

We Connect Everything to improve the quality of life

Cice Smart Nursing Home
All-in-one smart healthcare solution



"Care with Heart
the Heart has no wrinkles"

About HKC

Hong Kong Communications Co., Ltd offers a flexible and intuitive health-care solution backed by a range of patient monitoring devices and linked with our patient healthcare platform - Cice Smart Nursing Home, which transfers the way of information to improve the quality of patient care, safety and service delivery. This solution integrates various advanced information technology and devices that transform healthcare.

Cice Smart Nursing Home empowers healthcare professionals with visibility solutions and analytics to advance the quality of care. Our technologies enable healthcare organizations to collect data from multiple sources - medical devices, patients and staff, gathering insight and seeing trends that allow you to predict and forecast. Using the latest in business intelligence and analytics, our software applications improve the bottom line by optimizing how hospitals allocate resources and respond accordingly through powerful analytics, decision-making tools, reports and dashboards.



Evolution of Smart Nursing Home

Social Engagement and Leisure

Smart home functions that allow elderly to combat social isolation, such as by connecting with friends and family.



Safety

Safety is about detecting hazards in order to prevent impairment to elderly and the use of network based system to contact family members in the case of an emergency



Personal Hygiene and Care

Personal hygiene and care encompass technologies that can improve elderly well-being

Health and Nutrition

Monitoring vital signs, state of health and adequate nutrition intake

Physical Activity

Daily exercise and training applications are crucial to the maintenance of good health and prevention of accidents such as falls

1. Safety



Nurse Call Unit

One large round button for nurse call with nurse symbol on the both panel and call cord

Contain build-in speaker on panel and microphone on both panel and call cord for patient and staff active communications

Call unit will send out alert signal to the central control office for real time record

Monitoring staff's service by recording the respond time

Bathroom / Toilet Call Unit

Patient pull the cord to call nurse / alert the alarm for emergency

Location information report to the central control office

Water-proofed

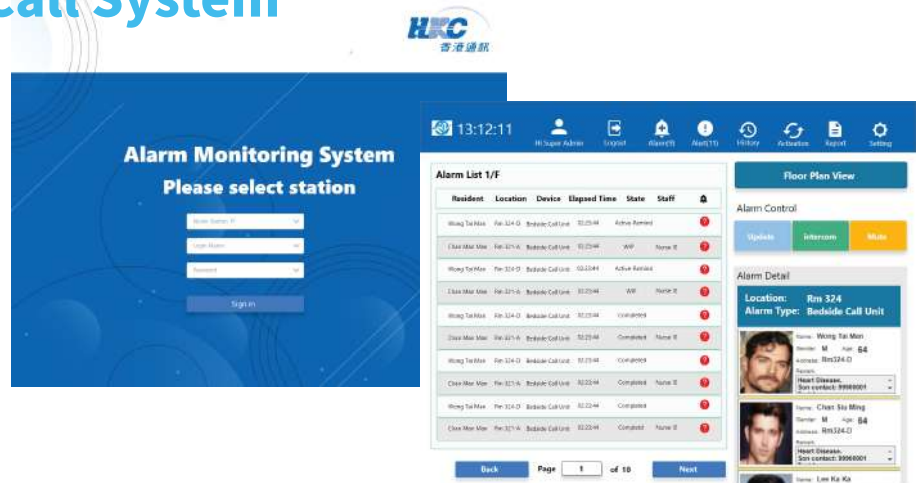


Cloud Platform Nurse Call System

Keeping elderly home safe and secure with healthcare facility is a complex task. More elderlies to serve, tightening regulations and security challenges.

Our Nurse Call System helps to:

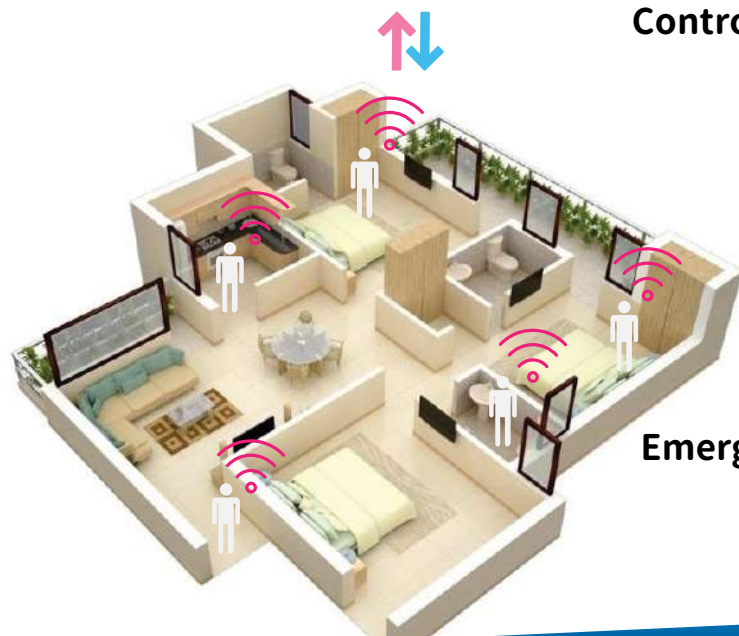
- Real time centralized monitor and manage all health information and alerts
- SLA response time measurement
- Protect high-risk patients with full visibility and avoid wandering away
- Provide peace of mind for staff, elderlies and family
- Increase the efficiency of healthcare workers



Wristband with Panic Button

This BLE Smart wristband in high-quality silicone is adapt for elderly care with a one touch panic button

Alarm information report to the central control office



Control Office

Emergency Call

UWB PRECISE POSITIONING

Locate patient and device with accuracy of centimeter level



This location tag with high precision and high power adopts the Ultra wide-band technology. This type of locator tag is commonly applied to the positioning of personnel as working cards or armbands. Also, the high capacity Li-battery can offer longer service life compared to other ultra wide-band locator tags.

UWB Tag



UWB Anchor coverage distance 100m, positioning accuracy is 3cm-30cm, support for indoor and outdoor deployment.

UWB Anchor

Patients wear **UWB Tags** with high precision adopting the Ultra wide-band technology

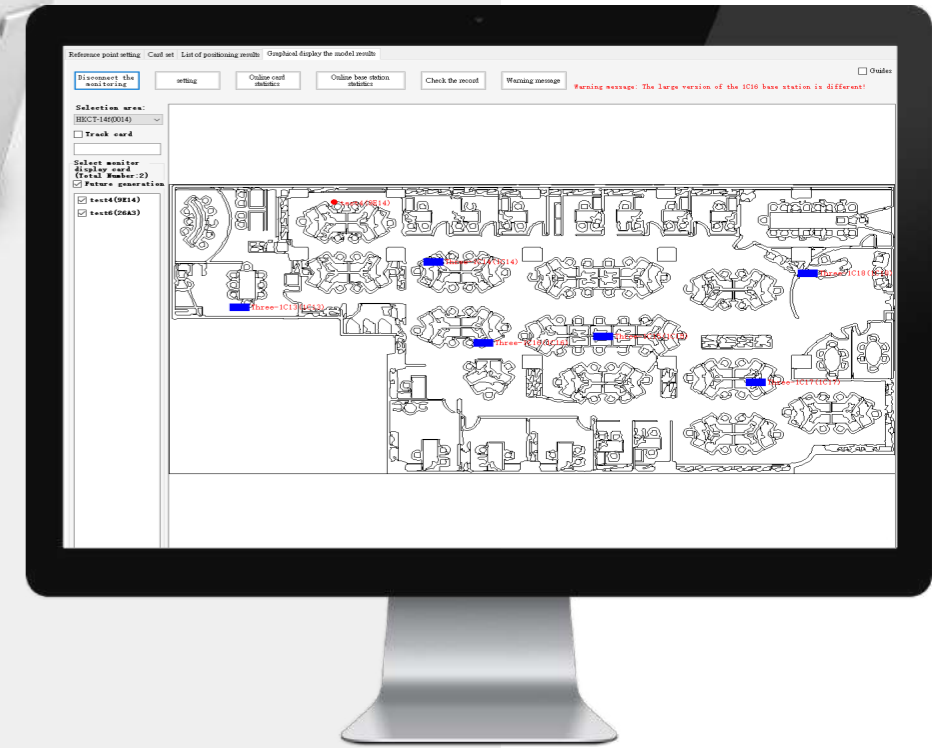
UWB Anchors are installed on the hospitals' walls or ceiling in fixed locations up to 25 meters apart. The anchors can be powered via USB or PoE (Power Over Ethernet). For example, a 10000 mAh USB battery can power the anchor for 50-60 hours or so.

At least 3 anchors are needed for a 25×25 space. The anchors synchronize their internal clock via Ethernet cable or WiFi and then listen for pings from the UWB tags. Once synchronized, they record the time when the signal was received and pass it to a backend "Real Time Location Server" (RTLS) which calculates the tag's position based on time difference of signal arrival at the anchors (TDOA).

RTLS Server

The RTLS apps subscribe to location updates from the RTLS backend service using standard web-sockets or RESTful APIs to read the location data of a tag. The RTLS has other nice features like recording location data and presenting reports like heat-maps and such.

UWB installations are far easier to setup than iBeacons and more predictable than iBeacon setups. What's needed are anchors on walls, RTLS Mini-PC box, tags and WiFi.



Real time location system

BLUETOOTH BEACON PRECISE POSITIONING



This BLE Smart wristband in high-quality silicone is adapt for adults and children. This solution has been created for hospital/healthcare applications equipped with a one touch panic button.

Wristband BLE Tag

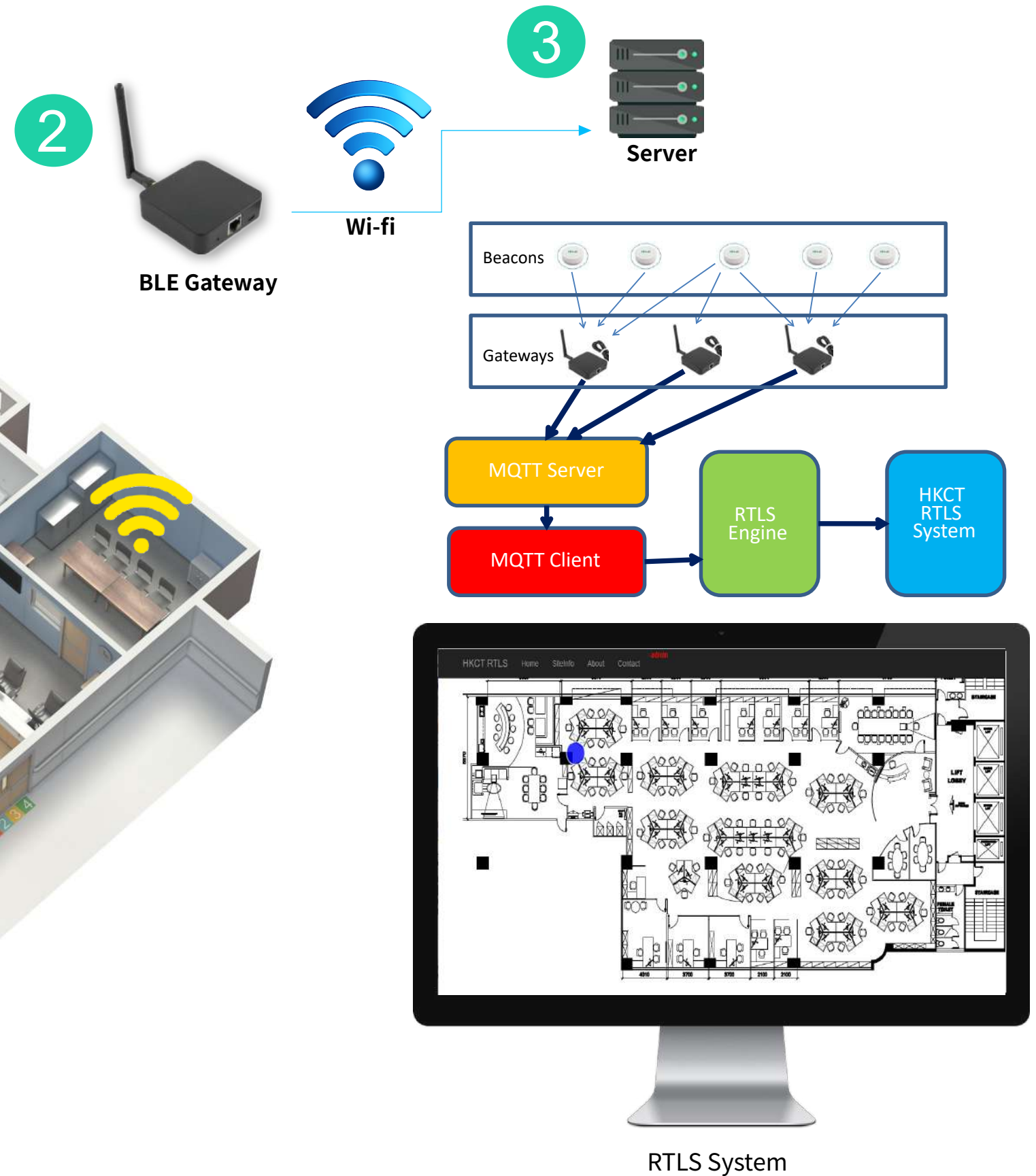
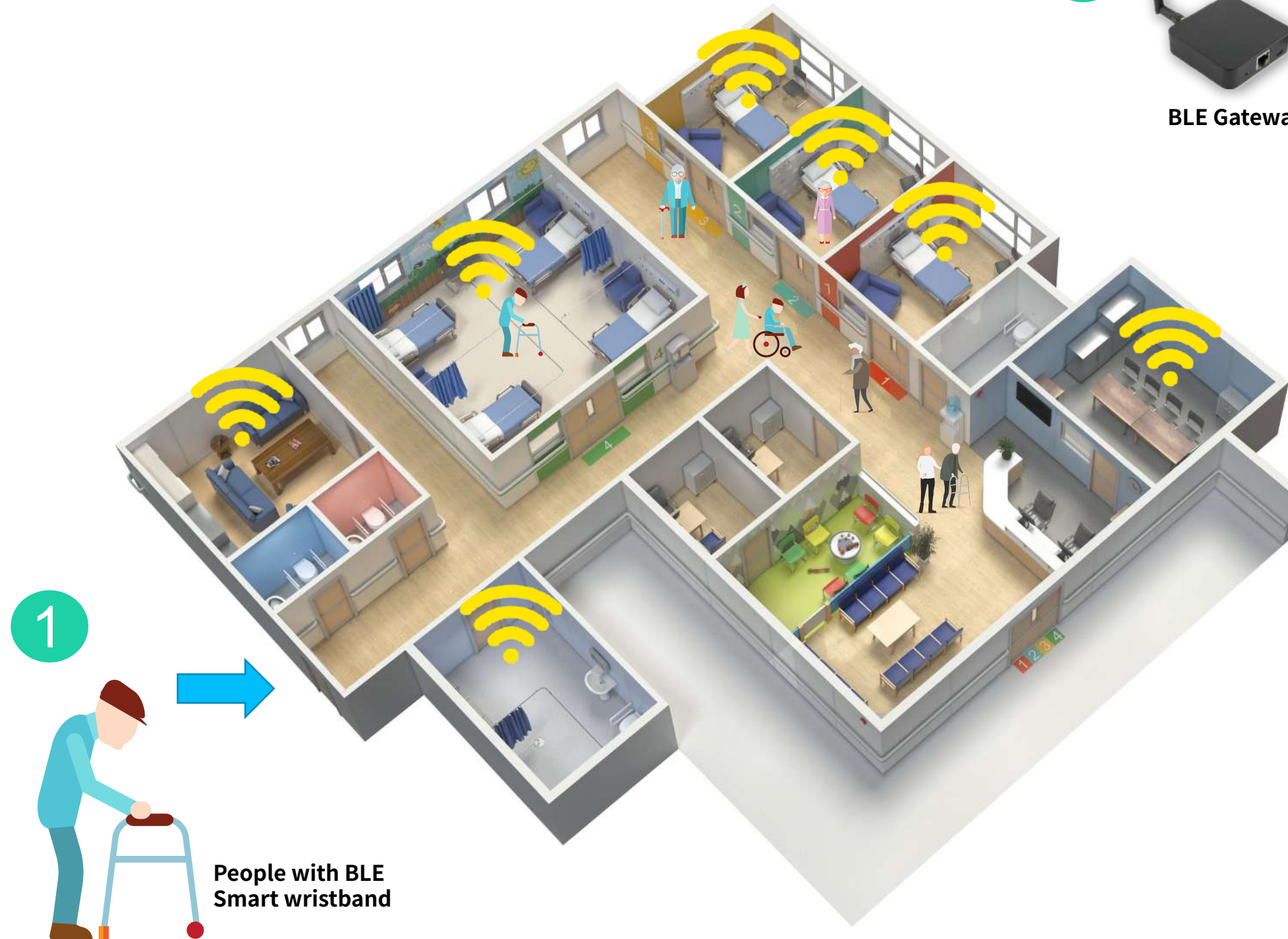


Bridge the BLE beacon to Cloud through WiFi. The gateway reads iBeacon and send to local TCP server or internet HTTP/MQTT server.

BLE Gateway

System Architecture

1. Bluetooth Low Energy (BLE) tags are worn by health care staffs or caretakers
2. BLE Gateways are installed throughout the premises
3. Gateway data is sent via Wi-Fi on premises server
4. Information on real time location and movement is displayed on customized app / web interface



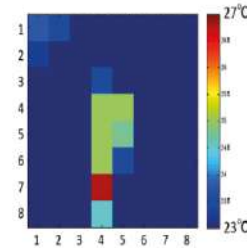
Fall Detection



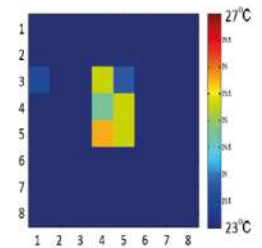
The thermopile infrared array sensor measures the temperature of the objects in the detection area.

It is used by mounting under the ceiling for detecting the presence of humans. People stay or move around in the detection area. Thermal sensors can be used in systems for the detection of fall accidents or unusual inactivity, which is an important safety tool for people.

Thermal sensor is favorable in comparison to usual methods like using a video camera or a wearable device which have some issues in privacy and convenience



Temperature distribution when thermal sensor detects a human falling below the sensor. The number of high temperature pixels is larger



Temperature distribution when thermal sensor detects a human in normal state

2. Health and Nutrition

Health Data Monitoring

All-in-one health data monitoring unit embedded with blood pressure, SpO2 monitor, ECG monitor, thermometer, blood glucose measurement, weight scale etc which provide clinicians instant indications of patients' real time status.



Thermometer



Blood Pressure Monitor



Glucose Meter

Bio-data Collection Devices



Vital Sign Monitor (Integration with nurse call system)

All in one device with non-invasive blood pressure, SpO2 monitor, ECG monitor, Ear Temperature and Blood Glucose Measurement

7" TFT color LCD touch screen provide clinicians with instant indication of patient's status

Equipped with rolling stand for easily moved from one patient to another

Optional Bluetooth, GSM/GPRS or Wi-Fi connect with the central control office for data recording



Cloud Health Data Monitoring

Cloud-based system allows caregivers to remotely monitor the health status of patients and offer the medical service via the Internet despite the distance restriction. With the integrated biometric-data collection devices, system will keep the patient's vital health records for medical treatment analysis. Patient's family can remotely monitor patient's situation and response efficiently to the changed health status.

3. Physical Activity



In the aging population, exercise has been shown to prevent disease, lower the risk of falls, improve mental health and well-being, strengthen social ties, and improve cognitive function.

In front of Smart Mirror, elderly can workout with their favorite personal trainer anytime, installed with extensive workout library covering yoga, HIIT, kickboxing, barre, meditation, and even Wing Chun



4. Personal Hygiene and Care

Prevent Covid-19 with UV-C



UV-C Disinfection Machine

UV-Wavelength
254nm (UV-C rays) x 6 (36W) CE Certified

Human Detection IR Sensor (Max. 6 meters)
UV-C lights will automatically turn off if someone approaches

Rotation Reflector
Rotation reflector for protection of UV-C lights

360 ° Disinfection Coverage

Installed with silent universal brake wheels and timer , easy and light weight to operate



EASY CONNECTION

Wireless Bluetooth connection with Android APP



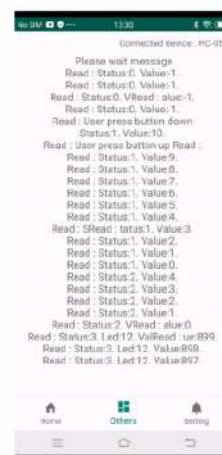
Home : 15/30/60 mins disinfection time / STOP button to stop the machine at any time



The UI will show the remaining disinfection time during the disinfection process



If the connection is interrupted, you can press RECONNECT DEVICE under Setting to reconnect



Others - Display log records (only use for maintenance)



UVC light disinfection eliminate any remaining pathogens after manual cleaning processes, such as:

- Clostridium difficile (C.diff)
- Staphylococcus aureus
- Methicillin-resistant Staphylococcus aureus (MRSA)
- Vancomycin-resistant Enterococcus faecalis (VRE)

UV-C Disinfection Technology:

- Emitting concentrated UV-C light onto infectious hotspots in rooms , supporting the normal cleaning routines
- Prevents and reduce the spread of infectious microorganisms in the environment by breaking down their DNA structure
- Safe, reliable and user friendly wireless operation as it can be operated easily by staff through mobile app
- Installed with human detection IR sensor, UVC lights will automatically turn off if any staff accidentally approaches the machine
- Reducing public areas infection rates and operating costs
- Relief the cleaning workload in shortage of healthcare personnel



The drive for digitalization improves workflow efficiency, enhances the accuracy of communications, mitigates risk and upgrades patient experience.

However, some aspects of patient/clinician communication in hospitals still relies on manually updated whiteboards and door information cards, increasing the workload of nurses and clinicians, and increasing the risk of errors, or outdated information.

There is a new solution that promotes hospitals to use digital signage, without taking a step back with light pollution:

Patient Room Door Sign

The Patient Room Door Sign can connect wirelessly to a hospital or facility's EHR / EMR system so updates can be pushed in real-time. It can be custom configured to show alerts such as visitor restrictions, allergies or medical precautions so clinicians and visitors are aware before entering the room. Clinicians can easily confirm patient care team information.

Key Points:

- Easy installation - as easy as hanging a picture on the wall
- Battery powered - no wiring required
- Information always-on and easy to read, even during power outages
- Long battery life
- No light pollution

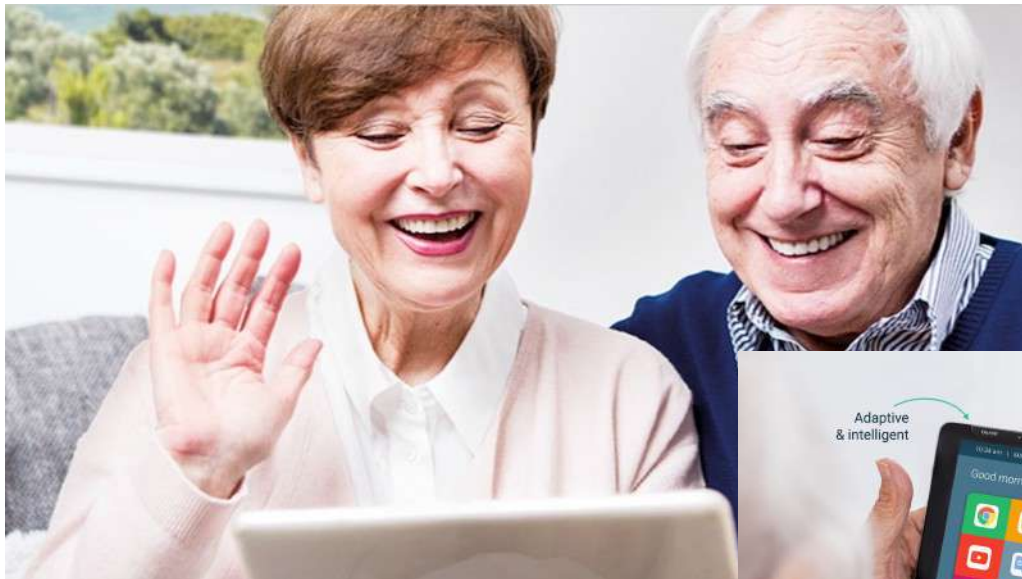


Patient Care Sign

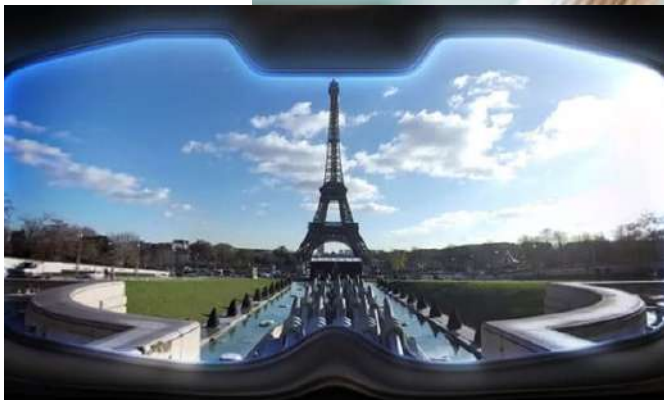
The Patient Care Sign can connect wirelessly to a hospital or facility's EHR / EMR system so updates can be pushed in real-time. It can be custom configured to show patient alerts such as visitor restrictions, allergies or medical precautions so clinicians have all relevant patient information at a glance, increasing the trust and satisfaction from patient. The nurse call button and responding time-stamp can be integrated to the device for workflow data analysis.



5. Social Engagement and Leisure



A easy friendly tablet interface designed for seniors irrespective of their technical capabilities. It runs on an open platform that allows senior care providers to deliver better care or a chatbot for entertain and gaming in elderly care homes



VR Experience allows elderly to not only exercise their brain, but “travel” across the world and relive memories within the walls of a retirement or nursing home. Virtual reality helps seniors not only by boosting their mood, but also promoting brain activity—both which reduce overall healthcare costs exponentially over time.

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