



Long-Term Benefits of a Bluetooth Tracking System

Scalability

- BLE (low energy) scales across large facilities with relatively low infrastructure costs.
- Cortex units and neurons can be deployed throughout.

Lower Power Consumption

- BLE devices use significantly less power than traditional Bluetooth or active RFID tags.
- BLE tags can last many years on coin cell batteries, reducing maintenance.

Real-Time Location Tracking

- BLE allows for real-time location tracking using triangulation with readers in a facility.

Mobile-Friendly Integration

- BLE works with smartphones/tablets; staff can track assets without specialized readers.
- This lack of required RFID portals makes deployment more flexible and future-ready.

Cost Over Time

- L/T cost savings as BLE requires considerably fewer readers.
- Overall ROI diminishes impact of BT tag costs; with focus on services and functionality.

Data-Rich and Flexible

- BLE tags support more flexible IoT integrations (battery level, motion, temperature).

Bluetooth vs. RFID – Comparative Perspective



Feature	Bluetooth (BLE)	RFID (Primarily Passive)
Initial equip \$	Medium – Tags and gateways	Lower tag cost, more readers required
Later equip \$	Lower (fewer gateways needed)	Higher (RFID readers at chokepoints/zones)
Tag Cost	Moderate	Very low: passive RFID); high: active RFID
Reader Cost	Low (mobile/tablet or gateway)	High (industrial RFID readers + antennas)
Power Usage	Ultra-low (long battery life)	Passive RFID – no battery; Active– higher
Ease of Setup	Easy (less specialized setup)	Med. (calibration/reader placement needed)
Mobile use	Native to smartphones/tablets	Requires handheld RFID readers
Range	10–100 meters (BLE)	Passive: ~1–6 meters, Active: ~100 meters
Data Richness	High (can include sensors, alerts)	Basic (ID + sensor data for active RFID)
Long-Term ROI	High due to flexibility, low maint.	Moderate, depending on use case/volume

Start with RFID and then Migrate to BLE

Phase 1: RFID Tracking in Manufacturing

Track container goods in and out of the warehouse

Validate outgoing shipments

Use passive RFID tags for pallets, bins, or containers.

Install fixed readers at chokepoints: loading/storage zones.

Use handheld readers for flexible auditing.

Phase 2: Introduce Bluetooth in Parallel

Overlay BLE Cortex units and neurons

Apply BLE tags to high-priority or mobile assets.

Deploy BT gateways at centralized points in warehouses and loading areas.

Merge RFID and BLE data into the same tracking dashboard.

Use the BLE data for enhanced features: real-time alerts, sensor-based monitoring (e.g., temperature, motion).

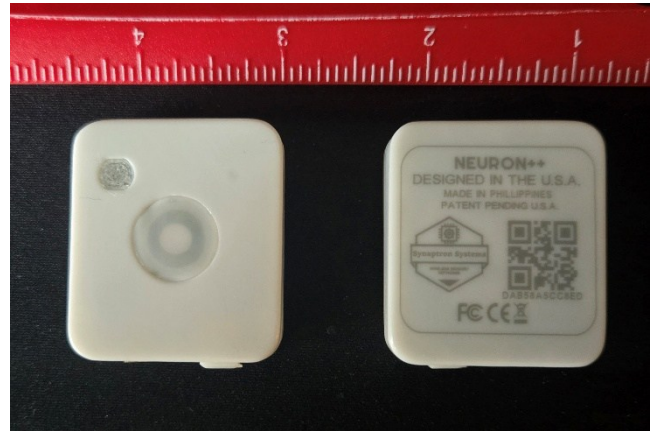
Phase 3: Scale BLE, Phase Out RFID Readers

BLE for Entire Warehouse

Use BLE for real-time tracking across the facility.

Gateways reduce reliance on chokepoint readers.

Continue using RFID tags where needed (e.g., legacy products or packaging).



Summary

- ✓ **BLE** offers **long-term flexibility, scalability, and lower infrastructure costs** with real-time capabilities.
- ✓ **RFID** is great for **initial implementations** with low-cost tags and **chokepoint tracking**.
- ✓ A **smart rollout**: start with RFID to map workflows, then **migrate to BLE** as the project matures, supporting richer data and real-time visibility.

