

2017 TiC100 IoT Solution Contest

智能城市X物聯網應用創新

立即報名

2017 TiC100 物聯網應用開發競賽

最高獎金**30**萬，等你來挑戰！

TiC100 介紹

TiC100誕生於1998年，在實驗室創業蔚為風尚的時代，TiC100鼓勵學生創業、將創意點子務實化！

2013年開始，TiC100聚焦在**智能城市與物聯網(Smarter City & IoT)**，由行業專家帶領學生探索物聯網與垂直行業應用。

2017年，研華舉辦 **TiC100 IoT Solution Contest**，讓學生能以WISE-PaaS(Edge Intelligence PaaS)平台進行創新物聯網解決方案開發設計！

TiC100

IoT Solution Contest

智能城市X物聯網應用創新

2017

競賽特色



提供WISE-PaaS(Edge Intelligence PaaS, EI-PaaS)平台, 並由研華業師群指導進行物聯網應用開發



鼓勵**產業應用科系學生** (如:農業,交通,醫療等) 與**電資專業學生**跨領域組隊參賽



金獎團隊可獲**30萬**獎金, 具商品化潛力團隊更可與研華協同開發解決方案

TiC100

IoT Solution Contest

智能城市X物聯網應用創新

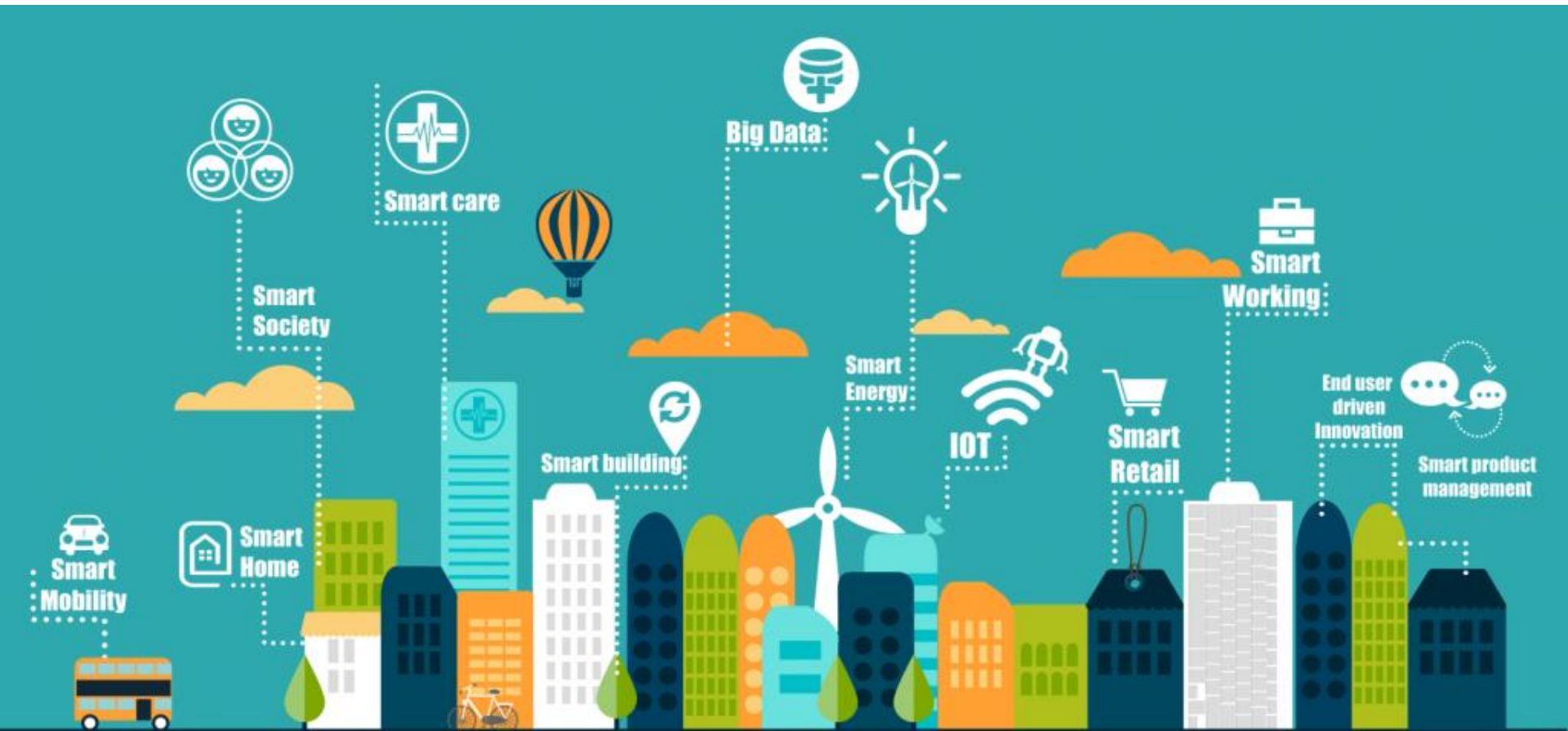
2017

競賽時程



TiC100 IoT Solution Contest

Allan Yang
CTO



Advantech

at a Glance

Advantech mission:

“Enabling an Intelligent Planet”,

- **Headquarters / 總部**
Taipei, Taiwan (1983)
Employee: 8,000
- **Revenue / 營收**
USD \$1.3B (2016)
- **Service Field**
Industry 4.0, Industry IoT
Smart City (Medical · Retail · Logistics)
Industrial Equipment Manufactures
- **Market Position**
No. 1 (29%) in Industrial PCs

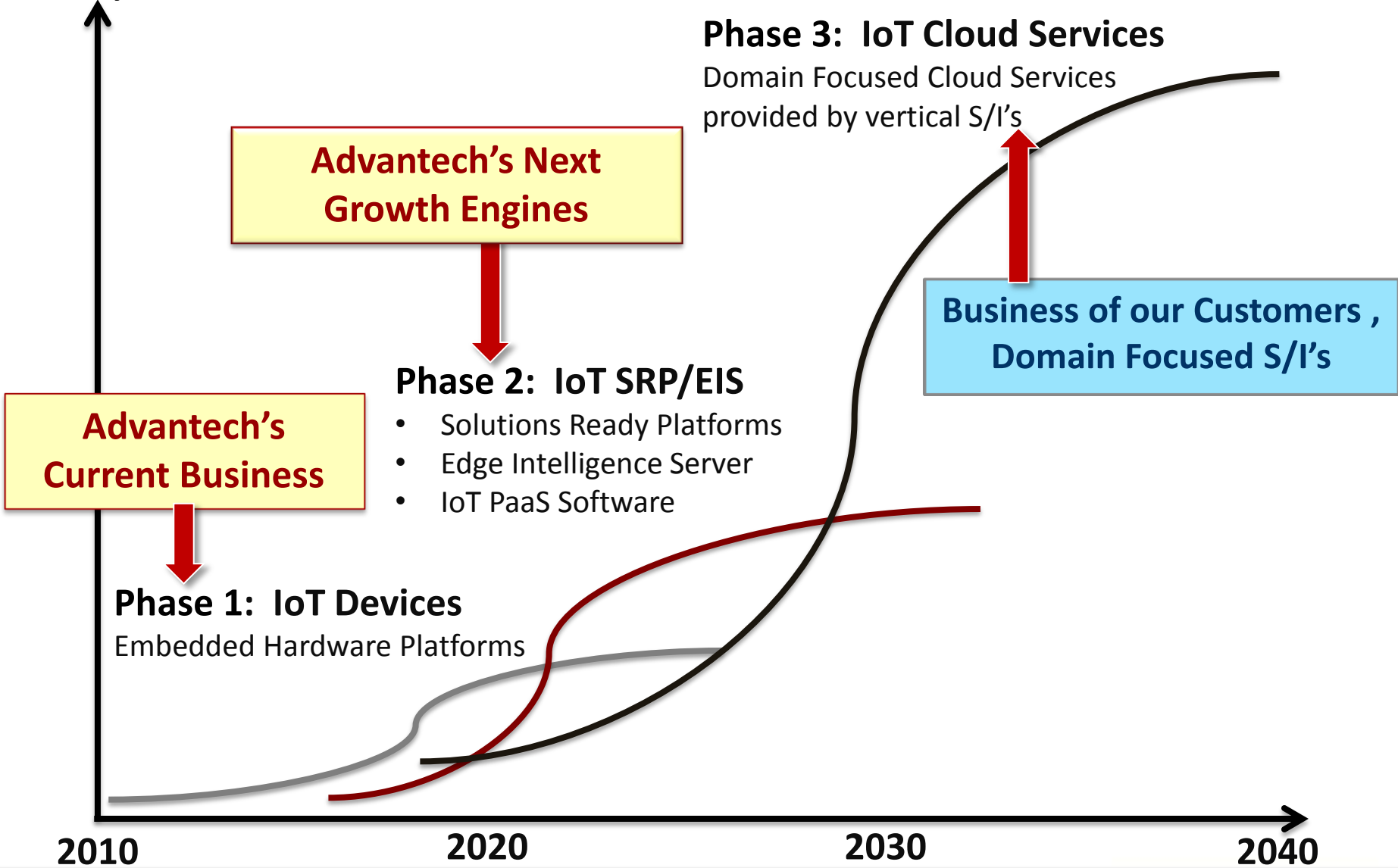


Enabling an Intelligent Planet

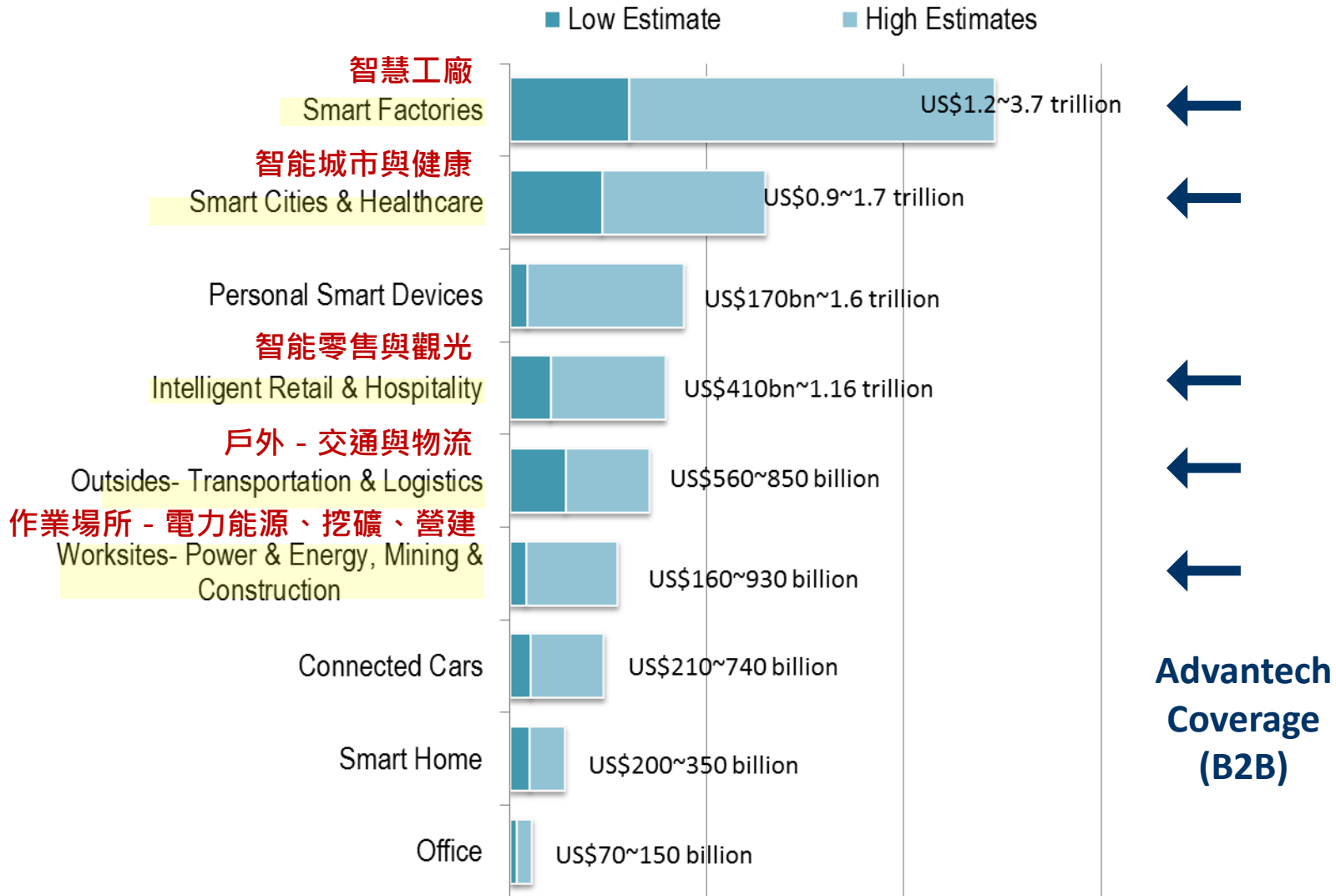
ADVANTECH

Advantech's Evolution at Each IoT Phase

Industry Value

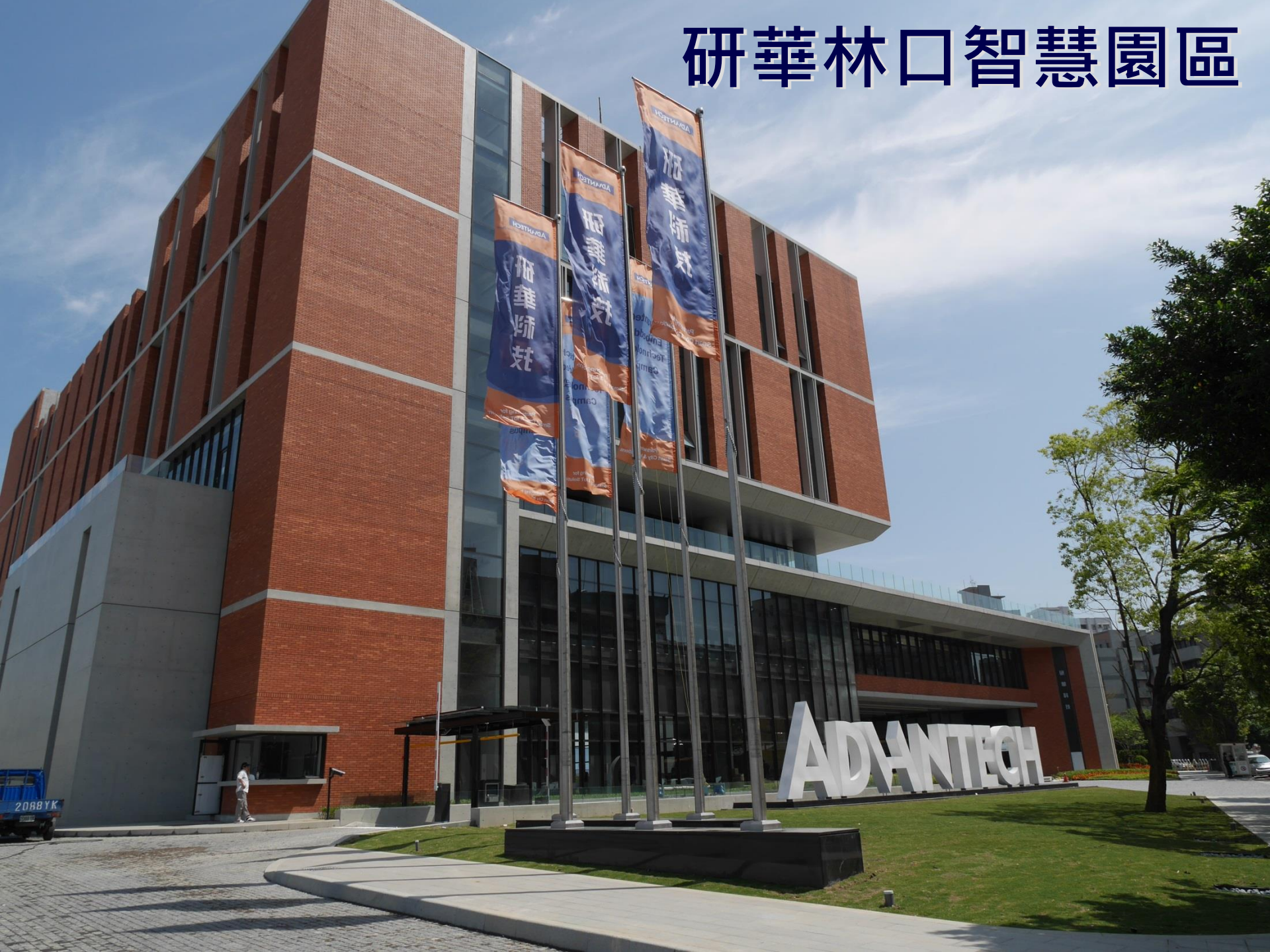


2025年物聯網產值以產業應用為主

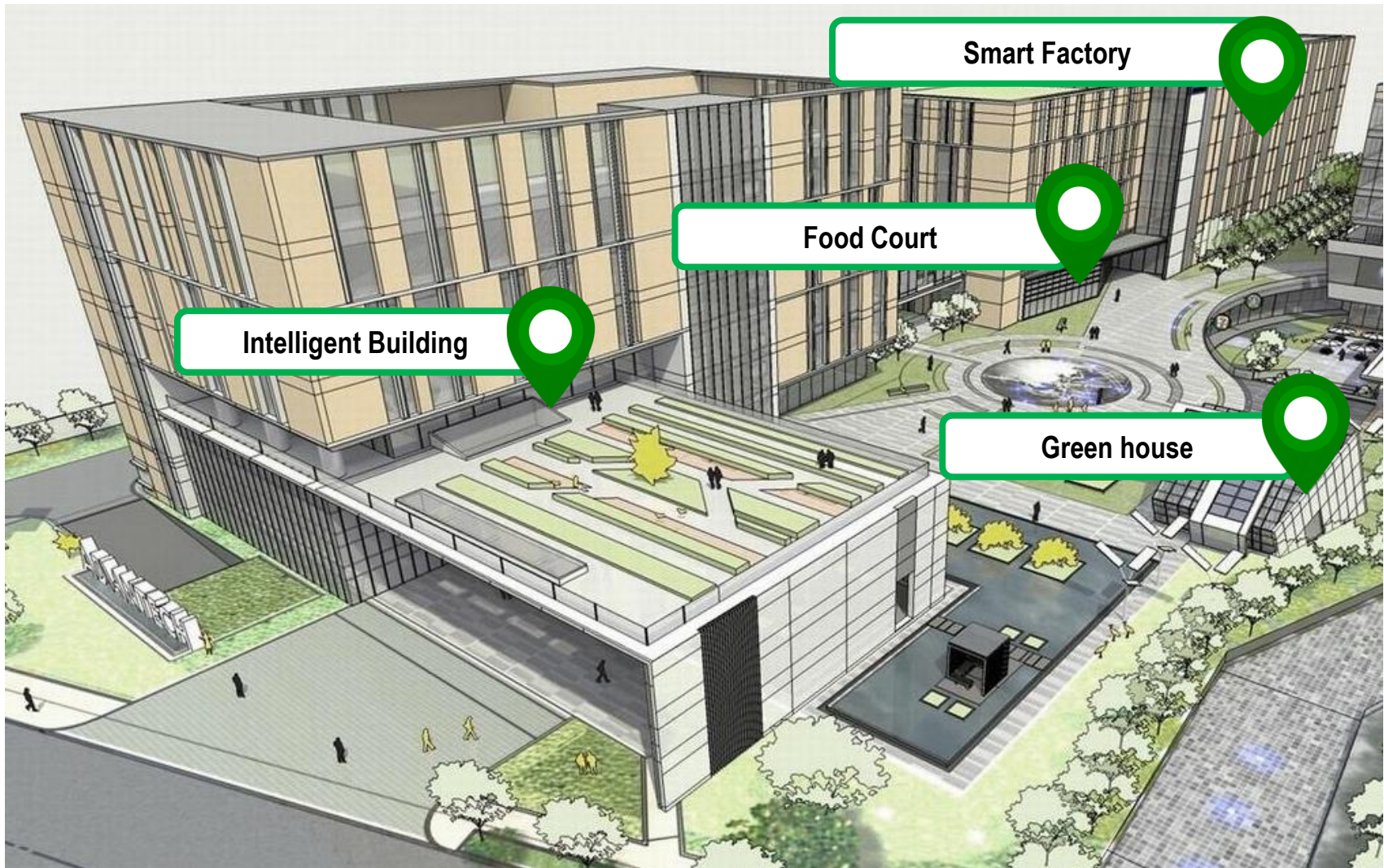


Source: Mckinsey & Company, July 2015

研華林口智慧園區



Sample Data for building IoT Solutions



Intelligent Building – 1F



CO₂ Sensor

- CO₂ Value



IAQ Sensor

- CO₂ Value
- PM_{2.5} Value
- PM₁₀ Value
- HCHO Value
- Temperature
- Humidity



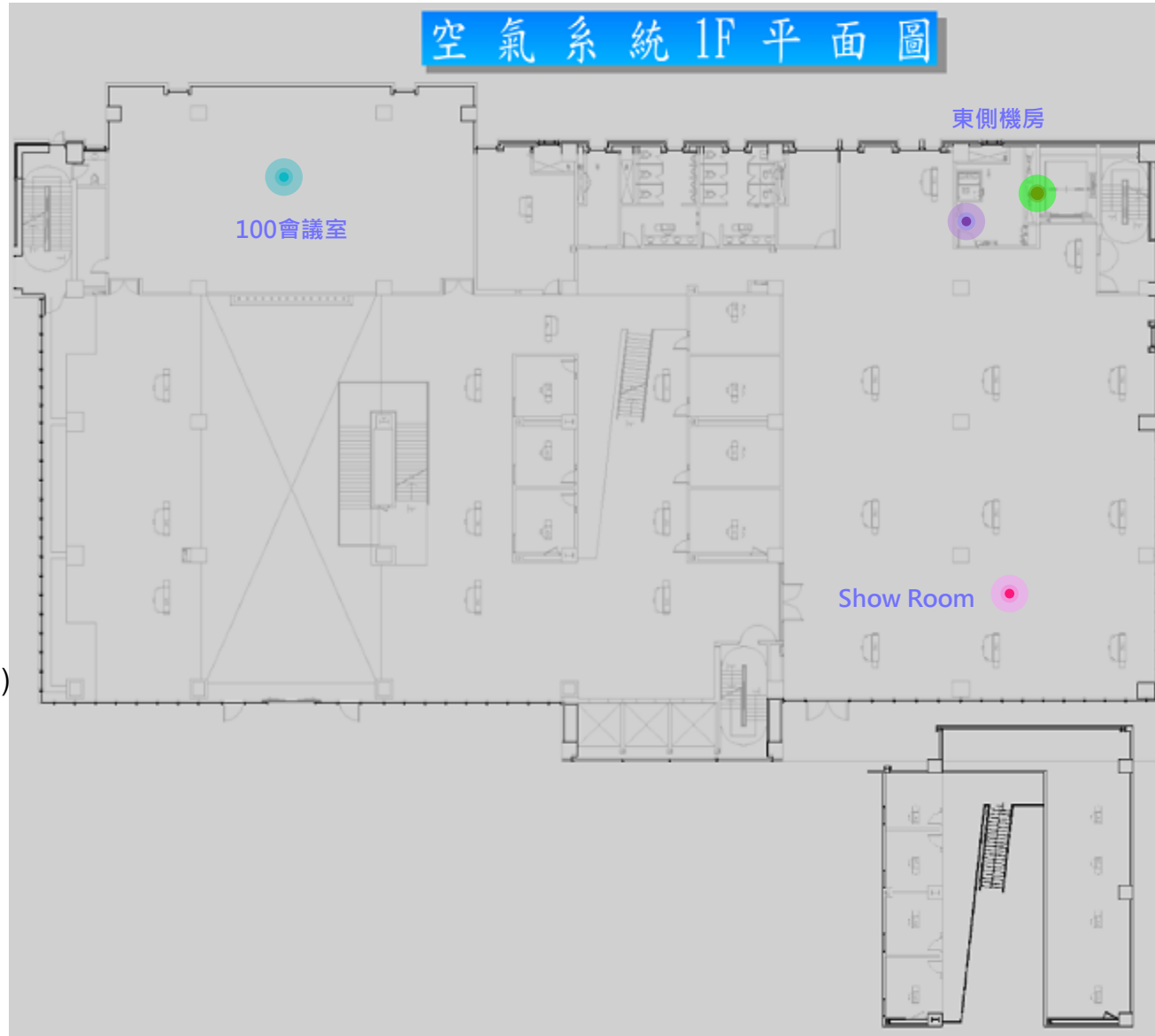
Power meter

- Air Conditioning (Kwh)
- Lighting (Kwh)
- Socket (Kwh)
- Power Consumption (Kwh)



Air Handling Unit

- Running Status
- Trip Status
- Filter pressure difference Status
- Load kw
- Inverter %



Intelligent Building – 2F

空氣系統 2F 平面圖

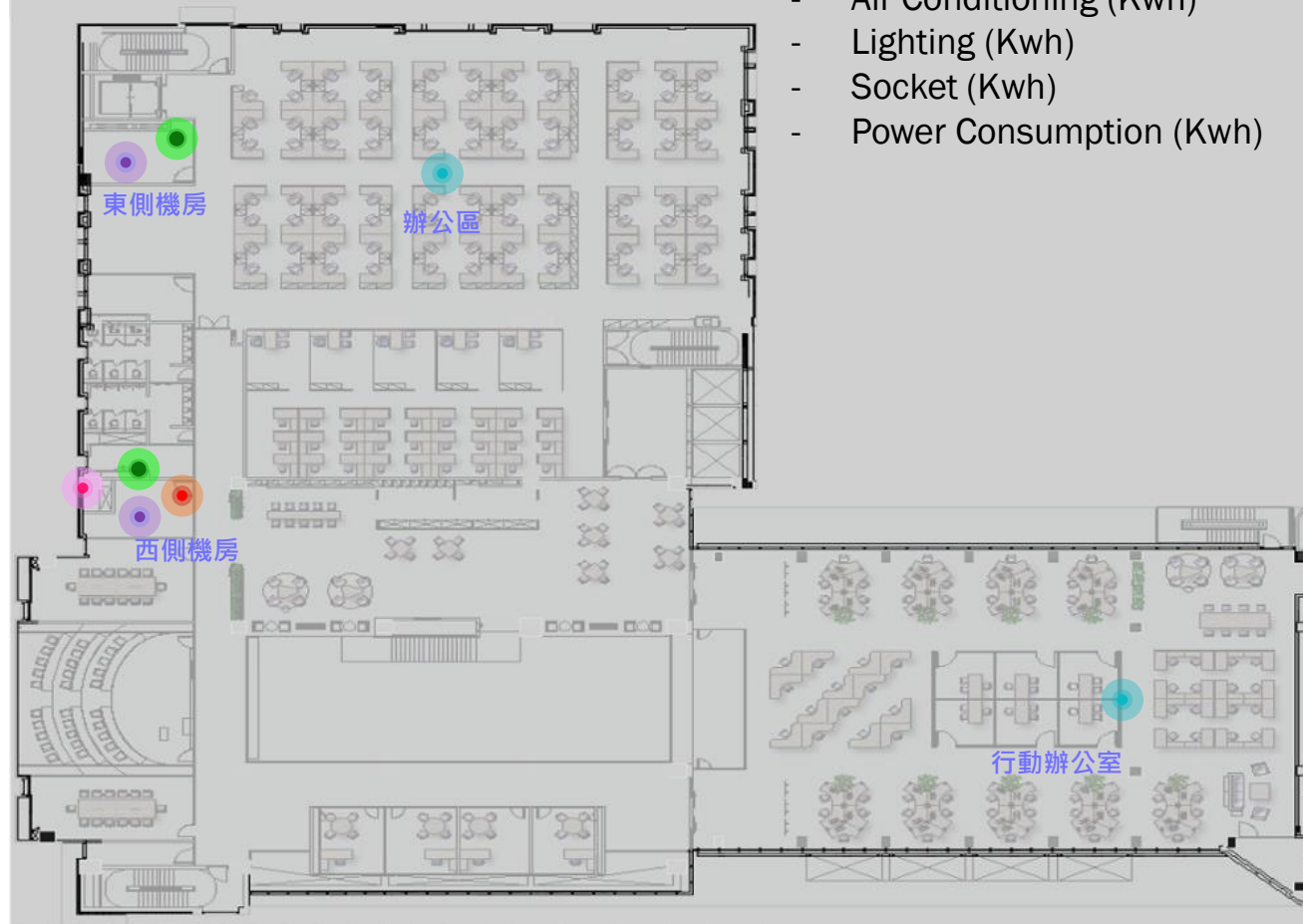
- **Outside Sensor**
 - Temperature
 - Humidity
 - Wet bulb temperature

- **CO₂ Sensor**
 - CO₂ Value

- **Outside Air Handling Unit**
 - Running Status
 - Trip Status
 - Filter pressure difference Status
 - Load kw
 - Inverter %

- **Air Handling Unit**
 - Running Status
 - Trip Status
 - Filter pressure difference Status
 - Load kw
 - Inverter %

- **Power meter**
 - Air Conditioning (Kwh)
 - Lighting (Kwh)
 - Socket (Kwh)
 - Power Consumption (Kwh)



Intelligent Building - B3F



Chiller Unit

- Running Status
- Trip Status
- Load kw
- Cop
- KW/RT



Chilled water pump

- Running Status
- Trip Status
- Load kw



Cooling water pump

- Running Status
- Trip Status
- Load kw



Zone pump

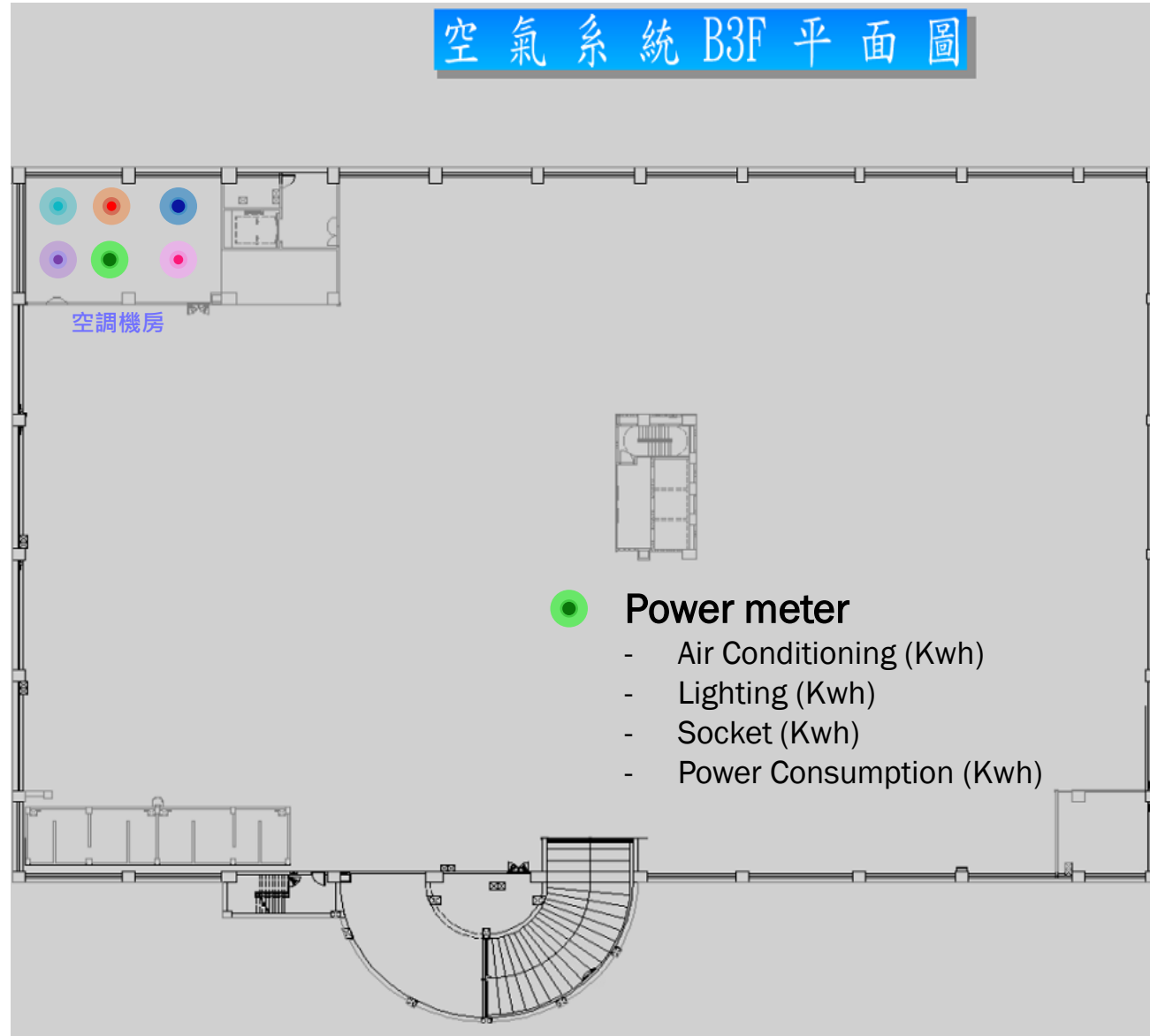
- Running Status
- Trip Status
- Load kw



Sensor

- Supply water temperature
- Return water temperature
- Flow meter

空氣系統 B3F 平面圖



Power meter

- Air Conditioning (Kwh)
- Lighting (Kwh)
- Socket (Kwh)
- Power Consumption (Kwh)

Food Court

● People Counting (IP Camera)

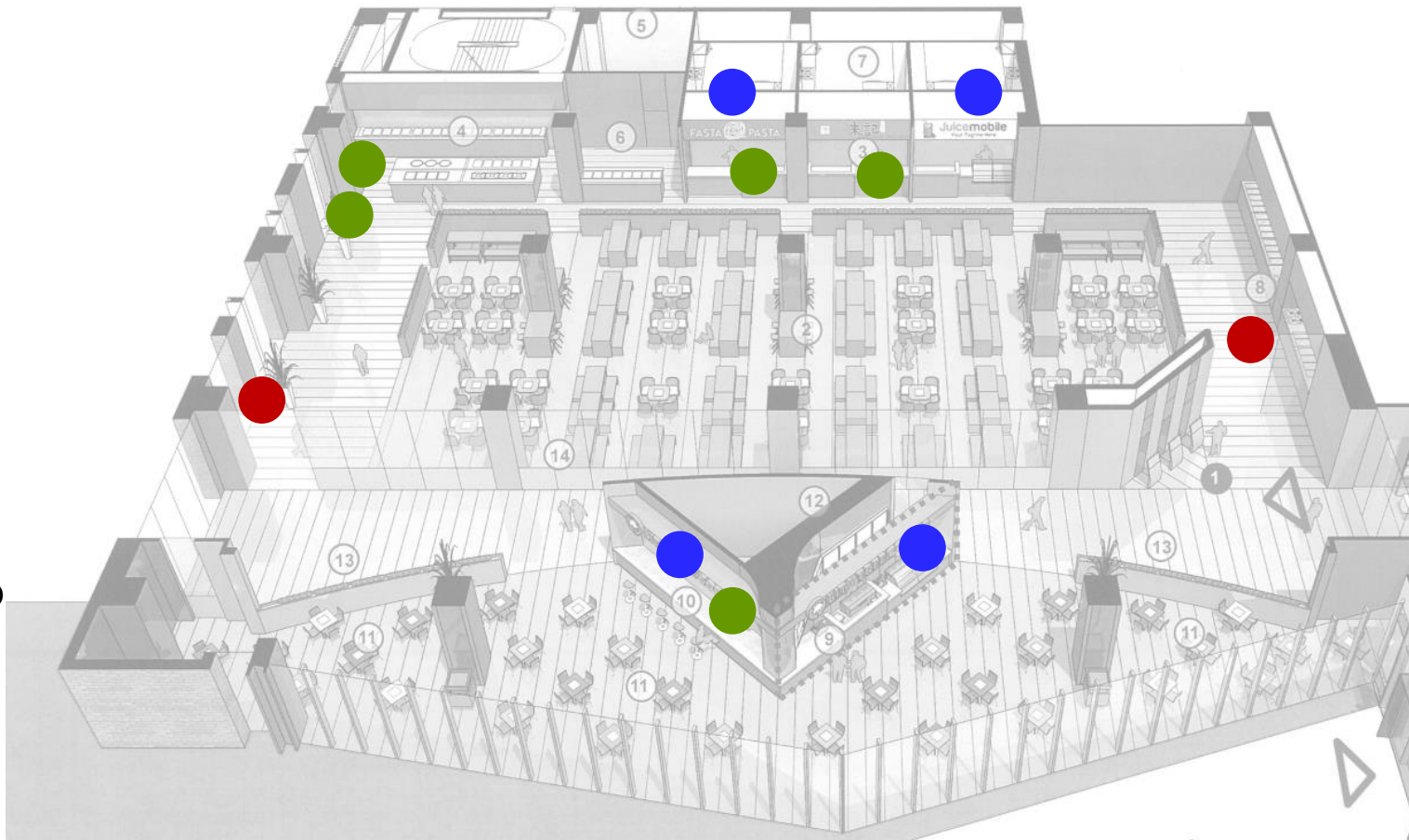
- In/Out

● IAQ Sensor

- CO Value
- CO₂ Value
- PM2.5 Value
- PM10 Value
- HCHO Value
- Temperature
- Humidity

● POS

- Transaction
- Time
- Employee ID

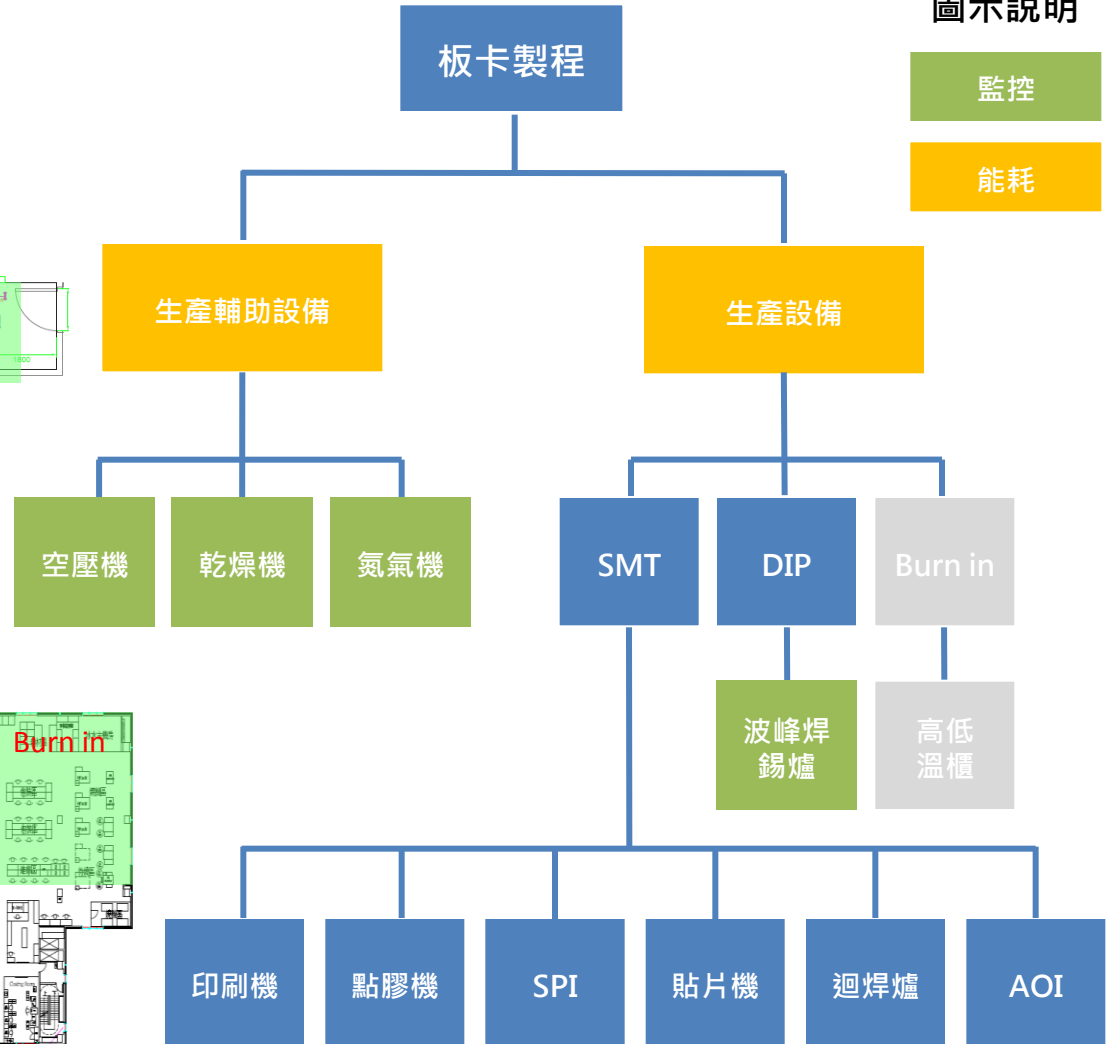
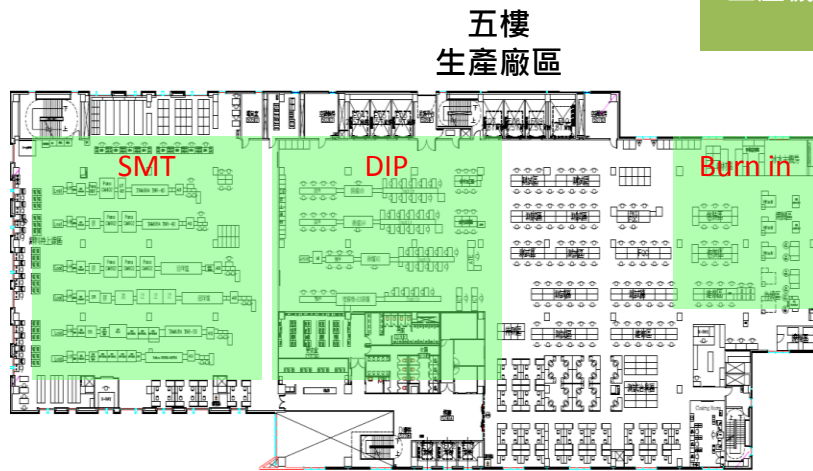
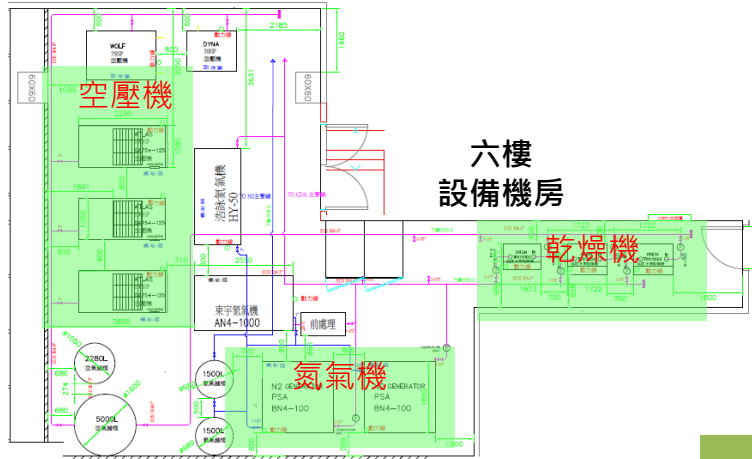


Smart Factory - 板卡製程

圖示說明

監控

能耗



Factory Equipment List

設備監控：

波焊爐溫：5FWaveSolder:AI_0

氮氣機：5F_N2:concn
5F_N2:flow
5F_N2:pressure
5F_N2:running

L3迴焊爐氮氣節能控制系統：

INCS:AutoSet
INCS:IdleSet
INCS:N2flow
INCS:N2Valve
INCS:O2_ppm
INCS:SysMode
INCS:TimeIdle

錫膏冰箱溫度：L1_Fridge:AI_0

空壓機：B2_AirComp:AI_3
B2_AirComp:AI_4
B2_AirComp:AI_5
B2_AirComp:AI_6

能耗用電：

空壓設備盤：ATML_PACPRF

板卡燒機室：ATML_BEBIR

系統燒機室：ATML_SEBIA

低溫烤箱：ATML_BESG

DIP Line1+Line2：ATML_BEDA

DIP Line2+Line4：ATML_BEDB

DIP Line2波峰焊爐：ATML_BEDA1

DIP Line4波峰焊爐：ATML_BEDB1

SMT Line5迴焊爐：ATML_BERF5

SMT Line1：ATML_BESA

SMT Line2：ATML_BESB

SMT Line3：ATML_BESC

SMT Line4：ATML_BESD

SMT Line5：ATML_BESE

SMT Line6：ATML_BESF

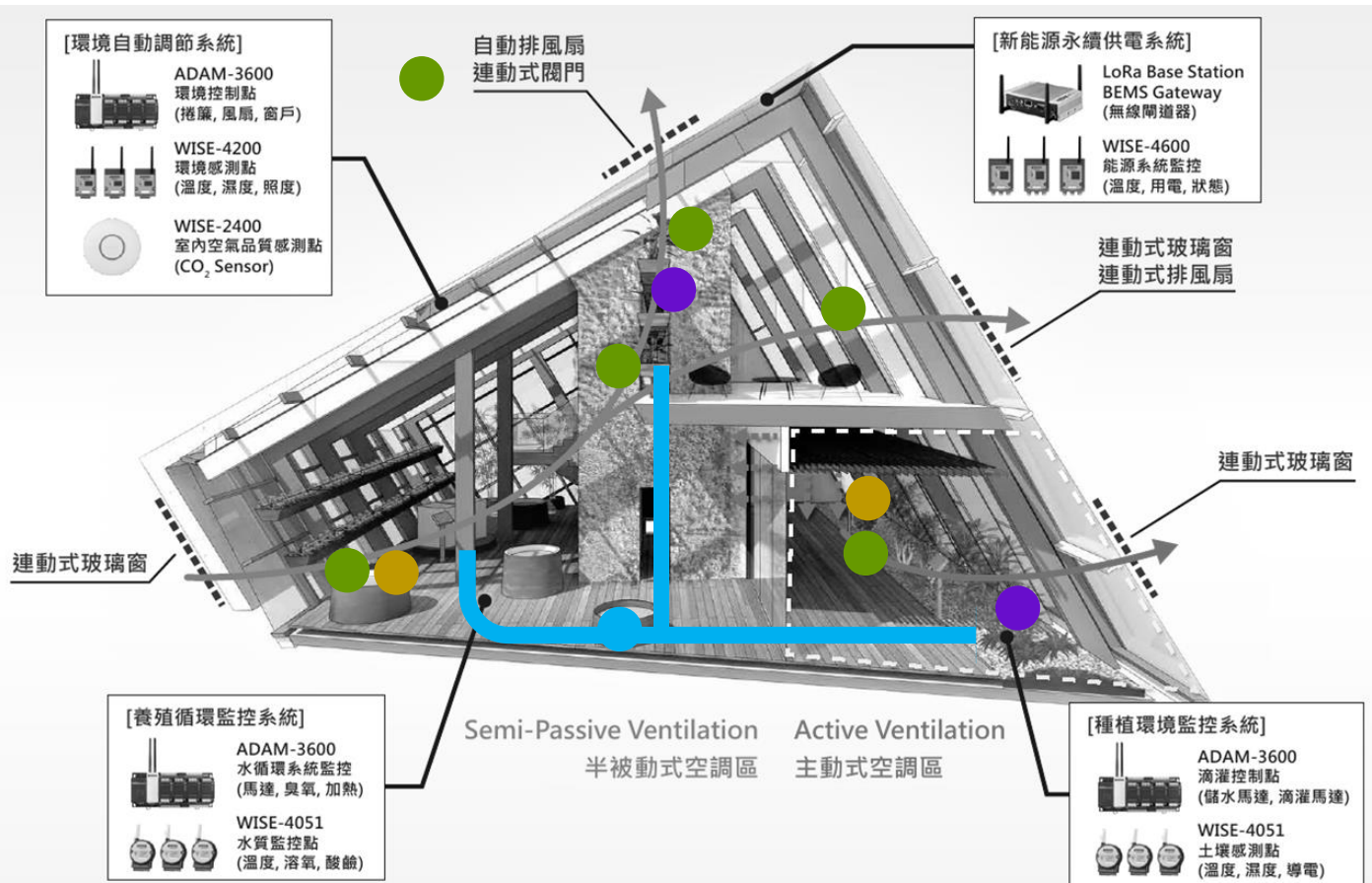
Smart Factory – Video Source

地點	位置
B1	貴材室
1F	大碼頭
	小碼頭
	大碼頭外面
2F	成倉暫存區1
	成倉暫存區2
	成倉暫存區3
	成倉暫存區4
4F	貨梯1
	梯廳
5F	SMT
	DIP
RF	往貨梯機房1
	往貨梯機房2
	往空壓機房

Category	Meta Data
Enterprise_info	ID
	EnterpriseID
	EnterpriseName
VCM_info	VID
	IVSID
	UserName
	Password
	ChanNUM
	Domain
	APIPort
	DataPort
	VCMName
	...
	ID
Chan_info	ChanNo
	ChanName
	Resolution
	Frames
	VID
	...

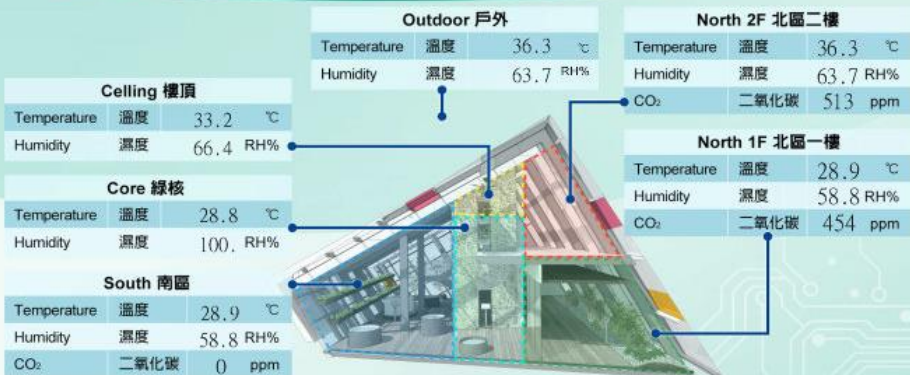
Green House

- Temperature/Humidity
- Water Level
- CO₂
- Solid Humidity

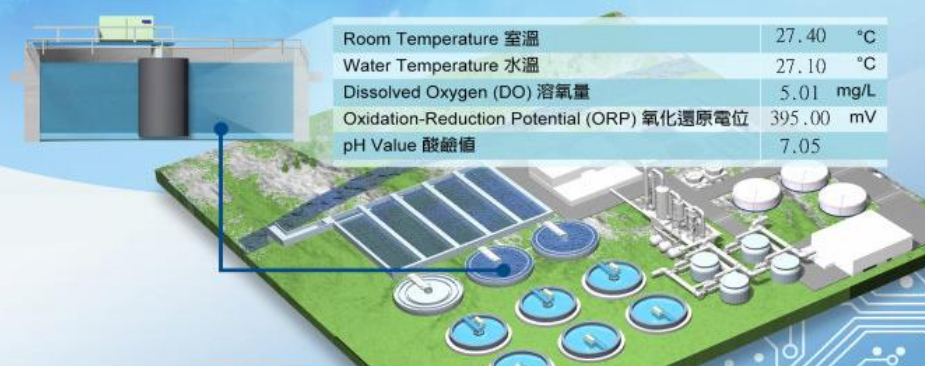


Greenhouse

Indoor Environment Monitoring and Control System 室內環境調節系統



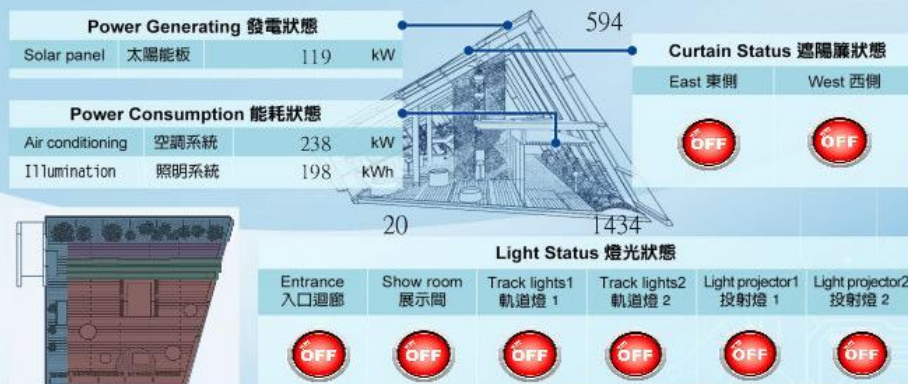
Sewage Treatment Monitoring 水處理監測系統



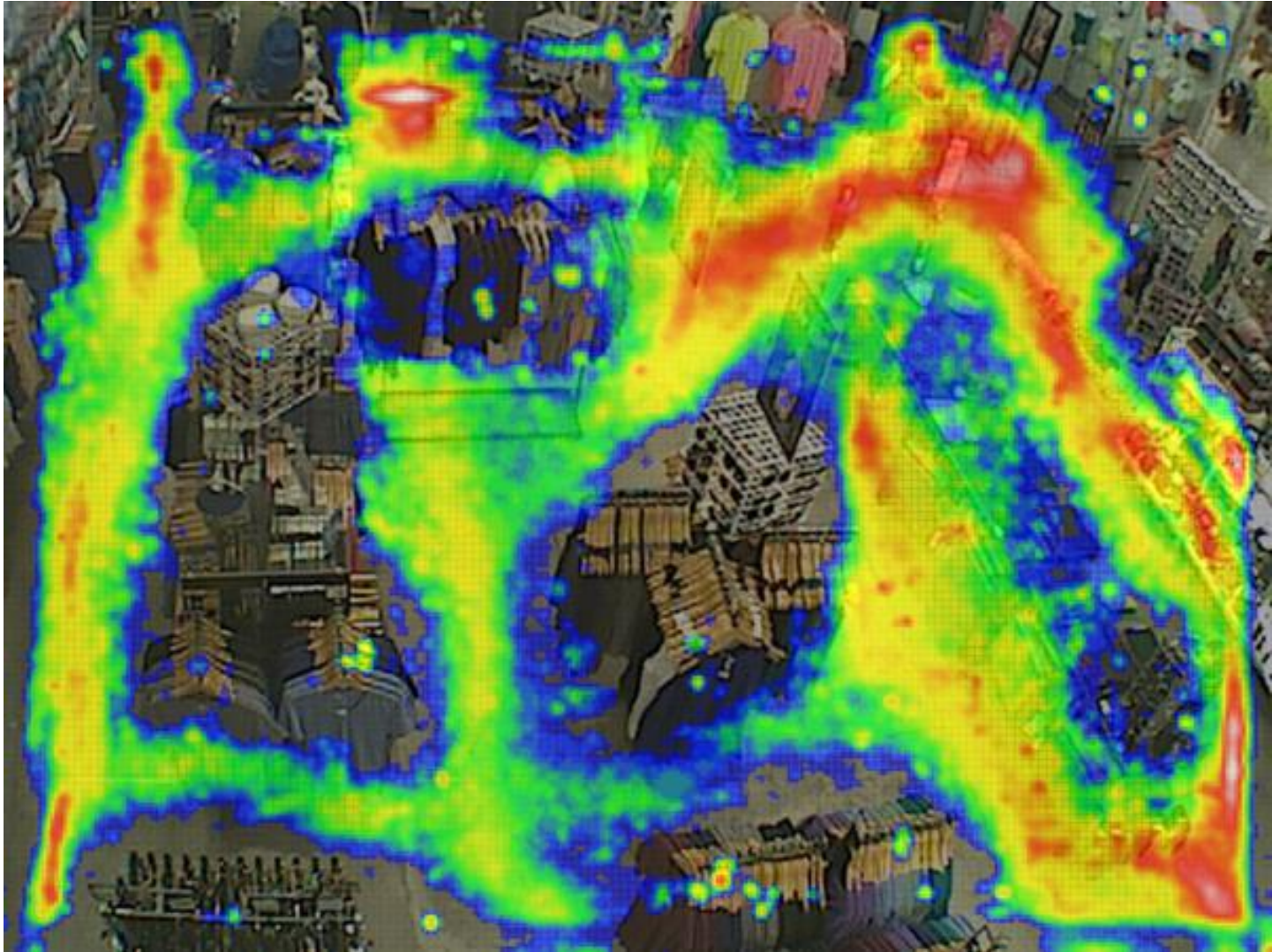
Soil and Environmental Monitoring and Control System 土壤環境監控系統



Energy Monitoring System 能源監測系統



Design Driven Big-Data Analytics and Visualization: Retail Heat Map



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Design Driven Big-Data Analytics and Visualization: Factory Equipment Readiness



Enabling an Intelligent Planet

ADVANTECH

Design Driven Big-Data Analytics and Visualization:



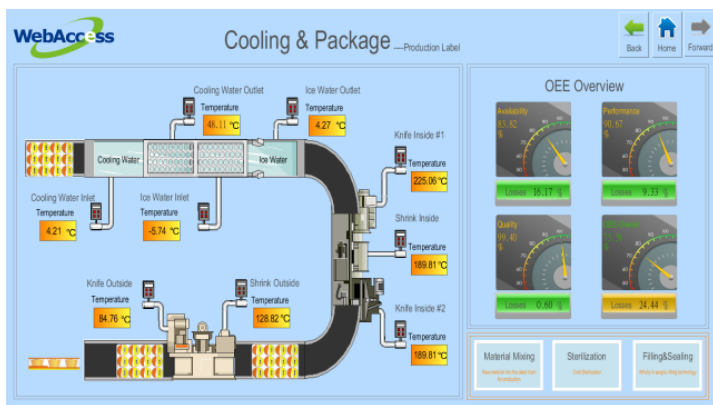
Credit:

leapcraft™

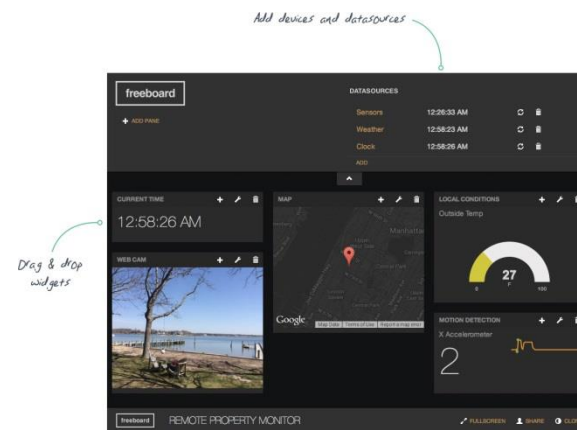
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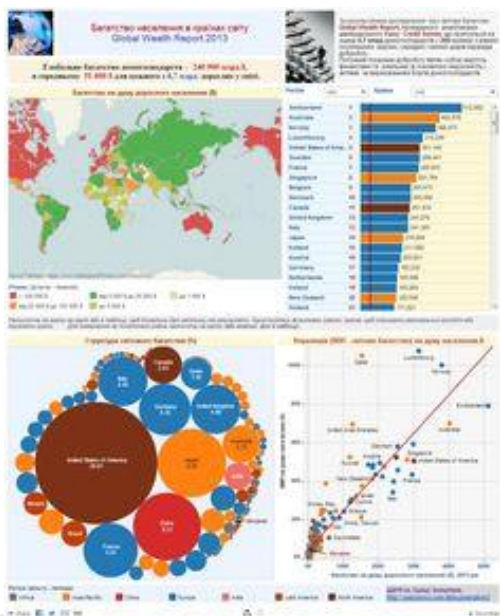
Tools for Dashboarding/Visualization



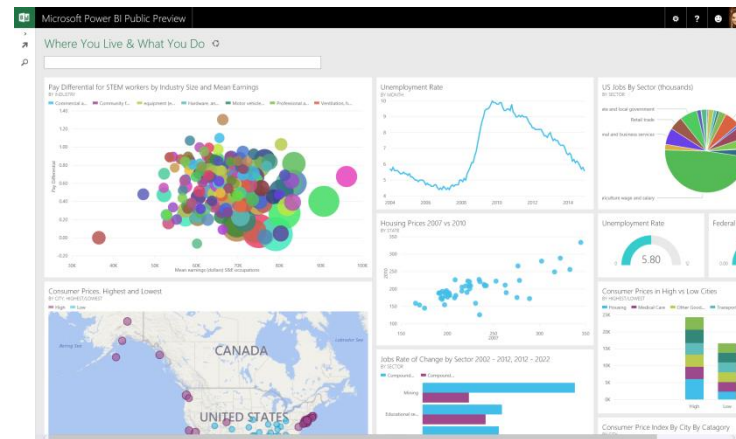
Advantech WebAccess/Dashboard



Freeboard (open source)



Tableau

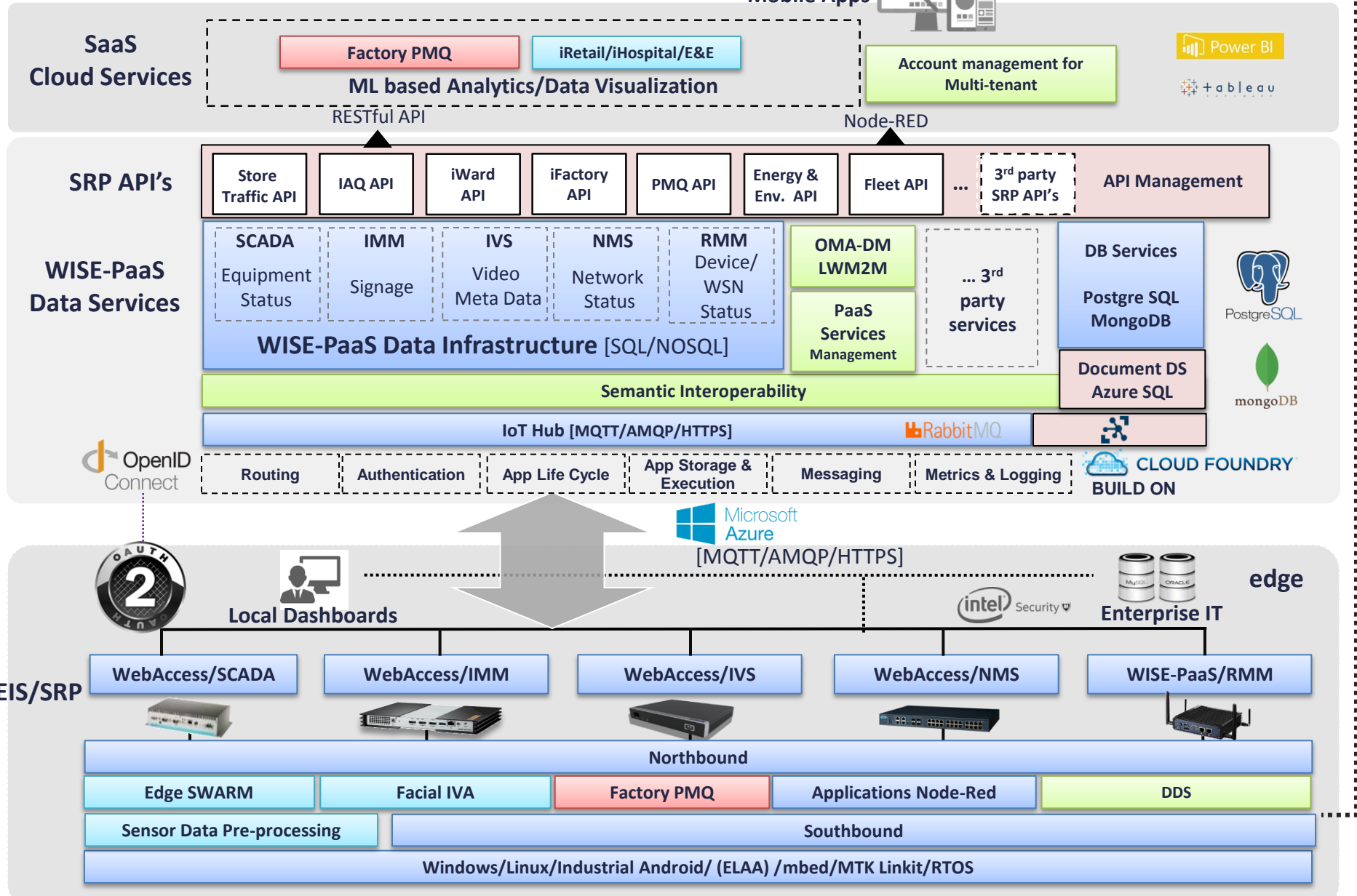


Microsoft Power BI

IoT/II-PaaS Architecture

UI /
Mobile Apps

END TO END SECURITY: SSL/TLS



TiC100 IoT Solution Contest

You can also bring your own *sensors & data &*
IoT solution proposal
with possible sponsorship from *Advantech*



TiC100

IoT Solution Contest

智能城市X物聯網應用創新



Indoor Air Quality (IAQ) Demo

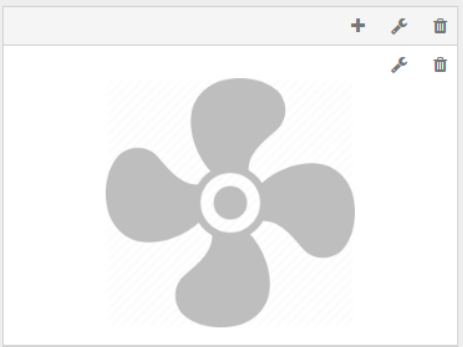
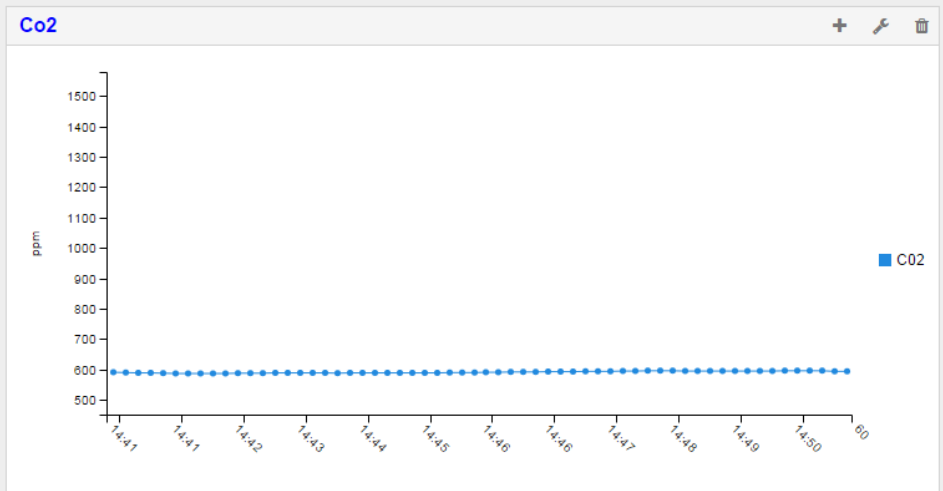
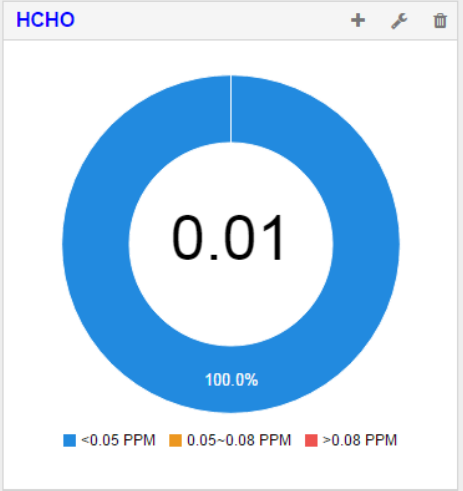
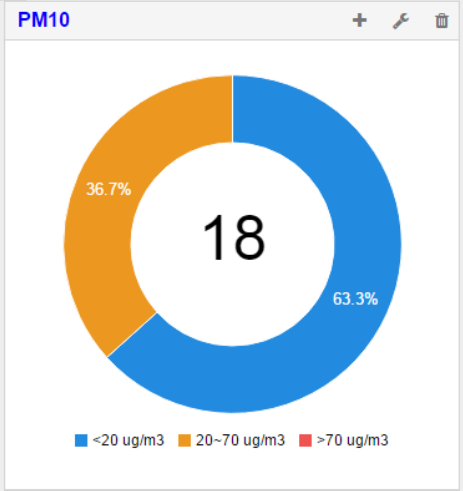
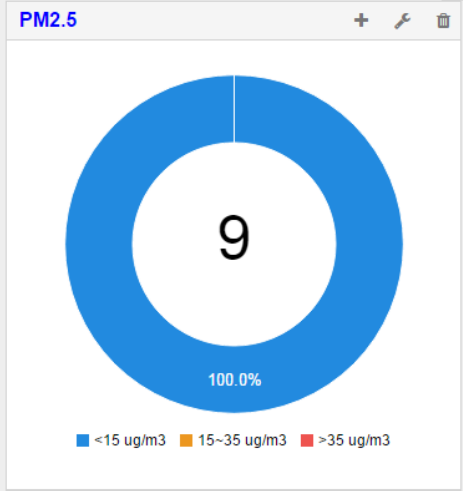
Louis Lu / Rison Yeh

On-line IAQ Demo

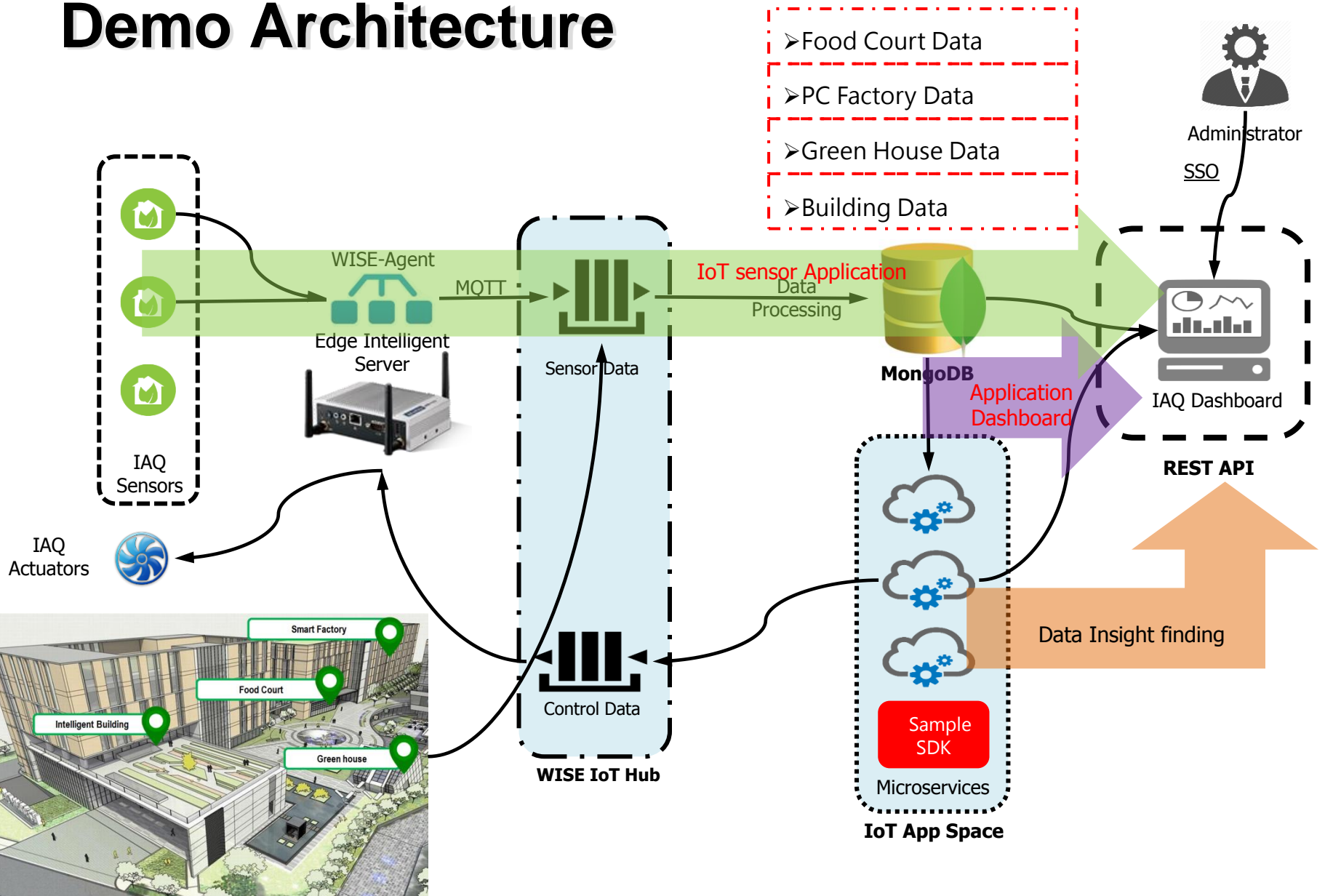


室內空氣品質偵測 INDOOR AIR QUALITY

二氧化碳	596 ppm	標準 <1000 ppm	😊
懸浮微粒	16.0 µg/m3	標準 <70 µg/m3	😊
網懸浮微粒	9.0 µg/m3	標準 <35 µg/m3	😊
甲醛	0.02 ppm	標準 <0.08 ppm	😊
溫度	28.7 °C		
濕度	45.9 %		



Demo Architecture



IAQ Demo

- **Server-less** architecture from data ingesting to decision making.
- Sensor data are pushed via **MQTT** to **WISE-PaaS IoT Hub**.
- Data is stored into a **MongoDB** table where it can be visualized.
- **Microservices** (in IoT App Space) read recent data to predict when to enable ventilation system.

- **Services:** EIS/WISE-Agent, WISE IoT Hub, MongoDB, PostgreSQL, CF Containers, Azure AD

How to apply TiC100?



2017
TiC100
IoT Solution Contest
智能城市X物聯網應用創新

1. 至TiC100官方網站報名註冊



TiC100
IoT Solution Contest

關於TiC100 聯絡我們

2017
TiC100
IoT Solution Contest
智慧城市X物聯網應用創新

Email :

密碼 :

2. 填寫團隊資料，每隊2~10人 鼓勵跨校系、跨領域組隊 需在5/26前完成報名註冊

步驟一：填寫團隊資料

團隊註冊 *必填項目

帳號*
請輸入隊長E-mail

密碼*
請輸入8~12位含英文數字之密碼，英文大小寫視為不同

確認密碼*
請再次輸入密碼

注意事項 *必填項目

1. 每隊二到十人，鼓勵跨校系、領域組隊參賽
2. 需填寫真實個人資料(中英文姓名需同身分證及護照)，每人限報名一次，不得重複報名。大會若發現有重複報名或身分不行之情事，將自動刪除您的資料並取消報名資格，填寫資料時請務必審慎填寫。

團隊名稱*
限20字以內

步驟二：填寫團隊介紹

團隊資料 *必填項目

團隊介紹*
總字數不超過五百字

指導老師姓名 指導老師系所 指導老師系所

指導老師電話 請以 "09" 開頭為主 指導老師信箱 例：XXXX@gmail.com

3. 所有報名團隊需參加6/2(五) EI-PaaS Training Course



4. 於6/14前上傳書面審查作品， 格式為PPT或PDF檔，請提出 基於WISE-PaaS (Edge Intelligence PaaS) 平台之物聯 網應用解決方案

上傳提案簡報

請提出基於WISE-PaaS物聯網軟體服務平台之IoT物聯網應用解決方案，並依據審查標準完成提案規劃。

檔案名稱	2017研華TIC100競賽_0218.pdf	上傳日期	2017/03/16
檔案上傳	<input type="button" value="選擇檔案"/> 未選擇任何檔案 <small>檔案格式為PPT或PDF，大小限制為20M以內。</small>		
<input type="button" value="上傳檔案"/>			


6/16於官網公布錄取提案發
表之團隊名單

TiC100

IoT Solution Contest

智能城市X物聯網應用創新

2017 競賽獎勵



金獎(1組)：300,000元

銀獎(1組)：150,000元

* 實作獎金(6組)：30,000元

其他獎勵：

通過提案發表之6組提供**3萬元**獎金，並提供**EI-PaaS開發工具**，包括：最新WISE-PaaS(EI-PaaS)軟體及其他所需之研華硬體產品。

2017 TiC100 IoT Solution Contest

智能城市X物聯網應用創新

立即報名



報名5/26截止!



研華文教基金會
Advantech Foundation