

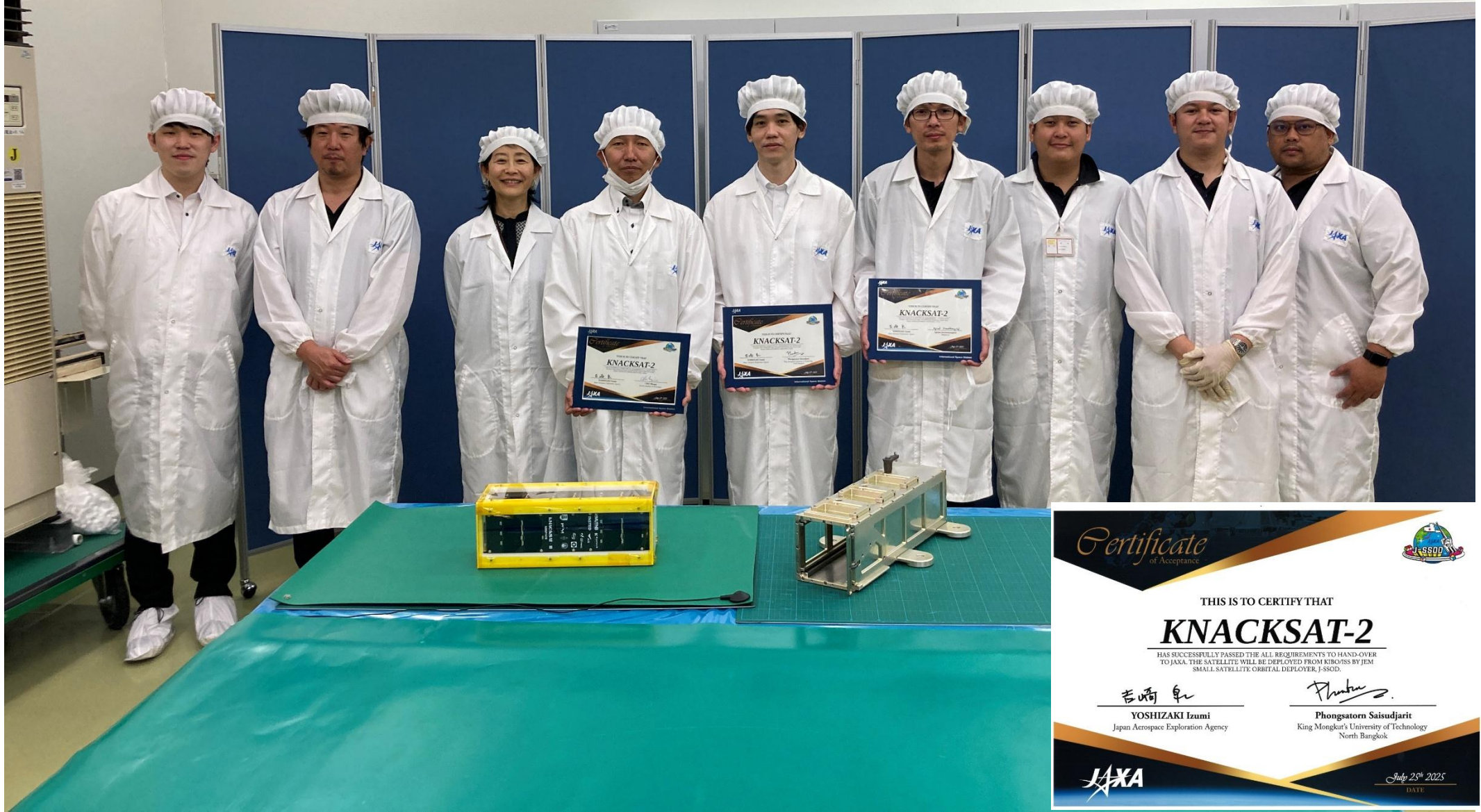
From Lab to Orbit
**- Accelerating Thailand's Space Ecosystem through
KNACKSAT-2 and J-CUBE program -**

Apiwat Jirawattanaphol

The 70th Virtual UNISEC-Global Meeting

KNACKSAT-2 satellite handover at JAXA Tsukuba Space Center

July 25th , 2025





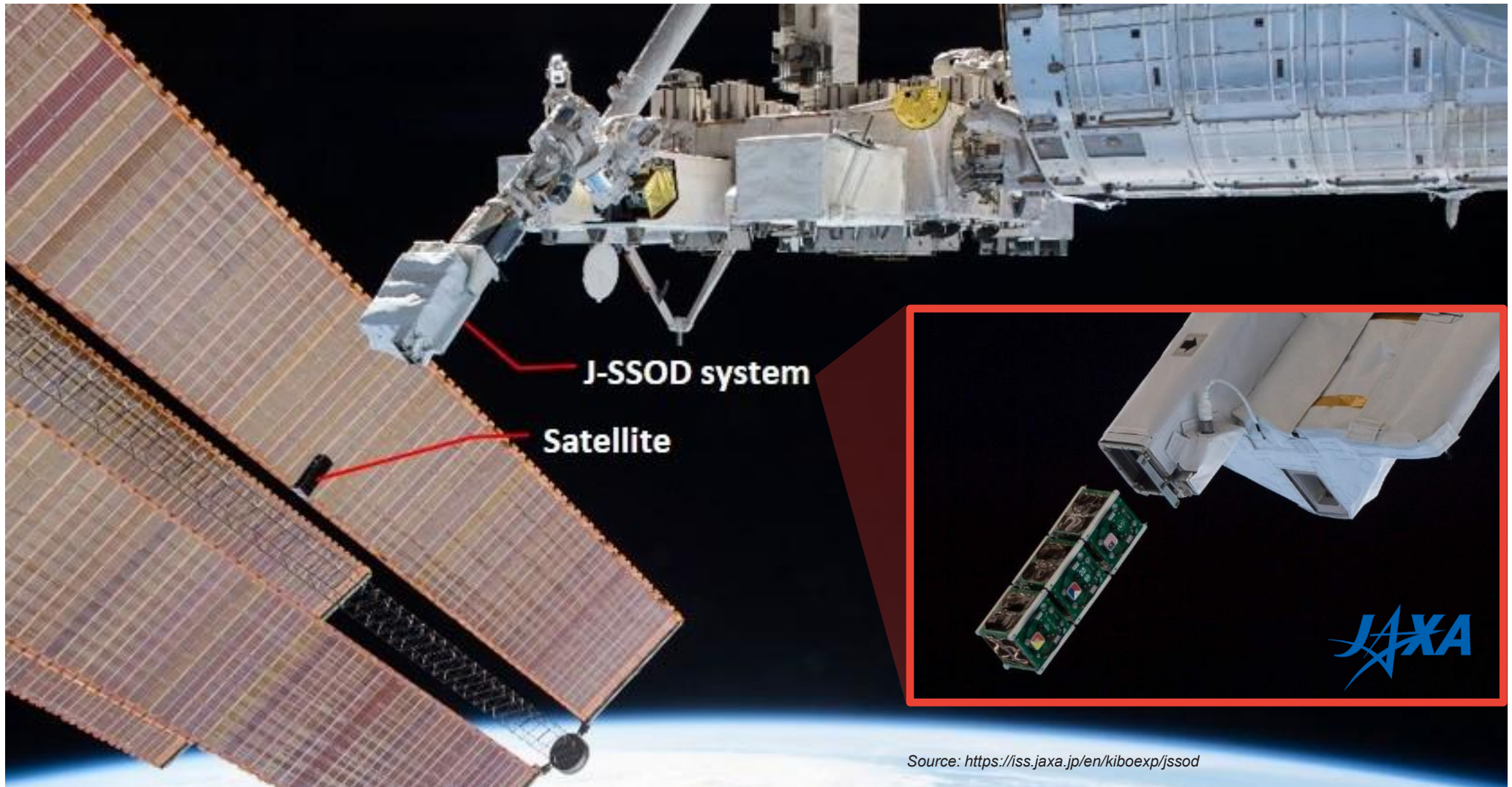
ภาพประวัติศาสตร์
ดาวเทียม KNACKSAT-2
ฝีมือเด็กไทย ขึ้นสู่วงโคจรแล้ว

Thai PBS
SCI & TECH

Thai PBS



JEM Small Satellite Orbital Deployer





*Deployed from ISS
on 3rd Feb 2026*

KNACKSAT-2



- *KMUTNB Pre-Engineering School*
- *KMUTNB Rail Systems Cluster*
- *NARIT (National Astronomical Research Institute of Thailand)*
- *UiTM (Universiti Teknologi MARA), Malaysia* 
- *UPHSD (University of Perpetual Help System DALTA), Philippines* 
- *AIS (Advanced Info Service Public Company Limited)*

KNACKSAT-2 (J-CUBE 2021 winner)



“One Satellite Multi-Payload”

Bus System

- Communication
- OBC
- EPS
- Payload Controller

Ride-Sharing Concept

Shared Launch and Testing Fees
Among Riders

Fully Supports on
License and Safety Review

Focused on Payload Development
Not Satellite Bus Development

Multi-Payload (up to 10 Slots)

- Designed and
developed by users

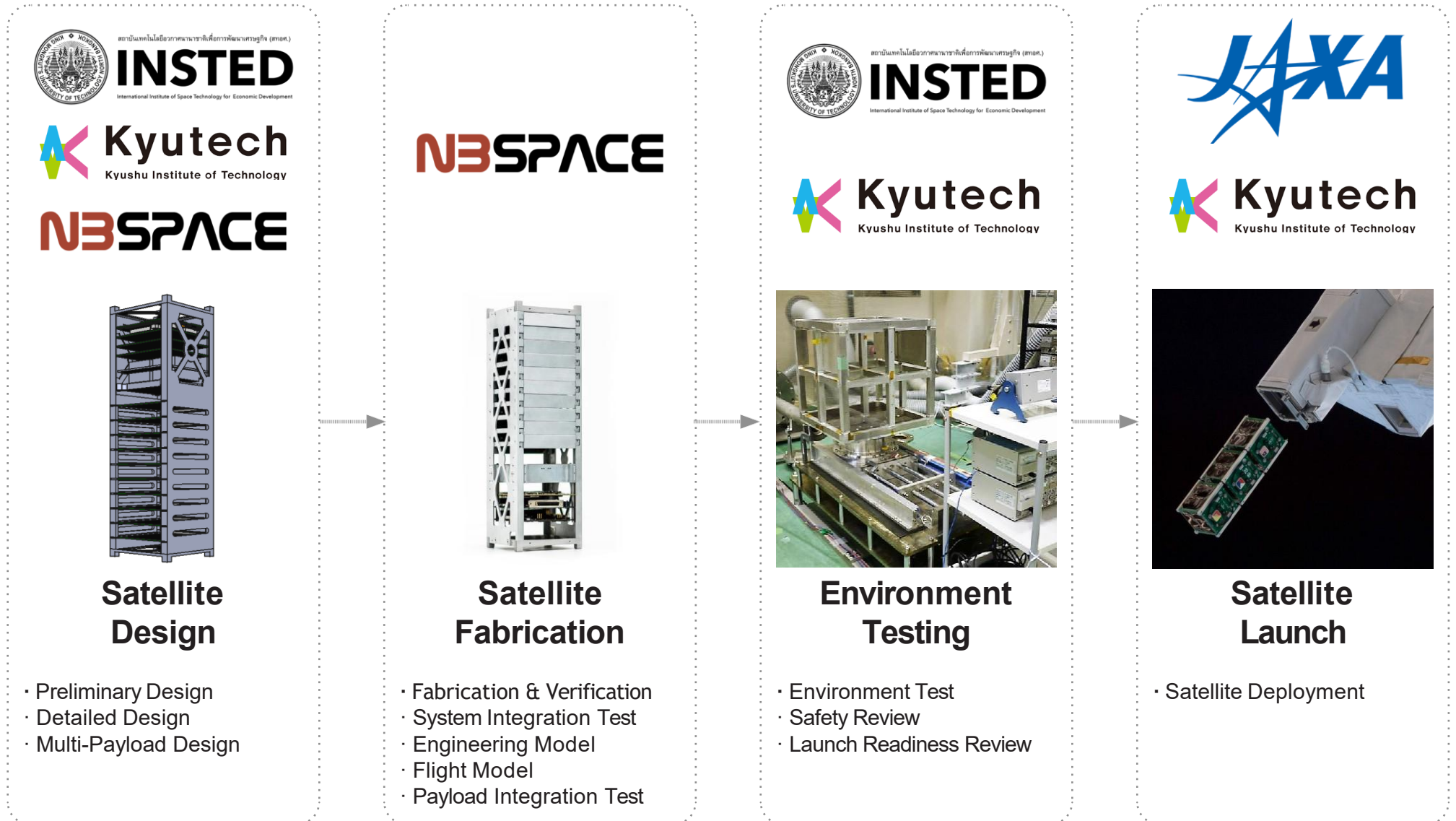
Space-Proven Parts

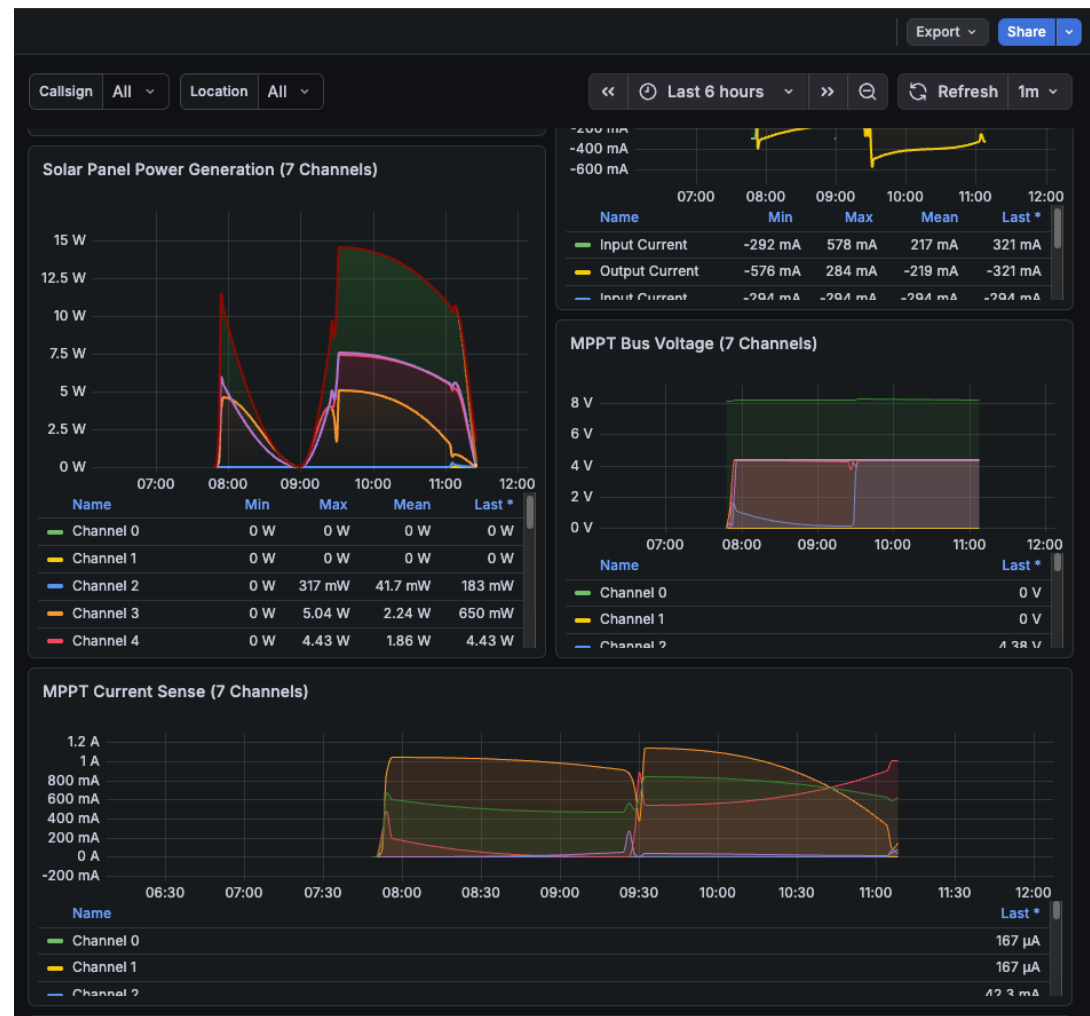
3U Cubesat Multi-Payload Platform
Designed and Developed by



“Songthaew”

Collaborative Platform Development





KNACKSAT-2: Health Status



HD Space Camera

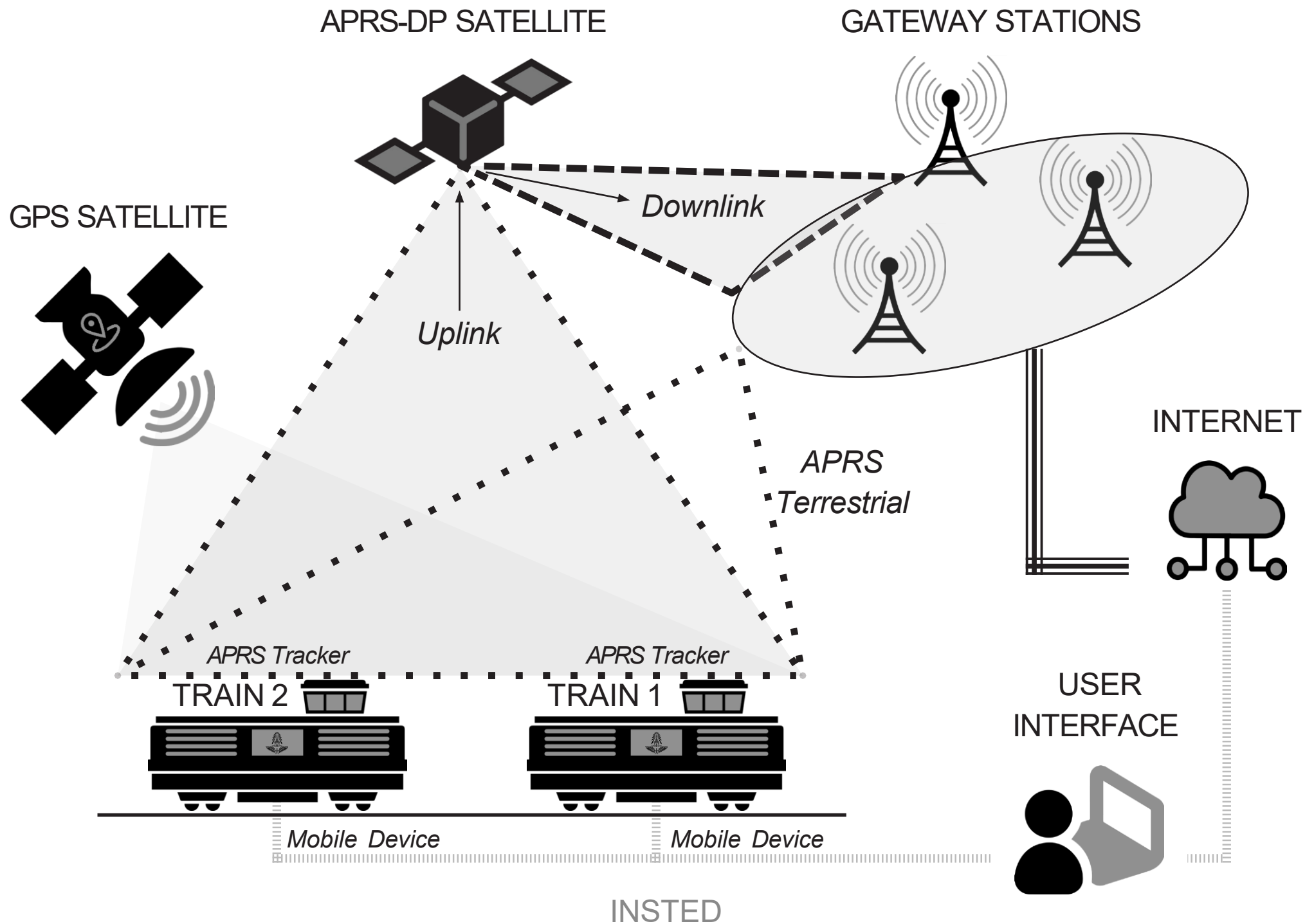








Train Tracking System

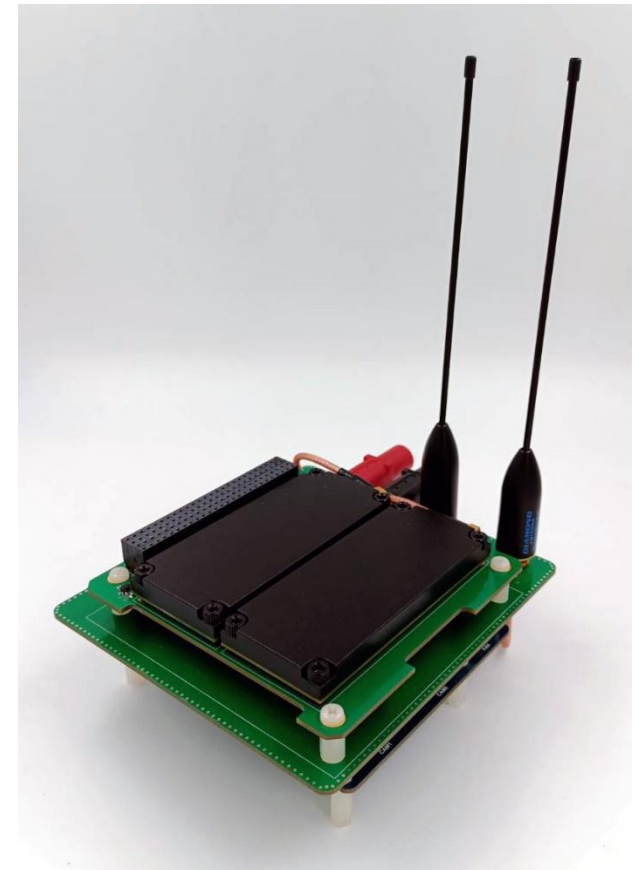




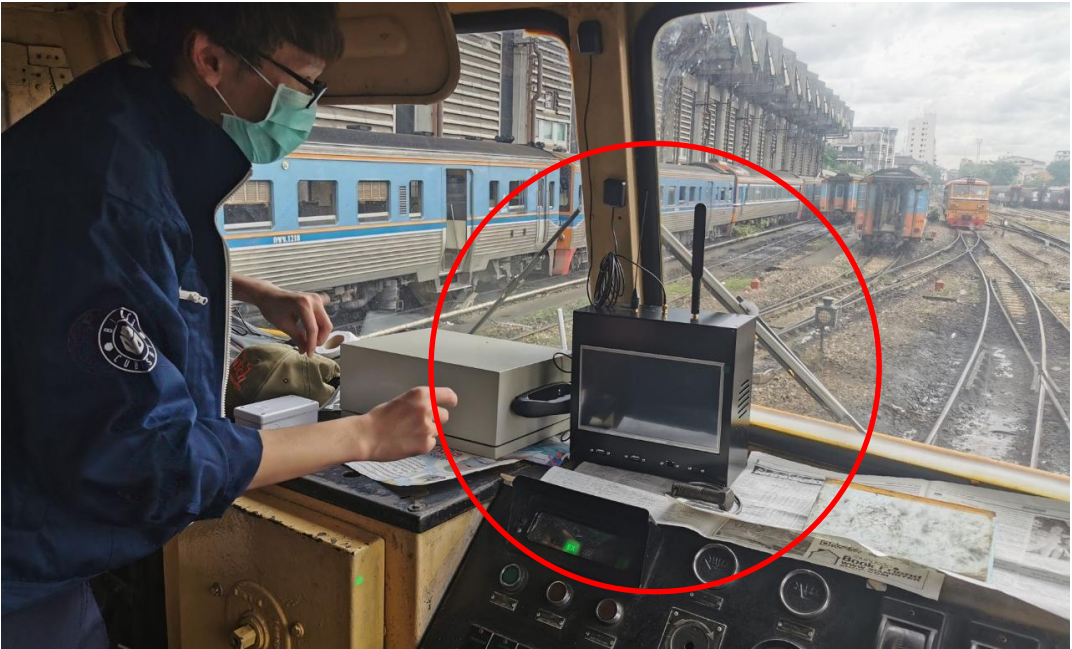
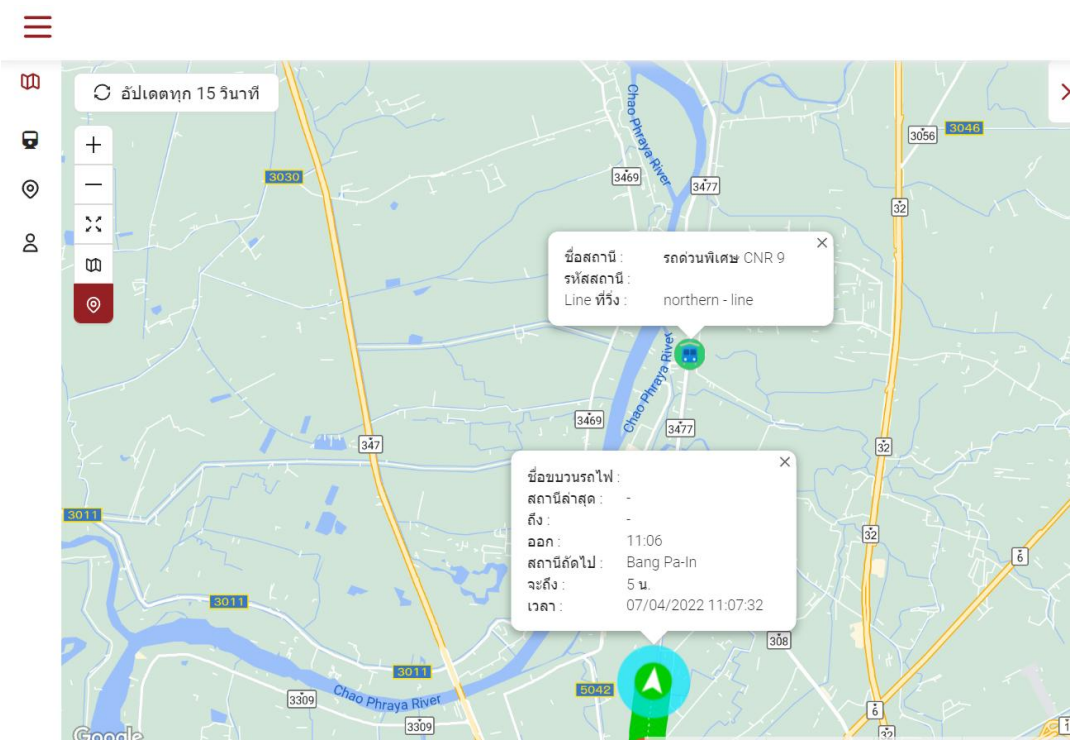
APRS Gateway Station



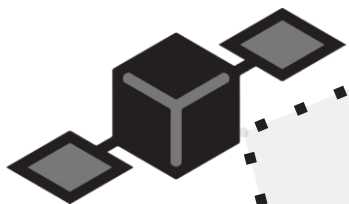
APRS Tracker Module



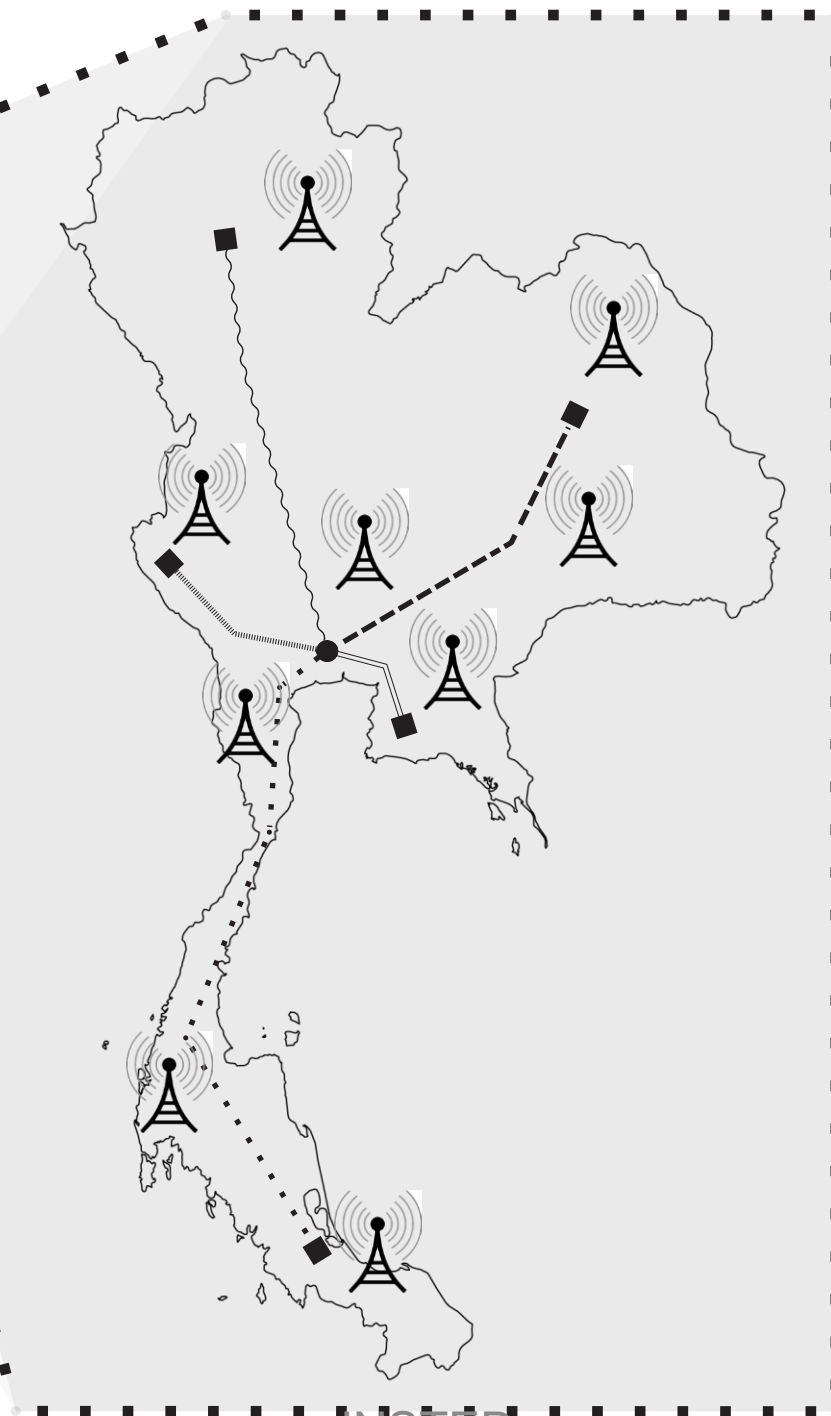
APRS-DP Module



APRS-DP SATELLITE



GPS SATELLITE



INSTED



ROUTE 1: NORTH
Bangkok - Chiangmai



ROUTE 2: NORTHEAST
Bangkok - Khon Kaen



ROUTE 3: EAST
Bangkok - Rayong

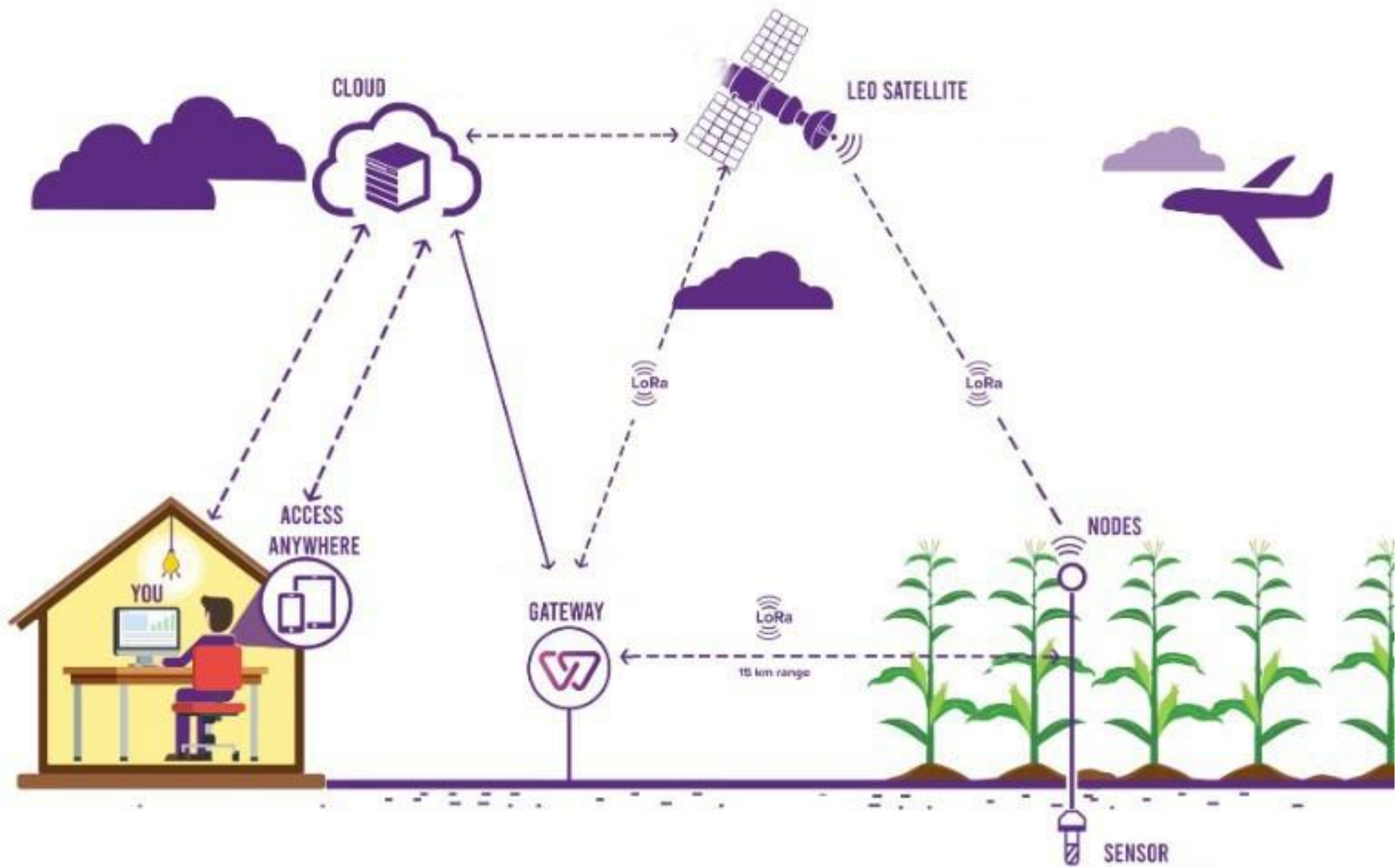


ROUTE 4: WEST
Bangkok - Kanchanaburi



ROUTE 5: SOUTH
Bangkok - Songkhla

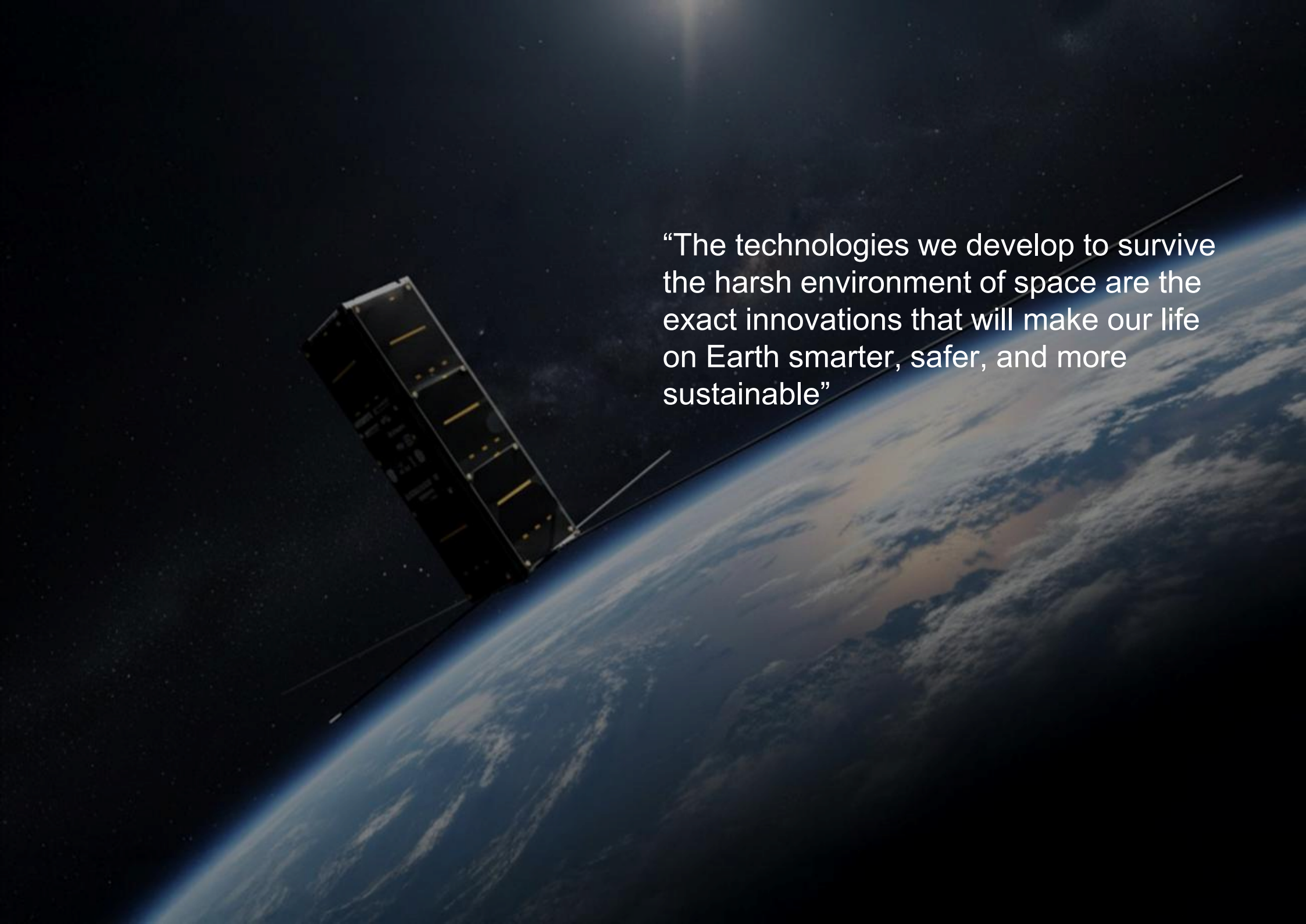
Space-Based IoT





Conclusion

By acting as a shared, high-stakes mission, KNACKSAT-2 successfully bridges the gap between university labs and national policy, creating a reproducible blueprint for deep-tech collaboration.

A satellite is shown in orbit above the Earth's surface, which is covered in white clouds and blue oceans. The satellite is a rectangular box with several yellow lights or sensors on its side. It is positioned in the upper left quadrant of the image. The Earth's horizon is visible as a curved line across the middle of the frame. The background is the dark, starry space of the universe.

“The technologies we develop to survive the harsh environment of space are the exact innovations that will make our life on Earth smarter, safer, and more sustainable”



สถาบันเทคโนโลยีอวกาศนานาชาติเพื่อการพัฒนาเศรษฐกิจ (สทอศ.)

INSTED

International Institute of Space Technology for Economic Development

King Mongkut's University of Technology North Bangkok
1518 Pracharat 1 Rd., Wongsawang, Bangsue
Bangkok 10800 THAILAND
Tel. +66-2555-2000 Ext. 2077
Fax. +66-2587-4350
Email. phongsatorn.s@eng.kmutnb.ac.th