

AIoT InnoWorks

Young talents cultivation and innovation in IoT



Hsin Wu, ESG Office, Advantech

What is AIoT InnoWorks?

AIoT InnoWorks

• Code the Future •



Vision

Empower students and developers all over the world to create a smarter, greener and safer world with IoT application development tools

Support Students in AIoT Learning and Field Exploration through Project-based Learning



AIoT InnoWorks

Sponsor and support universities in AIoT project-based practical learning with WISE-PaaS Industrial IoT cloud platform and resources

- **Basic Sponsorship (10-15K USD)**
- **Advanced Sponsorship (20-30K USD)**

AIoT InnoWorks Events Hosted by universities*

*nominated by regional office



Advantech Resources Support

WISE-PaaS
online courses

Technical &
business mentoring

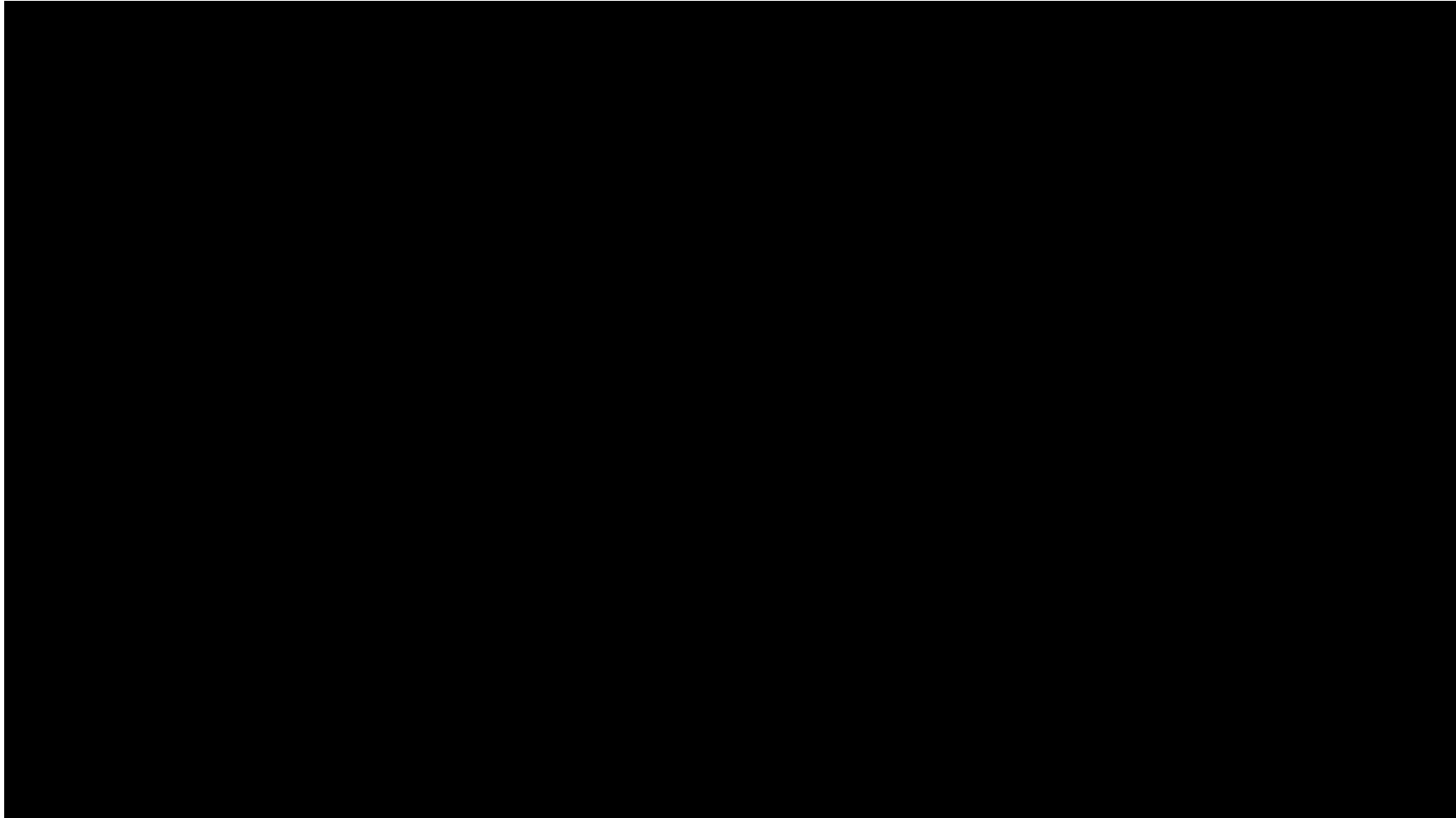
WISE-PaaS cloud platform
& technical support

Monetary
Sponsorship

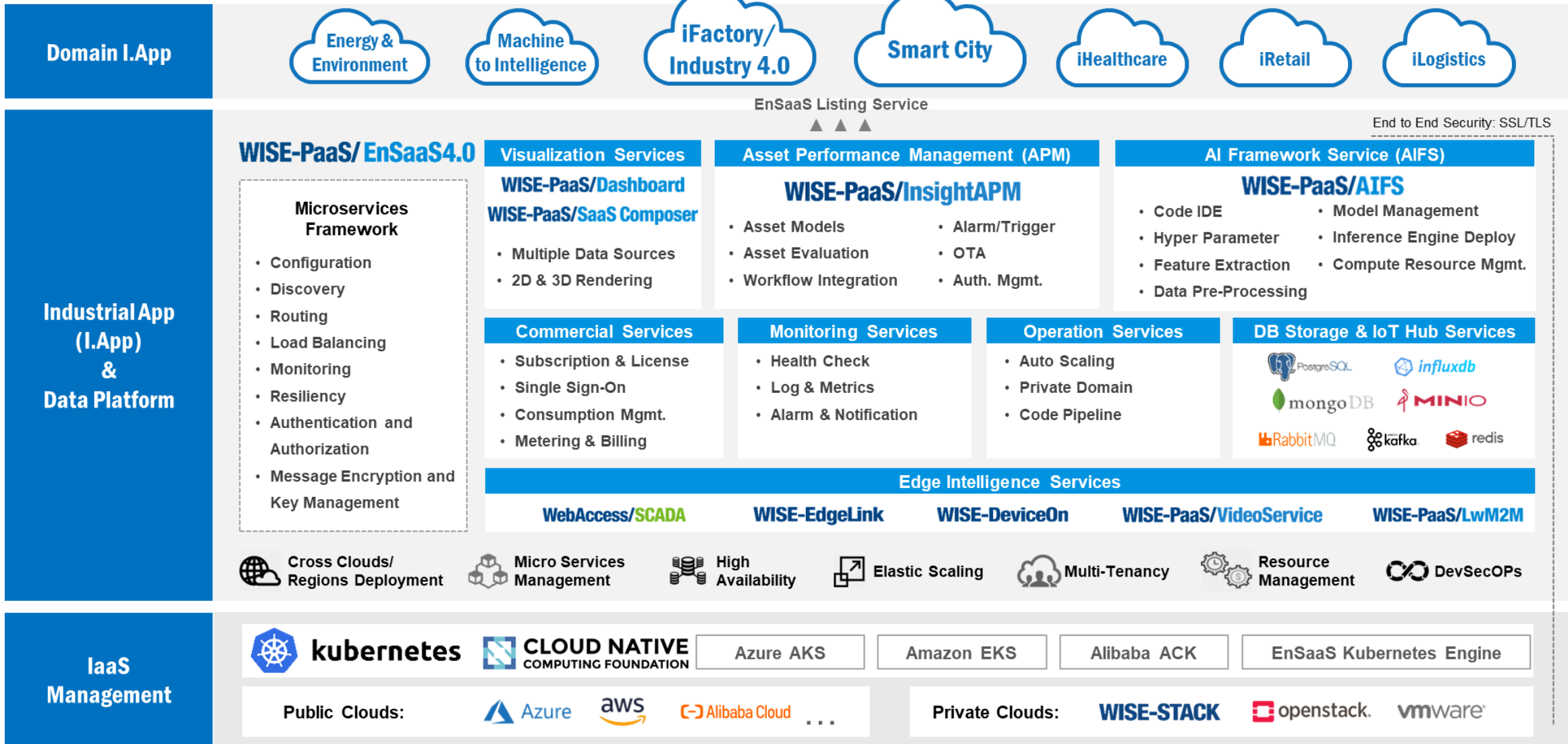
**The amount of sponsorship will be decided and confirmed by Advantech headquarters according to the scale of the proposal.

Program Resources

Accelerate Application Development by WISE-PaaS



WISE-PaaS 4.0 Architecture with Microservices & I.App



Suitable for Multiple Domain Scenario

Live WISE-PaaS/Dashboard demo site <https://reurl.cc/n54E58>

The dashboard displays a monitoring center overview for two rooms. The top navigation bar includes the title 'Dashboard', 'Dashboard case set', and the date '2021/11/11 17:58:53'. The main content area is titled 'Ring The Monitoring Center' and features a central map of China with various cities marked. The dashboard is divided into several sections:

- Room 1 Overview:** Includes 'Room 1 Normal...' (590day), 'Room 1 System ...' (98%), 'Room 1 Air Con...', 'Room 1 Environ...' (Smoke Degrees 16% obs/m, 24°C, 16% RH), and 'Room 1 PUE'.
- Room 2 Overview:** Includes 'Room 2 Normal...' (690day), 'Room 2 System ...' (98.8%), 'Room 2 Air Con...', 'Room 2 Monito...' (Smoke Degrees 18% obs/m, 24°C, 18% RH), and 'Room 2 PUE'.
- UPS Monitoring:** Shows 'Room 1 UPS: No...' (84 kW) and 'Room 2 UPS: N...' (83 kW).
- Alarm Analysis:** 'Analysis of alarm type To...' shows 9 temperature warnings and 5 UPS warnings.
- Machine Operation:** Displays '正常运行22台,告警9台' and '常运行21台,未配置1台,告警8台'.
- Warning Message:** Lists '供电配电告警' and '空调告警'.

WISE-PaaS Online Learning Modules

WISE-PaaS Core (#9)

/Low Code/

- C1 EnSaaS 4.0 architecture Introduction
- C2 EnSaaS 4.0 Portals and Marketplace Service Deployment
- C3 Data Processing Service -WISE-PaaS/DataHub
- C4 Data Visualization Service – WISE-PaaS/Dashboard Basic
- C5 Data Visualization Service – WISE-PaaS/Dashboard Advanced
- C6 Data Visualization Service – WISE-PaaS/SaaS Composer Basic
- C7 Data Visualization Service – WISE-PaaS/SaaS Composer Advanced
- C8 Notification Service and Notification API
- C9 WISE-PaaS/IoTSuite Introduction

WISE-PaaS Developer (#7)

/API and Coding Required/

- D1 Kubernetes Cloud Application Development and Deployment
- D2 WISE-PaaS/SSO Single Sign On
- D3 WISE-PaaS/IoTHub Message Center
- D4 PostgreSQL Data Base Connection
- D5 MongoDB (Non-SQL) Data Base Connection
- D6 InfluxDB (Time Series) Data Base Connection
- D7 DataHub SDK Integration

Edge Core(#6)

/ Edge Connection /

- E1 Base Application Network Architecture and Field Device Plan
- E2 Edge Data Collection Module -ADAM/WISE
- E3 Edge Cloud Gateway – WISE Gateway
- E4 Advantech Edge Connection -SCADA /EdgeLink
- E5 Common Field Site Protocol Integration - MODBUS/OPU UA/BACnet

Domain Application (#5)

/Application and Solution Ready Packet/

- S1 Situation Room Solution
- S2 iFactory/Overall Equipment Effectiveness Solution
- S3 iFactory/Factory Energy Management Solution
- S4 iBuilding/Building Energy Management System
- S5 InsightAPM/M2I

WISE-PaaS/AIFS (#5)

/AI Applications/

- A1 WISE-PaaS/AIFS Introduction
- A2 Subscribe Temperature Prediction Model on Catalog
- A3 Deploy Temperature Prediction Model to Edge
- A4 System Setting & AIFS SDK
- A5 Upload Code & Neural Network Model Training

WISE-PaaS/InsightAPM(#9)

/Asset Performance Management/

- M1 InsightAPM introduction
- M2 Asset template design & application
- M3 Asset status monitoring
- M4 Asset failure status monitoring
- M5 Asset statistical analysis management
- M6 Asset performance analysis management
- M7 Asset report application management
- M8 Asset video monitoring management
- M9 Authority management

WISE-PaaS General (#6)

/ Common Technical and Basic Concept /

- B1 Cloud Native and PaaS Application Ecosystem
- B2 Microservice Architecture with Kubernetes and Docker
- B3 Basic SQL, NoSQL, Time Series Data Base Concept
- B4 Message Queuing Telemetry Transport
- B5 REST API Application
- B6 Basic Fronted Technology Nodejs and HTML/CSS/JavaScript

WISE-PaaS Architect (#3)

/ Maintenance and Architecture /

- W1 EnSaaS 4.0 Resources Management
- W2 WISE-STACK Private Cloud Infrastructure
- W3 WISE-PaaS EnSaaS/Enterprise Account Management

WISE-PaaS Certification Courses Learning Paths

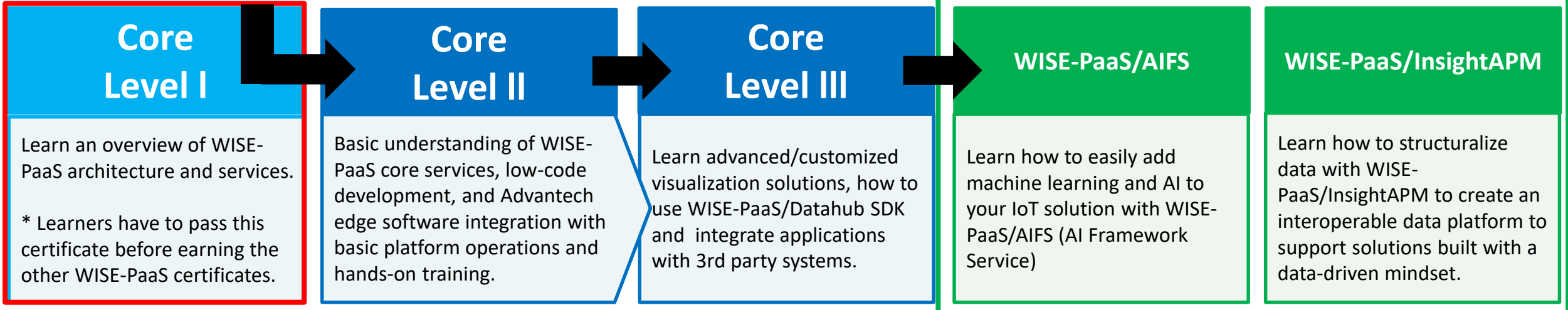
Developer & Co Create Partner

Professional



Beginners

Low code Development & General User



Outstanding Projects

Get Inspired by Outstanding Projects

CGU Intelligent ER 2.0

— Smart medical care information integrated platform



“Pre-send visualized data and first aid information to the emergency room to buy more time for the patient.”

Dashboard View:



 **Alot InnoWorks**
ADVANTECH University Co-Creation

PCSupermaster

— AI informed smart farming monitoring system



“Increase low-cost agricultural sensor accuracy with smart correction and remotely control devices in farms.”

Dashboard View:



 **Alot InnoWorks**
ADVANTECH University Co-Creation

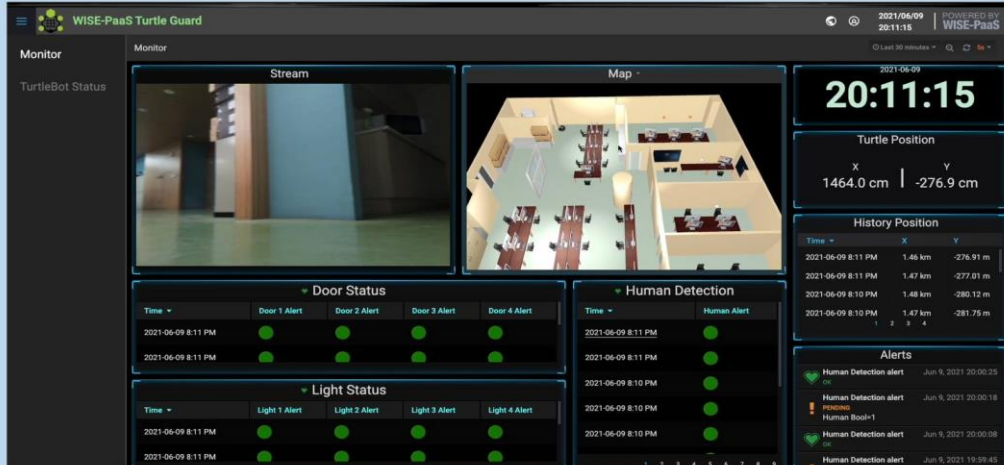
AI Turtle

—AI enabled smart campus monitor system



“ Improve campus safety management by assisting security officer with patrolling robots on campus. ”

Dashboard View:



Star of Tunghai

— Smart monitor and alarm CIC for automated factory



“ Provide an intelligent shutdown and predictive maintenance notification to reduce the operating cost of factories. ”

Dashboard View:



2020 Malaysia winning team- Smart Herbal Farm

Experience Sharing from Students



Team D
2020 Malaysia winning team

“Advantech provided a platform that we had never used before. This was a great opportunity. We were able to experience in person the technology professionals in the industry are currently using.”



The Builder BOB



2021 Taiwan Winning Team

- CHUN-CHI LIANG

“The InnoWorks competition gave me the opportunity to implement my ideas.”

This time the experience of participating in the competition is a step beyond my comfort zone. I am determined to work harder to learn programming, and I am more determined to become a diverse talent.”

Reference

- Get inspired

AIoT InnoWorks projects



<https://reurl.cc/bnxdOE>

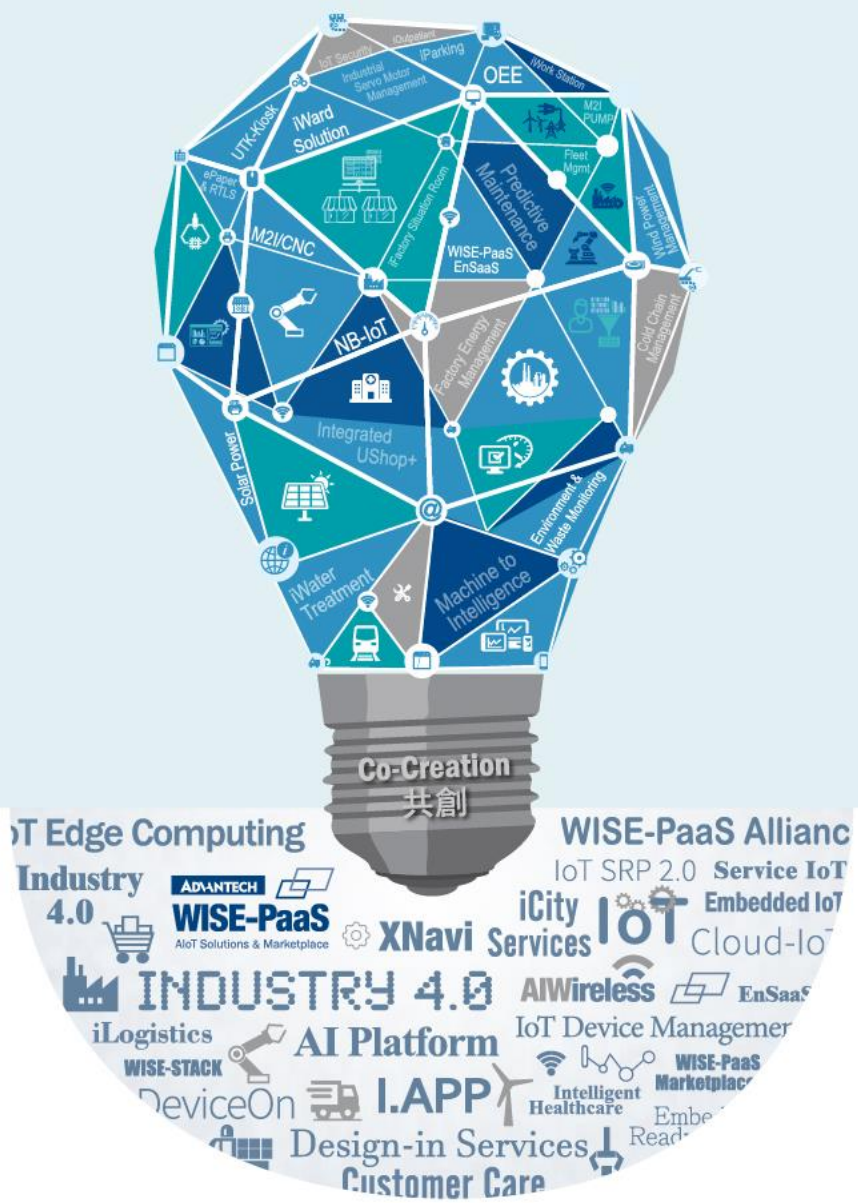
- Get started

AIoT InnoWorks
Proposal



<https://reurl.cc/mvNnyG>

Co-Creating the Future of the IoT World



InnoWorks Process



Expected outcome		
<ol style="list-style-type: none"> 1. Projects based on WISE-PaaS 2. At least 10-20 students acquiring WISE-PaaS core L1& L2 certification per university (depends on the scale) 3. Regional outstanding teams participating global webinar (if any) 		
Role & Responsibility		
RBU	University	HQ
<ul style="list-style-type: none"> • Nominate university • Discuss and co-work with university in holding InnoWorks • Providing market& business mentoring • Local technical support 	<ul style="list-style-type: none"> • Assembly teams to do projects on WISE-PaaS • Coach students in projects developing • Co-work with RBU in holding InnoWorks 	<ul style="list-style-type: none"> • Review and agree the nominees & approve sponsorship • Technical support beyond the local scope • Oversee the process • Hold global webinar