

Geofencing BLE Beacons

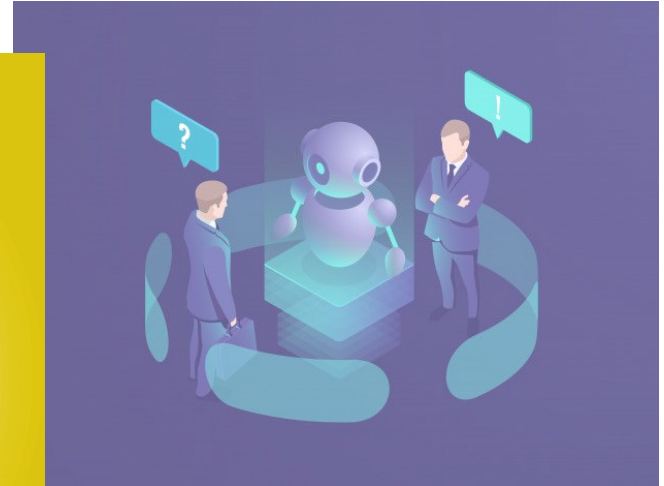
Real-time enterprise asset tracking and
self-service

INDIA ELECTRONICS WEEK - IOTSHOW.IN

ThoughtWorks®

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FOURTH INDUSTRIAL REVOLUTION



“Blurring of boundaries between the physical, digital, and biological worlds”

An illustration of a modern office environment. In the center, a blue oval contains the text 'MILLENNIALS SMART WORKPLACE'. Below this, a green rectangle contains the text 'Self - Service'. At the bottom, three yellow rectangles contain the text 'Context-aware recommendation', 'Intelligence & Optimization', and 'On-Demand information'. The background shows several people: a man in a red shirt and blue pants on the left, a woman in a red dress in the center, a man in a black shirt and blue pants holding a folder, a man in a black shirt and yellow pants carrying a box, and a woman in a yellow shirt and blue skirt sitting at a desk on the right. There are also floating icons like a yellow smiley face, a blue 'X', and a red circle with a dot.

MILLENNIALS SMART WORKPLACE

Self - Service

**Context-aware
recommendation**

**Intelligence &
Optimization**

**On-Demand
information**



Asset assignment

**Controlled
environment**

Data accuracy

Stock taking

**Compliance
Auditing**

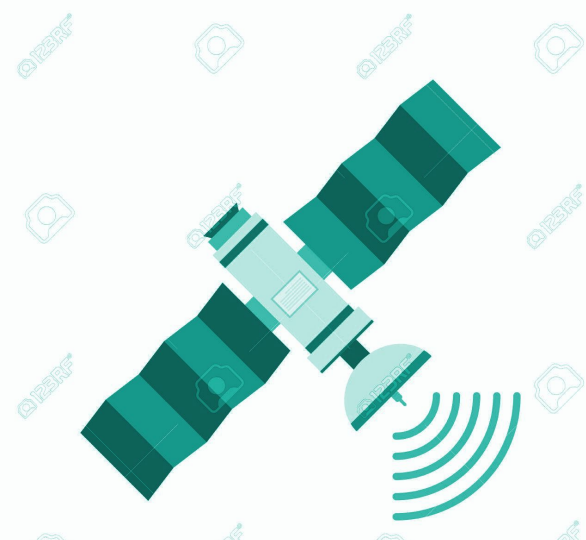
Asset usage

Challenges



“ REAL TIME INTELLIGENCE and TRACKING ”





GPS

**“Outdoor Real time
location system”**

**“Few meters
accuracy”**





GIPS
“Indoor Real time
location system”

“<0.5 meter
accuracy”



“ REAL TIME INTELLIGENCE and TRACKING ”



if this then that

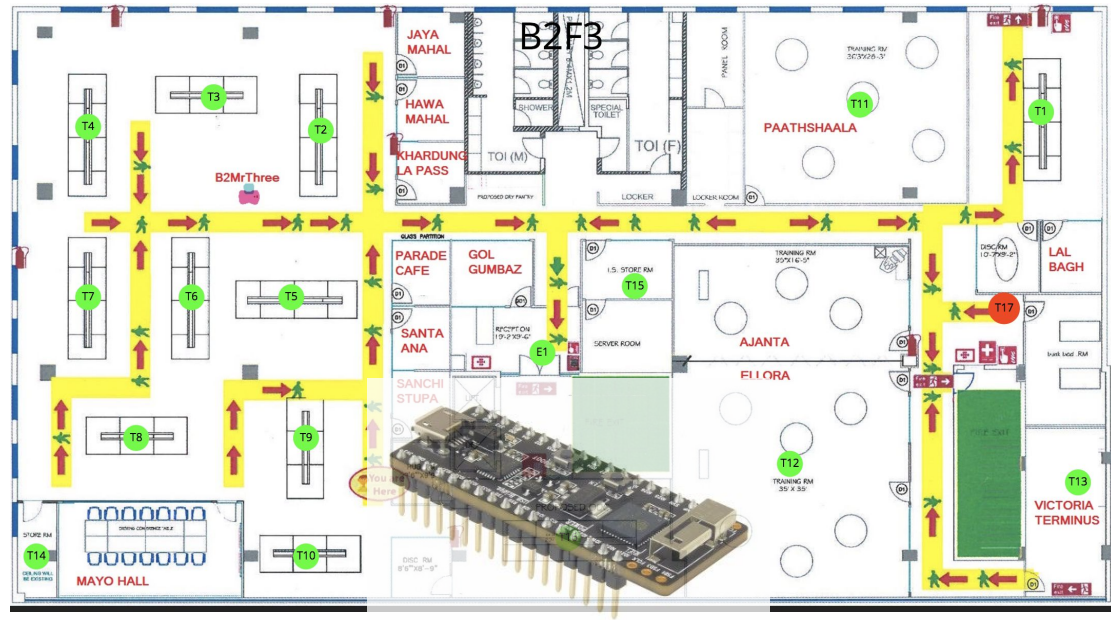
Trigger Action



Geofencing BLE Beacons



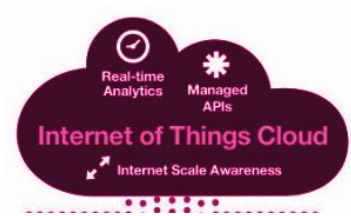
ASSET TAGGING



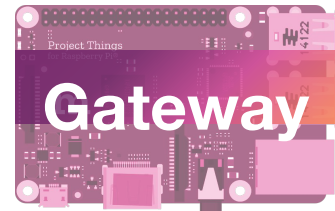
GEO FENCING



BLE GEOFENCE PLATFORM



1. Data Analytics
2. Machine learning Algorithms for triangulation
3. Push notifications for business rules



1. Aggregates information from clients
2. Health-check / updates of nodes
3. Maps assets to the closest satellite node

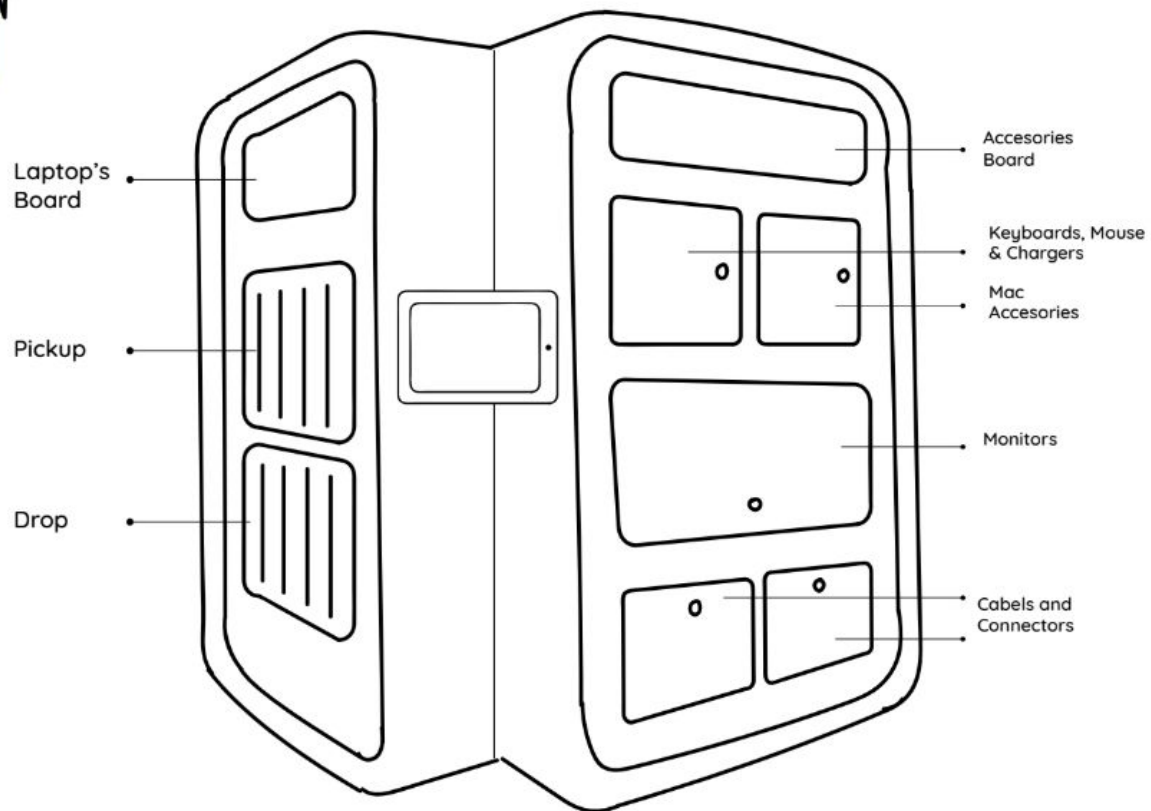


1. Listens to BLE signal (Poly-Beacon support)
2. Computes moving average every 60's (Edge computing)
3. Filter noise bluetooth signals from other devices



1. Continuously broadcast packets via iBeacon protocol
2. Sends unique identifier

KIOSK DESIGN



FOR BUSINESS - IT HELPED US WITH.....

- **Active tracking** - Provided 99.95% real time location accuracy
- **Automated assignment** - ~ 90x cost saving spent on tracking and assignment of assets
- **Push notifications** - Alerts, when a asset leaves controlled environment
- **Auditing / Compliance** - Helped us to achieve close to 98% compliance
- **Self-Service** - 70% reduction in IT support ticket lifecycle
- **Low-cost solution** - ~US\$15 for 5-7 year maintenance per asset

Asset assignment

Controlled environment

Data accuracy

Stock taking

Compliance Auditing

Asset usage

@Hospitals



@Warehouse



@Factory floor



“ GIPS - RTLS ”

if this then that **IFTTT**
Trigger Action

QUICK RECAP.....

- Fourth industrial revolutions with AI, IOT, Quantum computing ...
- Millennials need for self-service and on-demand information
- Operational challenges with asset tracking - Need for real time data
- GPS with BLE beacons
- BLE Geofence platform
- Business benefits with active tracking, automated assignments, push notifications, self-service

Questions ?

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