ASEAN IVO Phase II – Progress Update #1

Project: Customizable Indoor Tracking System (ITS) for ASEAN Smart Facilities
Project Lead: MIMOS Berhad

Regional co-development & deployment of a customizable **Indoor Tracking System (ITS)** by **MIMOS**, powered by **Ultra-Wideband (UWB)** for high-accuracy indoor positioning

Project Duration

24 months

Start date: 16 September 2025
End date: 15 September 2027

Total Requested Budget

USD 160,000

USD 80k (Yr1) + USD 80k (Yr2)

Partner Sites

3 sites

Thailand (1) + Vietnam (2)
Bangkok, Ho Chi Minh, and Hanoi

Prepared by: MIMOS (ASEAN IVO Phase II project team)

1) Project Snapshot

Purpose

- Expand and validate MIMOS UWB-based Indoor Tracking System (ITS) as an adaptable ASEAN-ready platform
- Pilot deployments: Thailand (Smart Building / occupancy-driven HVAC), Vietnam (Smart Hospital + Smart Manufacturing)
- Enable partner customization using open APIs, modular extensions, and shared deployment templates

Focus areas

- Health & welfare: Safety of workers and patients (smart manufacturing & smart hospital)
- Environment protection: Occupancy-based HVAC control for energy saving & carbon reduction

Targeted impact

Smart Building

Up to 30-40% HVAC energy saving

via occupancy optimization

Smart Manufacturing

20-30% time reduction

workflow / asset retrieval

Overview of MIMOS Indoor Tracking System (ITS)

TAG

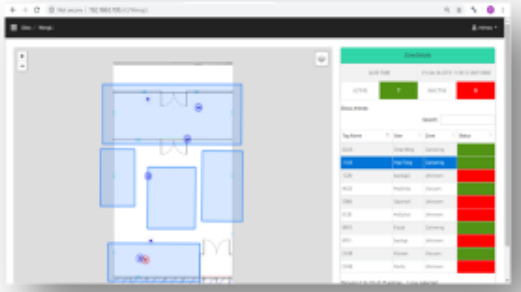
ANCHOR

GATEWAY

ITS System includes:

- Tracking hardware
  - ITS Tag
  - ITS Anchor
  - ITS Gateway
- Tracking software
  - Tracking dashboard
  - Geofence Editor
  - Dwell Time Report
  - Replay Tag Movement
  - Heatmap

ITS Anchors



Sample of Tracking Dashboard

Assets / Personnel

ITS Tags

ITS Gateway

Manager

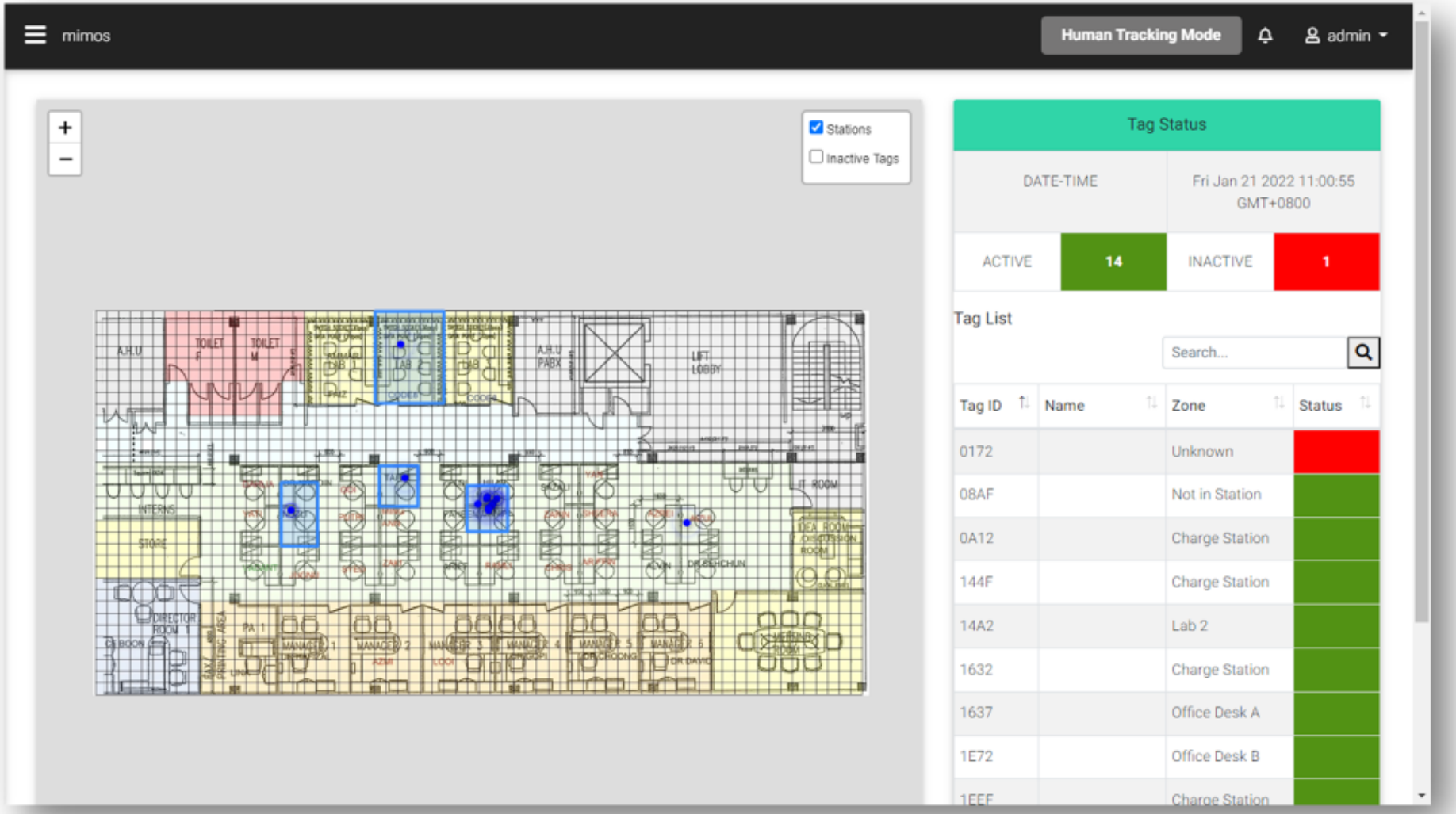
Ethernet

- Monitoring
- Analytics
- Visualization

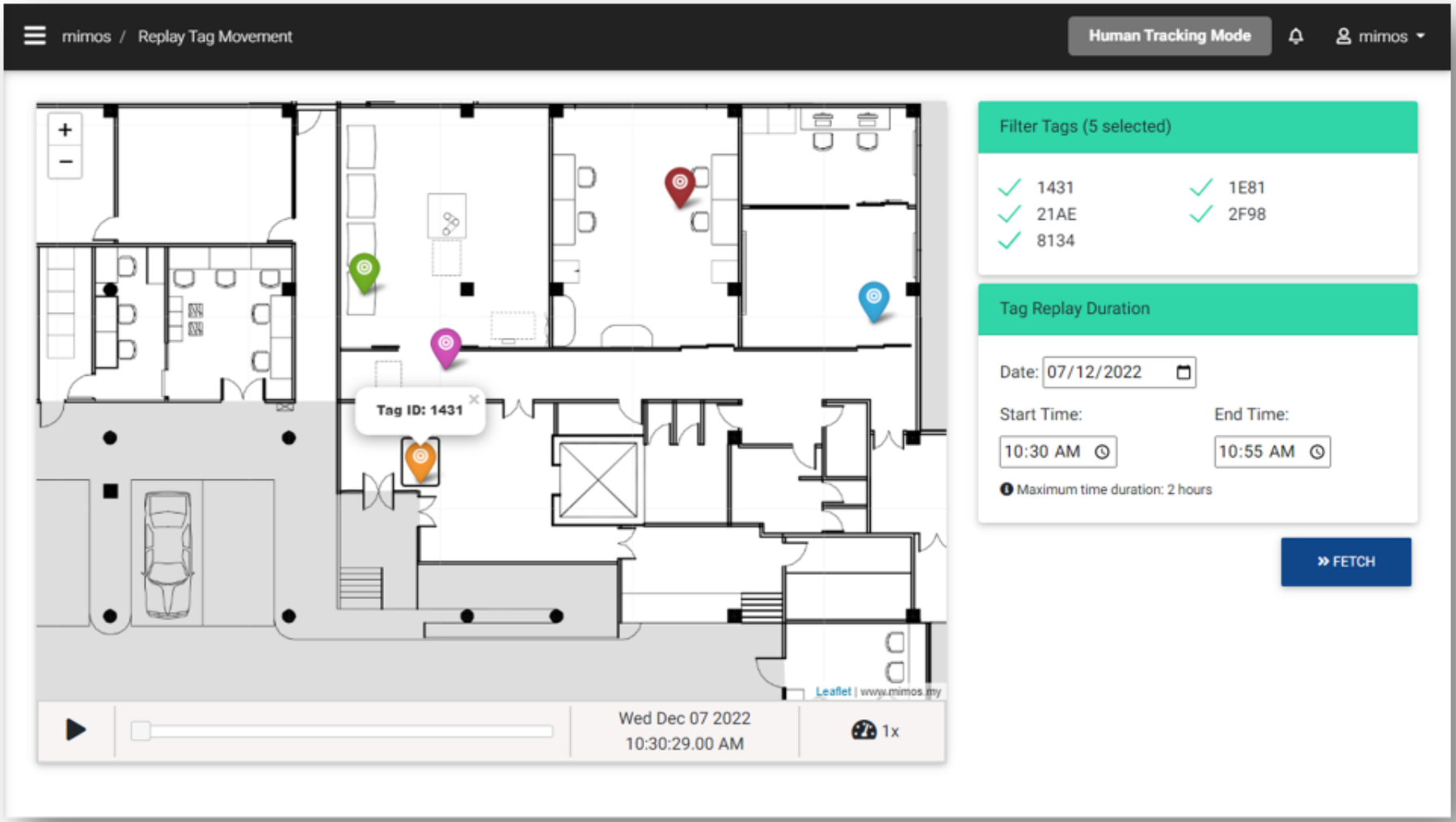
ITS Location Server

Ultra-Wideband Wireless

Interactive Tracking Dashboard



Replay of Tag Movement History



Movement Heatmap

2) Team members & Roles

Core team (MIMOS Berhad, Malaysia)

- Project lead: Dr. Choong Khong Neng
- Technical/system lead (ITS hardware): Chrishanton Vethanayagam
- Software development lead (location server, APIs): Putri Shahnim Khalid
- Deployment & infra engineering: Kevin Shane Anak Minggu, Nurul Ayuni Safra Mat Daud
- Hardware & data analytics support: Dr. Leong Wen Chek, Yong Keh Kok

ASEAN partner institutions & use-cases

Thailand
Chulalongkorn University (CU)
Prof. David Banjerdpongchai

Use-case: Occupancy-based HVAC control
Site: Smart building testbed

Vietnam
University of Architecture HCMC (UAH)
Dr. Le Ngoc Thien

Use-case: Smart hospital / patient movement analytics
Site: Hospital environment

Vietnam
VNU International School (VNU-IS)
Dr. Nguyen Dang Khoa

Use-case: Smart manufacturing / productivity analytics
Site: Factory environment

3) Implementation Plan & Current Status

24-month plan

P1 Prep & Customization	P2 Lab Familiarization	P3 PoC Deploy & Initial Test	P4 Data Review & Optimize	P5 Expand & Integrate	P6 Share & Finalize
Months 1–3	Months 4–6	Months 7–9	Months 10–12	Months 13–18	Months 19–24

Note: Current at P2 Lab Familiarization.

Status summary

- Completed: Kickoff alignment + Technical training in Bangkok (hands-on ITS stack training, site planning discussion)
- In progress: Procurement processing for 4 equipment purchase proposals (ITS kits + site deployment toolkits)
- Pending: Defining specific/detailed use cases for pilot site, its readiness, access approvals, and deployment schedule
- Not started: Software module development / analytics plugin development / PoC integrations

4) Recent Activity – Bangkok Technical Training

Event overview

- First technical meeting + 2-day ITS training hosted by Chulalongkorn University (CU)
- Venue: Dept. of Electrical Engineering, Faculty of Engineering, CU (Bangkok)
- Date: 25-26 Feb 2026
- Participants: 10 (MIMOS 4; CU 4; Industry reps from Swift Dynamics)

Training coverage (hands-on, parallel tracks)

Day 1 – System setup

- Intro to ITS and use-cases
- UWB device configuration
- Location server configuration
- Lab deployment hands-on
  - Track A: hardware;
  - Track B: server/network)

Day 2 – Deployment readiness

- Site survey & mapping procedures
- API & data interaction workshop
- Project-dedicated consultation for targeted site
- Q&A + summary and conclusion

4) Recent Activity – Bangkok Technical Training

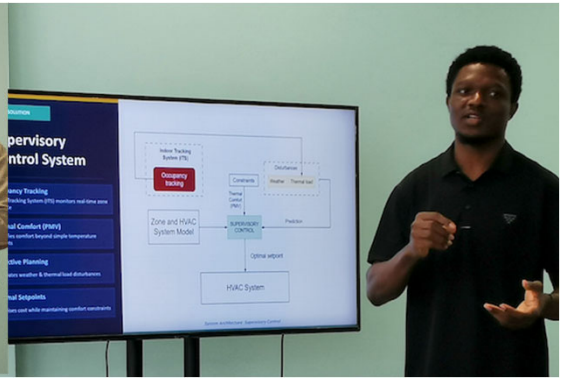
Group photo

Explanation of UWB-based tracking devices

UWB System Tracking Features

API call for extracting data

Use case sharing from Industry



Occupancy Tracking for Supervisory control

5) Procurement – Equipment Purchase Proposals (4)

Purpose: Enable lab setup, benchmarking, and pilot/PoC deployments across Thailand and Vietnam.

A) MIMOS UWB ITS kits (for Thailand + Vietnam sites)

- Scope: anchors (99), tags (99), gateways (18), servers (6)
- Use: Lab + 1 PoC site (Thailand) + 2 PoC sites (Vietnam)
- Estimate: RM 167,049 (≈ USD 41,762)

B) Benchmarking kits (UWB RTLS + BLE AoA RTLS)

- Scope: 2 alternative RTLS systems + positioning engines + dashboards
- Use: Functionality and performance benchmarking (accuracy, latency, capacity etc.)
- Estimate: RM 56,596 (≈ USD 14,372)

C) CU deployment toolkit (Thailand)

- Scope: Mounting, charging, cabling, Wi-Fi APs, mobile device, laser measure device
- Use: Standardized UWB infrastructure setup & commissioning
- Estimate: THB 127,914 (≈ USD 4,081)

D) VNU-IS deployment toolkit (Vietnam)

- Scope: Accessories + PPE + LAN switches + iOS laptop for development
- Use: Lab/school setup; future industrial site deployment readiness
- Estimate: USD 8,226.04

6) Budget View – Proposal vs Early Procurement/Spending

Proposal budget (Year 1 draft)

Year 1 Total: USD 80,000

- ITS UWB kits (core hardware): USD 17,000 (MIMOS)
- Travel cost & engagement: USD 20,000 (MIMOS & partners)
- Training & installation: USD 14,000 (partners)
- Tools & deployment costs: USD 24,000 (partners)
- Contingency: USD 5,000

Note for reviewers

The first update is procurement-heavy to ensure partners have standardized lab and deployment readiness toolkits.

No PoC software development has started; spending will be paced to the deployment and integration schedule once site readiness is confirmed.

Early procurement and event hosting items (USD71,381.04)

- MIMOS UWB ITS kits: RM 167,049 (≈ USD 41,762)
- Benchmarking RTLS kits: RM 56,596 (≈ USD 14,372)
- CU toolkit: THB 127,914 (≈ USD 4,081)
- CU training event: USD 2,940
- VNU-IS toolkit: USD 8,226.04

TOTAL = USD71,381.04

7) Risks, Issues & Dependencies

Current key risks (Early phase)

- Procurement lead time (quotations, approvals, shipping/customs) may delay lab setup and field deployment windows
- Pilot site readiness dependencies: network/PoE availability, mounting constraints, access permissions, safety rules
- CRDA disagreement raised by CU Bangkok – Requires alignment on terms before further R&D and purchasing activities
- UAH leadership change: new President currently unwilling to support the NICT R&D initiative (ex-President had accepted collaboration)

Mitigation actions (Proposed)

- Lock procurement plan & delivery milestones, and track with weekly status calls
- Run early site surveys + readiness checklist. Confirm network and mounting plan before deployment
- Organize meeting to list exact disputed clauses and find common resolutions
- Project lead to write letter to UAH new president to explain/emphasize the values and impact the ASEAN IVO collaboration could generate to the R&D community and industry

8) Next Steps (Next 4–8 Weeks)

Immediate next steps

- Execute all procurement activities and confirm delivery schedule for 4 equipment proposals
- Complete all technical training/workshop
- Work on deployment plans (Infrastructure setup and configuration, system installation, use case definition under Lab familiarization & use-case planning)