

# BLE LOCATION SOLUTION

## FOR NEC IP DECT



**NEC's BLE Location Solution is a sophisticated RTLS (Real-Time Location System) system using Bluetooth Low Energy (BLE) for indoor localization of anything that matters in your organization. Staff members, residents and assets can be protected by means of beacon devices which are detected by Location Gateways that are strategically positioned throughout the building. They report the beacon ID's to NEC's Location Engine and the information is shared with application servers such as for staff alarming, asset tracking and for patient wander detection. This solution sheet describes the version for NEC IP DECT.**

The BLE Location Solution can be used for a variety of use cases, such as for staff safety, wander detection and asset tracking.

### STAFF SAFETY

For staff safety, the location solution adds location information to a personal alarm. In case a staff member presses the alarm key on his/her handset, a message is sent to other staff members with in that message also the location of the member under duress. This helps staff in offering better and timelier assistance. Personal alarms can be

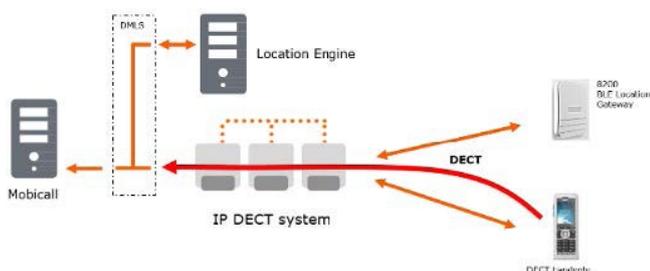
initiated by NEC DECT handsets such as the G577 and I766.

In the background the BLE beacon ID of these handsets are detected in real-time by the Location Gateways and stored in the Location Engine. In this way entries and exits are guarded and records of devices passing through these doorways are stored.

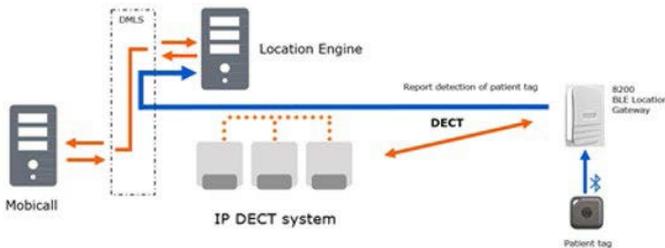
When an alarm occurs, the location information is immediately available to the Alarm server connected to the system via the DMLS interface. Based on the script programmed, other staff will then be alerted including location information.

### WANDER DETECTION

Wander detection is a solution for institutes like elderly homes, care institutions and psychiatric clinics. Patients or residents wearing a wrist band can be monitored and detected when approaching a door or elevator.



The beacon ID of the wrist band will be detected by a Location Gateway installed at the doorway. The Location Gateway will directly send a signal to the Location Engine, which will immediately send a trigger event to the alarm server Mobicall.



Mobicall will then follow up with the appropriate action like for instance locking the door, depending on preconfigured policies.

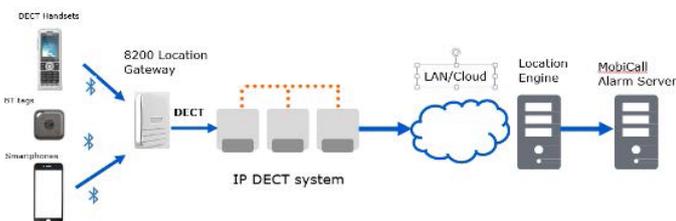
## OTHER USE CASES

The technology behind BLE location solution allows for more use cases such as asset - and people tracking and way finding. NEC can investigate feasibility of a new use case upon request.

In all use cases the application server plays an essential role, analyzing the data provided via the DMLS interface and acting accordingly.

## SOLUTION OVERVIEW

The NEC BLE location Solution consists of the following parts:



### Beacons

The beacon devices play an essential role. These transmit their unique beacon ID that the system uses for the positioning of the beacon. These vary per use case, such as the G577/1766 DECT handsets in Healthcare, patient-tags in elderly care - such as pendants and wristbands, and asset tags to protect and locate resources in an organization.

### Location Gateway (LG)

The Location Gateway (LG) is a small unit that can be placed on the ceiling or on walls, to be able to receive the Bluetooth ID from beacons in the detection area.

A building floor plan is typically divided into zones, where zones are typically rooms or collections of adjacent rooms.

Location Gateways need to be installed at every possible entry and exit of a zone so that the current zone of a user can be derived from the collected BLE records. Determining the zone of a user is then done by the Location Engine.

### Wireless Network

A network is required to interlink the LG's to the LE's, system management and open interface DMLS. In an IP DECT system, the DECT network is also used as wireless network to connect individual parts.

### Location Engine (LE)

When a beacon enters or leaves the detection area of an LG, this is reported to the LE. Dedicated algorithms in the LE combine the information from multiple LG's and this results in an up to date administration of the beacon's position in the building.

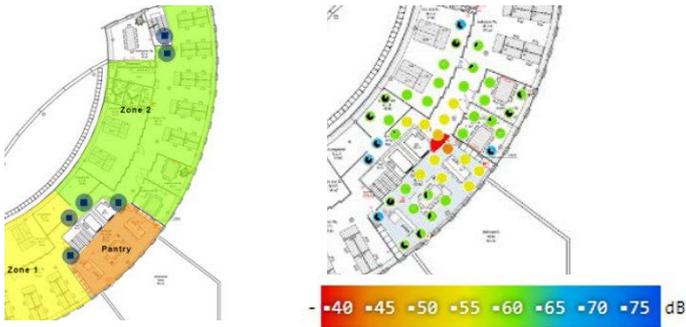
The detection criteria of an LG can be programmed with the Blueprint deployment tool. The LG sends the information through the IP DECT network to the Location Engine.

### DMLS

The DECT Messaging and Location Services (DMLS) interface offers a universal software interface between an application (alarm) server and the IP DECT System. It works with Mobicall as well as with a range of 3rd party messaging and alarming servers. The application server provides the applicable follow-up, such as closing doors when wandering inhabitants approach a doorway, provides location and alarm message in case of staff safety and provides the location of resources in case of asset tracking.

**Blueprint**

Blueprint is the planning and deployment tool for the BLE Location Solution. It starts with designing the solution by defining the location areas in the building floorplan and making an initial placing of the LGs. This is followed by the initial configuration of the detection criteria of the LGs such as the antenna characteristics and sensitivity. After installation the system operation can be verified in the live environment, supported by heat maps, followed by further optimization of the solution.



**Location areas defined and location Gateways placed**

**Verification with heat map**

**NEC BLE LOCATION SOLUTION**

<b>Handsets</b>	NEC G577(h) and I766(Ex) handset
<b>Beacons</b>	Should support Eddystone protocol
<b>Location Gateway</b>	8200 Location Gateway Outdoorbox
<b>IPDECT/DMLS</b>	R6.8.2
<b>Alarm server</b>	MobiCall V11

**Professional Services**

Customer deployments with the requirements for localization will likely be complex. Therefore it is recommended to consult NEC for project assistance, which can range from initial planning of the Location Gateways, programming and verification of the coverage and more. Ask your NEC representative for more information.

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