each one help signal can be processed effectively, the background system can be clearly recorded for help occurred At the time, dismiss the person, and log in. There are two buttons on the employee card, except one is the "Release button" and the other is the "Re-help button", which is suitable when more employees are needed to provide assistance to employees when they find that the situation cannot be resolved by themselves.

In the case of the silver-haired apartment, the elders staying are also provided with a card. The card is shared with the RFID sensor of the elevator and the access control to ensure that the elders carry it with them. The card is equipped with a SoS button and can also provide call services. The card is also connected with a UWB signal. Locator communication. Through UWB signals , Locator can sense the distance between surrounding cards and Locator. In addition to these distance data, it can be used as an electronic fence to alert the card in the back-end system when the card enters a dangerous area (such as the attic stairwell / terrace). activity report, such as the elderly participated in yoga classes, has not participated in two consecutive days too class boxing events in the evening 1 2 Dian still in the room ... and so on matters of their children will want to care about, through long-term observation can Finding out changes in elders' mobility has provided a lot of useful information for their care . The card also has a GPS function (optional). In a wide range of facilities with outdoor environments, as long as it is within the range of LoRa (radius 500 ~ 800 meters), the card will return the GPS position. If required, the system can also be used in the elderly. some distance away and immediately issued a warning to ensure no risk of lost.



Figure:
Elder Card

For elderly care facilities, how to convince customers to high-quality care agencies has been a competitive differentiation of the most important issues, especially child care are often very concerned about elders living in institutions, in this case among senior citizens apartment every one Staff members are wearing cards. Every visit, whether it is simple care by a nurse (such as taking blood pressure), chat visits by social workers , will be recorded by Locator, including the time of the visit, the time of leaving, whether It is to say a few words in the living room or have a moving bedside. This information will be presented in the background immediately. Children who care about the elderly can access the Internet at any time, check historical data and real-time information, so that the quality of the organization's care is no longer spoken. It is actually presented in KPIs.

Seniors apartment also used the card to manage outsourced work (such as cleaning), each one outsourcing staff receive cards worn when in the operating room visit its work in time to work, to enter, leave, whether there is adequate within the range movement . . . and so information after analysis can provide KPI scores , analyze the efficiency and quality of work compare different staff, but also to complain about the elderly (such as: all week not to take out the trash) to a minimum, improve occupancy elderly Satisfaction.

Case Studies - Medical Center that accompany the disease calling device

In medical institutions, the patients usually stay is required to accompany the patient and his family belong to the same, although there is indeed accompany the families of the disease can improve patient care product value , but also to accompany the families of sick communication effort of the hospital where considerable cost. If the hospital every two bedside bed set to accompany the disease calling device , the patient (or health care) when there is a demand pressed the call bell, the disease may accompany the families immediately (there are networked) to read the phone call, instant return rooms provide care, which not only reduce patient frequently pull emergency bell incentives to enhance the patient's sense of security, but also to accompany the patient and his family belong to will not have too much unnecessary time off to hang in breathing apart into account; accompany sick call is to LoRa transmission The signal does not need to be wired, as long as it is used for general 110V power.



Figure: Bedside (accompaniment) call and QR code

Each one disease to accompany the call is both unique QR code, after the disease to accompany the families in the mobile phone download APP, scan QR code can receive during hospitalization from the disease to accompany the call paging message is, you can also receive individual orders for hospital patients , after the patient from the hospital, receive subscription system solutions directly from the cloud to ensure that a patient's medical privacy under no external leakage risk.

The device is easy to use. When pressed, the device flashes to indicate that the call is in progress. When the patient accompanies the patient to return to the room , the button is released once.

1. Call bell

2. The system records and pushes the signal to the subscribed phone

3. Family receivers receive

4. The call is cancelled when the family member returns and the system records it

In addition to providing medical staff to call family members immediately , the hospital can also use this to broadcast medical orders such as:

- Inform about tomorrow's treatment, such as: Please go to the ultrasound examination room at 11:00
- Informed about discharge and payment information
- Postoperative precautions, such as: What to know after aortic aneurysm treatment
- Staff visiting house notice

The accompany caller is also equipped with a sensing module, which can record the presence records of service personnel such as night shift nurses, cleaning staff or medical equipment. The operation and service quality of the hospital can be improved through the system.

Note : The device is a low-power product with a transmission power of less than 1 watt, which is lower than that of a general Bluetooth device and does not affect medical equipment.

Case Study-Capital Management of Medical Institutions

The medical institutions have a lot of assets and equipment, and the circulation (location, personnel) is very fast, and the department borrows very frequently, which often causes management troubles. The use of the escort caller can also reach the exact location of the equipment.

Riches location management with a small volume of label, typically about garage rolling door shake controller size, owner label placed on the device, may be positioned at any region on the current location of the device in the system, the inventory may be performed instantly.

The image shows a mobile application interface. On the left, a map displays several location pins with labels: '內科病房 A' and 'O3-隨身型氧氣製造機'. Below the map, a text box states: "Users can directly select the location of". On the right, a table lists equipment details:

#	區域	型態	活動	裝置序號/名稱
0	1號床	產生報告 病床	3	Tag0004 A03心電圖機 59
				Tag0010 內科病房推車-2 59
				Tag0001 O3-隨身型氧氣製造機 59

A red box highlights the '產生報告' and '病床' buttons in the table, with a callout box stating: "Generate a written report immediately".

At the same time, the device can also transmit specific information when it is close to a specific area. For example, when a medical staff stroller approaches a specific patient call device, the system can sense and push out a medical order or remind the need to perform medical matters, to avoid temporary medical record errors or operations. Omissions.

The diagram illustrates the proximity sensing and notification system. It shows a bedside caller (a white device with a red top) and an asset type label (a small white device with an orange border). A red dashed box highlights the text: "When the nursing cart with the label is approaching, the caller can sense the proximity and use the distance set by the system, such as: close to 150cm, close to 200cm, etc., as a basis for judgment, and then send a corresponding message. Because the positioning accuracy is within +/- 30cm, the system will not misjudge even if there are 6 beds in the ward." A red arrow points from the label to the bedside caller. A black arrow points from the bedside caller to a smartphone displaying a notification: "201床注意事項" (201 Bed Attention Items) with a list of instructions: "1. 詢問病人上腹痛痛是否減輕", "2. 血壓量測兩臂兼測", "3. 只提供一次止痛劑量", "4. 告知明日超音波檢查注意事項". Below the notification, it says "1/2". A double-headed black arrow between the bedside caller and the asset type label is labeled "Distance can be set freely".

Case Study- Industrial Safety Inspection

In the factory environment, pipelines are sealed, high-pressure gas and liquid continuously impact the pipe wall for 24 hours, with corrosive contents, it is more likely to make the pipelines fragile for a long time. the yield loss, if there is no careful thought, careful work of inspection staff , factory workers security exposures more Xuanhu line up without wired Locator, to LoRa transmission signal, as long as 110V power supply in general , that the cloth that is used.

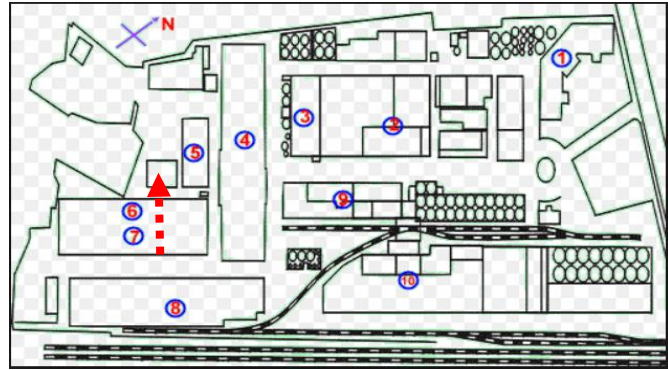


Figure: Regular inspection of pipelines is a priority for industrial safety

Figure: Outdoor Locator



When the inspector wears the card approaching the Locator to the sensing distance (a straight line of sight is about 30 meters) , the Locator will sense the distance to the card and transmit the data to the relay station (Gateway) with the LoRa signal . After receiving , the relay station sends the wireless signal NBIOT / 4G or wired transmission to the cloud host), the transmission distance between the relay station and Locator is about 500 meters (up to 1000 meters in the open space), and the cloud host can analyze after receiving the data . Card with SoS button to provide call services, such as optional GPS functionality, the card also returns GPS position to confirm its position in the factory .



Figure: Inspector Card (Optional: GPS)

Figure: Setting of inspection route

開始巡檢時間	結束巡檢時間	操作
10:15 AM	10:30 AM	[Edit] [Delete]

#	巡檢點	巡檢點轉換時間(秒)	至少與巡檢點距離(cm)	至少巡檢時間(秒)	至多巡檢時間(秒)	操作
1	Locator0178		150	10	100	[Edit] [Delete]
	↓	90				[Edit] [Delete]
2	Locator0179		150	20	120	[Edit] [Delete]

Application, when each of the inspection points are arranged Locator later , the manager in the cloud master set inspection line and the predetermined time, including (1) Inspection of the origin and destination order (2) inspection time period s order (3) per Each point has a minimum / maximum dwell time (4) point-to-point travel time.

To allow inspection staff may lead to immediate job status feedback, the system uses an interactive inspection, inspection staff is no longer just a passive Work on completion of inspection , and then wait for the end of the work of the review report; each entered patrol indecent, phone APP on You will receive a notification of the start of the inspection. The preset notification message can be modified at the host at any



Figure: Inspection report

time to facilitate temporary reminders that need attention .

Complete tour indecent, patrol routes, or failure to complete the inspection, (such as lack of time to stay, close enough patrol indecent, point to point travel time is too long .. etc.), can be accessed via APP instant suggestions, each inspection knot after the beam, the system will be made for the sub-inspection score, to inform APP immediate inspection personnel to receive reminders effect. These information managers can also get real-time information from the background . The information of managers and inspectors is the same, which saves the cost of communication (or conflict) . Of course, senior staff (or outsourcing companies) can read historical reports from the system at any time. As a basis for improvement

Case Study- Temporary Security Zone

[2018 / December-Liberty Times:] On the 12th of this month, engineer Li surname went as usual . . Guishan Factory, holding the authorized password given by the factory for machine maintenance, he should repair machine ALD No. 3, but suspected to take the opportunity to copy the parameters with paper and pen , but because of important parameters in Machine No. 3, it has been . . For the sake of confidentiality, it was deleted in advance, so it was transferred to machine No. 2 which was not in the maintenance list. After turning on the machine, it intentionally repaired but copied the parameters with paper and pen . Fortunately . . The engineers found a different, caught a steal corporate secrets parameters Li engineers report, the Taoyuan District Prosecutors Office later notified of, corporate criminal investigation by the special prosecutor Huang Ruisheng Group headquarters Ministry of Justice Investigation Bureau Investigation Branch Taoyuan City, after 12 hearing decree Li Nan pays 60,000 yuan for insurance and restricts going abroad

Once such incidents are successful, the company will usually be hit hard, and the opponent will quickly keep up with the learning curve; however, most companies are unable to assign internal employees to specifically target short-term entry personnel of third-party manufacturers. The situation is inconsistent, and the second is the consideration of labor costs. Therefore, it is usually only possible to ask a third-party manufacturer to enter the factory for a short period of time, sign a cut -off letter, be a gentleman, and be prepared.



Figure: Locator

SMIMS technology introduced Locator, to LoRa transmission signal, no wiring, as long as 110V power supply generally can be used in the factory outsourcer period can be moved at any time, to set "temporary warning area" is very convenient. When the factory outsourcer allowed to wear the card dispenser, and is placed in its work area L ocator, sets a provisional guard zone.



Figure: Person Card

The temporary warning zone can be set at any time on the cloud host. After the setting, drag the Locator into the zone, and then set the distance parameter. It is clear how far the personnel card cannot be from the Locator (such as : 6 50 cm). If it exceeds this distance, it will immediately An alert is issued when it is deemed to leave the designated work area, or for how long (eg:



Figure: Guard zone settings



Figure: Alert event settings



When a person places the card on a table or the ground, the card 's IMU (nine-axis) will not be able to sense normal shaking. At this time, the system will also issue a warning to notify the relevant personnel that the card may be worn abnormally. (leaving the designated location, not being fit to wear the device is turned off), the system will pass through the mobile phone of APP and immediate ways to inform supervisors, let the supervisors to have alert or correct abnormal use of the situation, of course, in addition to informing staff , The information will also be stored in the system, and the report will be provided to the supervised personnel, the factory or the management of the outsourcing company for later reference.