Applications of BLE-Based Asset Tracking & Personnel Tracking in The Automotive Industry

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Bluetooth Low Energy

- In 2011, Bluetooth low energy (BLE) hit the market and was

  marketed as "Bluetooth 4.0",

- It is specially designed for low-power consumption, and

- Almost all new smartphones and tablets have BLE capabilities.

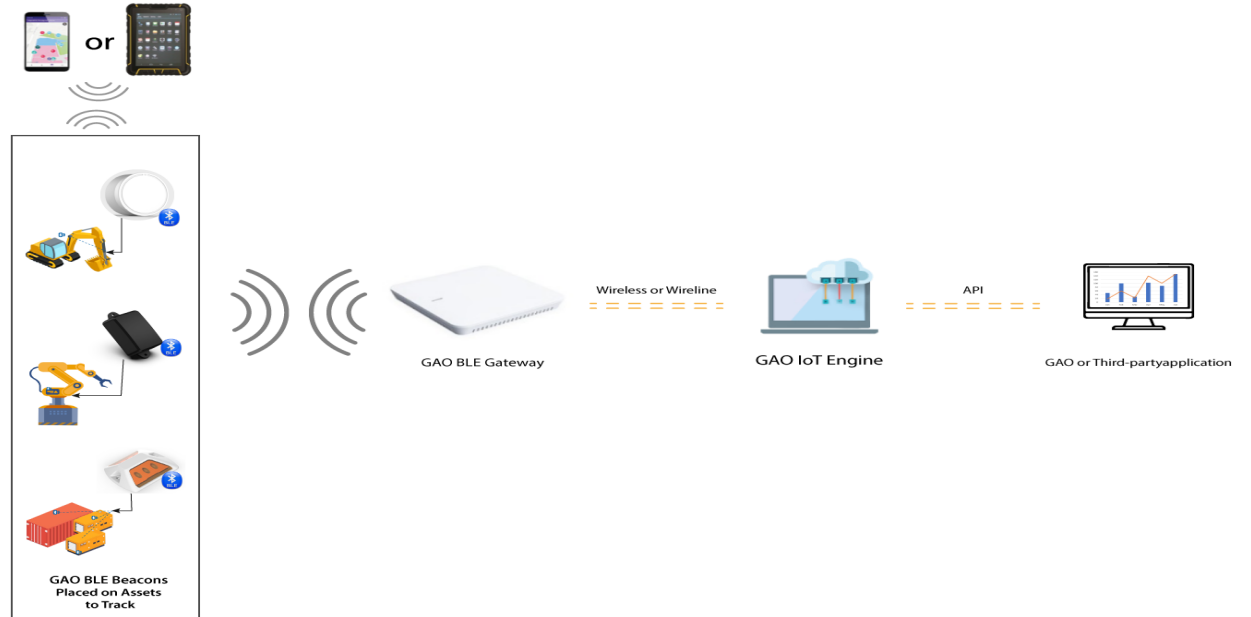# BLE Beacons & Gateways

BLE Beacon

- A beacon broadcasts signals periodically to indicate its location.

- It consumes a small amount of energy, so it lasts a long time, even years.

BLE Gateway

- A BLE gateway receives signals from beacons.

- It is either connected to a local server or a cloud, running applications.

BLE Asset Tracking System

BLE People Tracking System

or

GAO BLE Beacons
Placed on
People to Track

Wireless or Wireline

GAO BLE Gateway

GAO IoT Engine

API

GAO or Third-partyapplication

Bluetooth Low Energy Vs Bluetooth

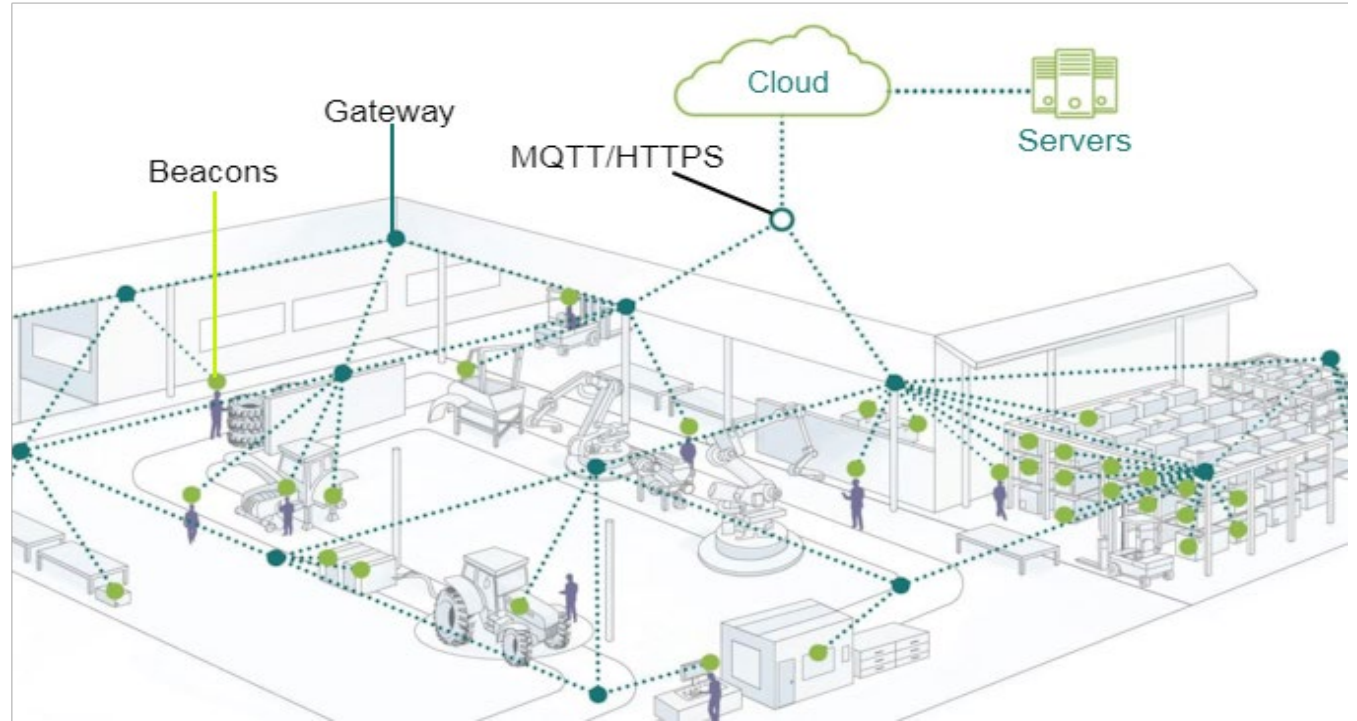| Specifications	Bluetooth	BLE
Power consumption	1 W as the reference	0.01–0.50 W
Range	Normally up to 10 m (33 ft), Could be up to 100 m (330 ft) for special models.	Normally up to 100 m (330 ft), Could be up to 300 m (990 ft) for special models.

Applications of BLE for Asset Tracking & Personnel Tracking in Automotive

- Asset Tracking

- People Tracking

- Inventory & Warehouse Management

- Car Rental

- Car Sharing

Asset & People Tracking

Asset & People Tracking

- A beacon or tag is given to an employee or asset,

- A beacon or a tag has a unique identifier that is sent to a gateway,

- A gateway receives the ID of the beacon and sends it to a server or the cloud using the MQTT/HTTPS protocol,

- The application software running on the server or the cloud make use of the locations and time stamp information of the assets and people tracked.

Asset & People Tracking Benefits

- Bluetooth Low Energy (BLE): The best technology for such applications,
- Real-time tracking within premises,
- Cloud-based and security,
- Productivity monitoring, and
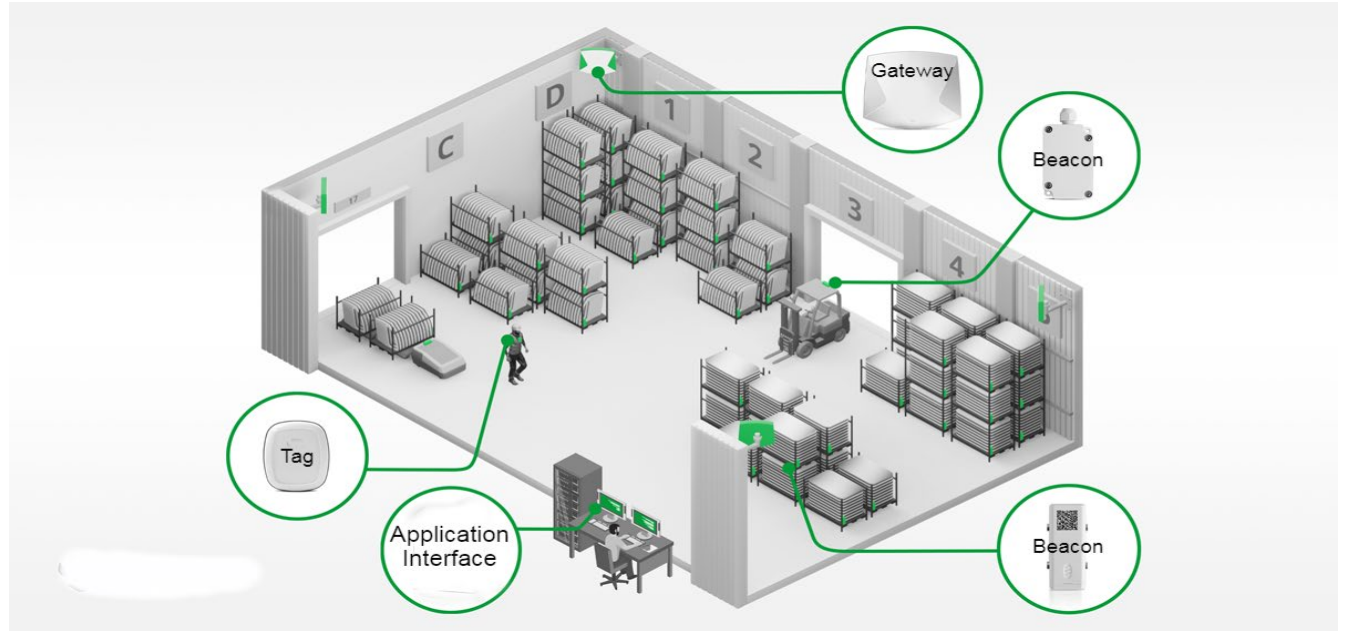- Web consoles and mobile consoles for assets.

Inventory & Warehouse Management

Gateway

Gateway Recive Signals from Tags

Cloud

BLE

Tracker Tags

Tags can send Signals to 200 m distamce

Inventory & Warehouse Management

- Track all inventory across all locations.

- Give a rundown of the company's inventory.

- Focus on maintaining inventory levels to fulfill projected orders.

- Track the movement and location of stocks in a warehouse.

- Generate reports on the stock status.

- Focus on picking, packing, and shipping stock.

- It creates rules for picking and packing and guides users through them to ensure efficiency.

Logistics and Supply Chain

Logistics and Supply Chain

- Greater certainty for planners,

- Preserving material flows, and

- Total transparency saves time and cuts costs.

Car Rental Tracking

Car Rental and Sharing Tracking

- Recording of dwell times and idle times,

- Optimization of the letting process, and

- Vehicle location determination.

Thank You