

# C&Tech

## IoT Solutions

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## I. About us

### 1. Overview

## C&Tech Inc.

#### Company Profile

Establishment	2012-06	CEO	Ki Duk Kim
Employees	44 (at 2021. 09)		
Address	Daedeok Biz. Center, 684 Gwanpyeong-dong, Yuseong-gu, Daejeon, 34013, Republic of Korea		
Sales Performance	2018 \$ 494,000	2019 \$ 1,272,000	2020 \$ 1,557,000
Business area	Collateral and Asset tracking service of financial products Asset tracking service to Mold & Industrial area Establishing smart factory service by A.I. RTLS(Real-Time Location Service) for indoor asset management (Smart Hospital)		

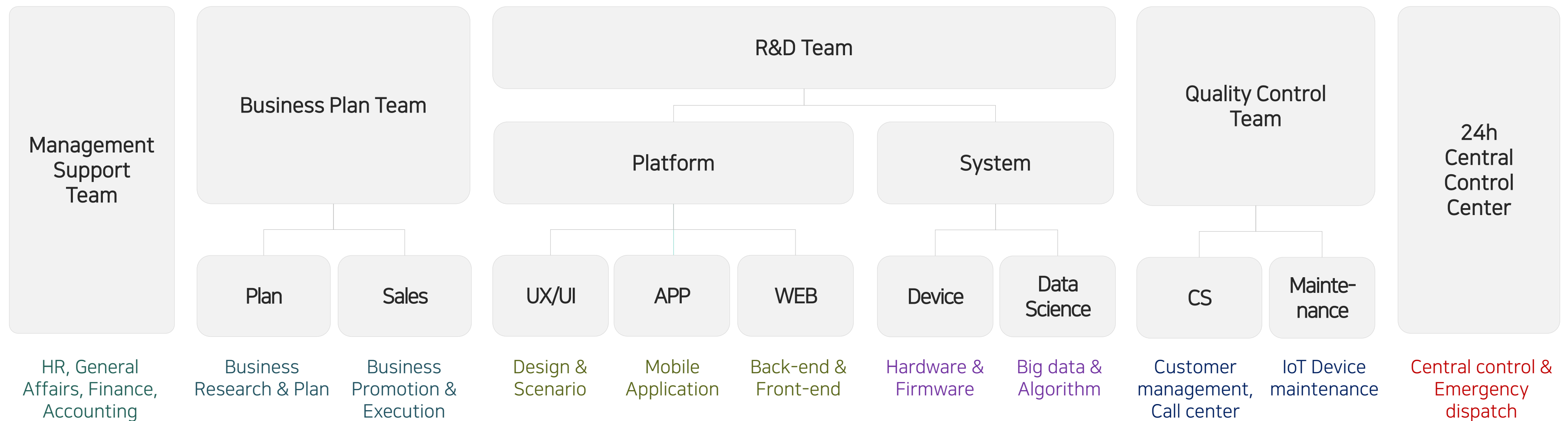
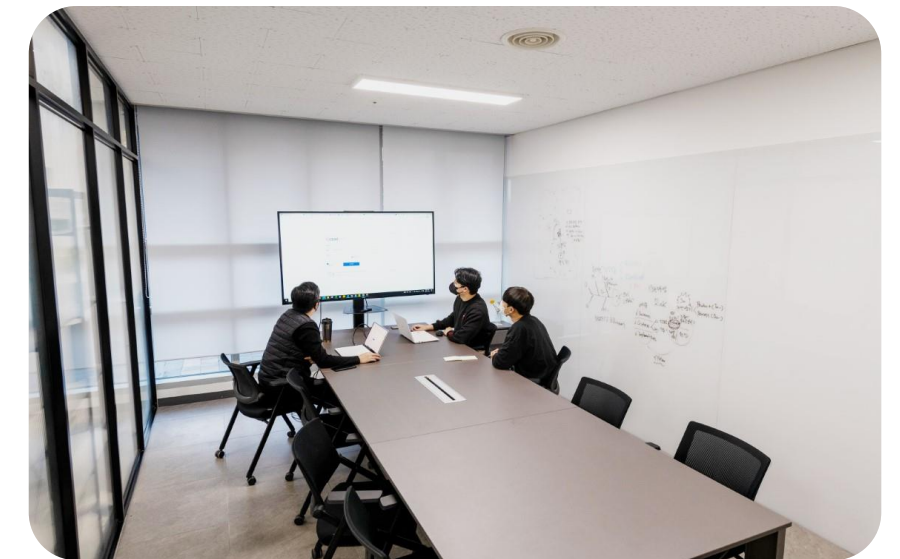
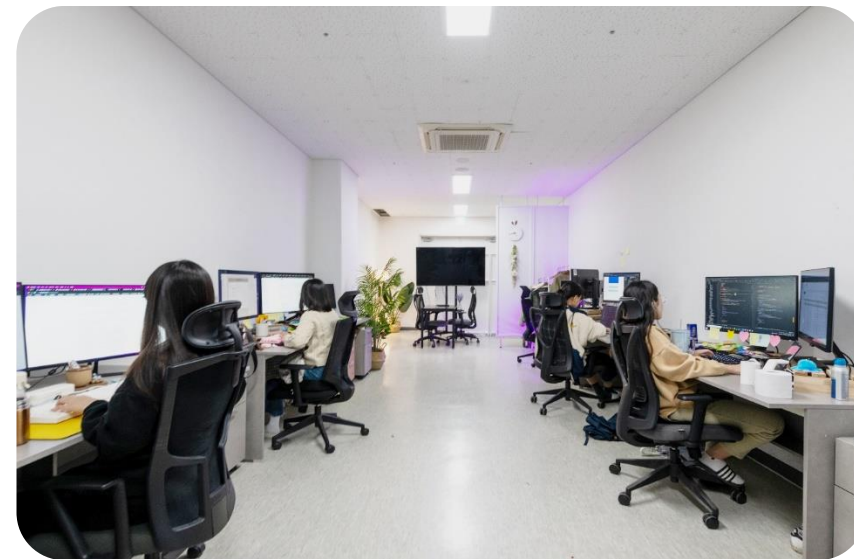
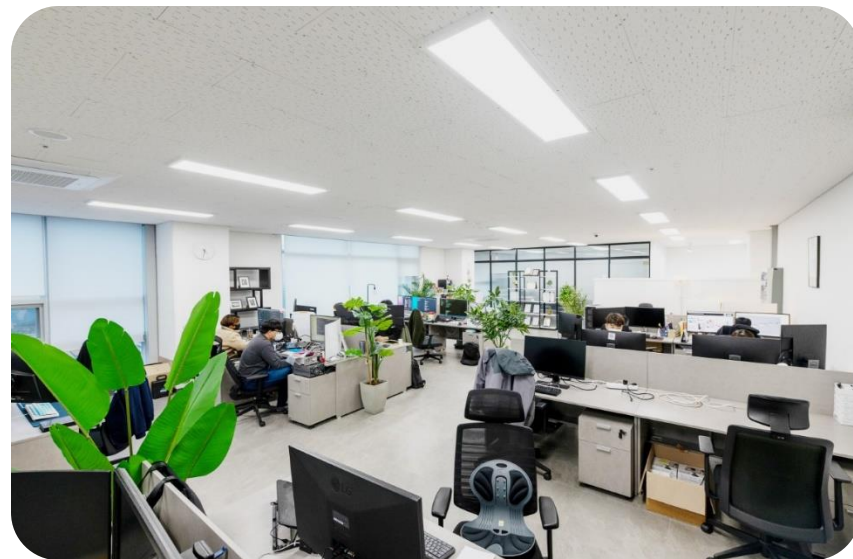
## Creative Mind & Technology

C&Tech Inc. is a specialized industrial IoT solution company that develops and sells smart tracking/management solutions for machine. We are a company with technology stacks of low-power IoT hardware device, WEB/APP software Platform, data processing based on Big-data for operating smart tracking/management solution.



# I. About us

## 2. Organization



No.	Position	Name	Role	Education & Career
1	CEO	Ki duk Kim	Business	Ph.D in KAIST EE / SYS LSI in Samsung Electronics
2	CTO	Seunghyun Park	Technology	Ph.D in KAIST EE / SYS LSI in Samsung Electronics
3	Director	Daeyeon Joo	Platform	Master in Sogang University Computer Science / AIVE LABS, p. pool

# I. About us

## 3. Partnership

### R&D Cooperation



### Partnership



### Investment



### Customer



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II. Core Technologies

1. IoT Device

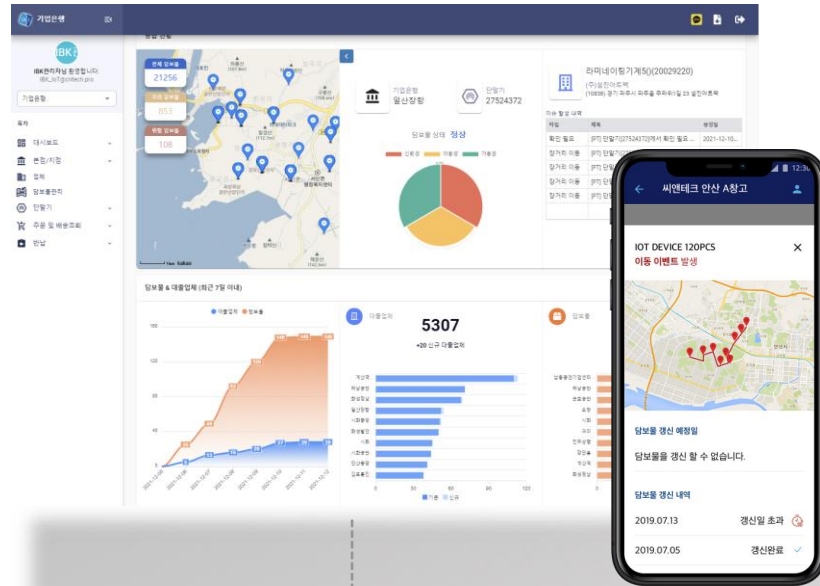
	Outdoor Solution			Indoor Solution	
Tracking method	GPS / Cell-positioning			Beacon / WiFi-positioning	
Network technology	3G, LTE, Sigfox			Bluetooth, WiFi	
Device	CN-100/-102/-103	CX-103	CX-102L/-102M	CX-102M	CX-102S
					
	<ul style="list-style-type: none"><li>- 100 x 100 x 30 mm<sup>3</sup></li><li>- Collateral Asset</li></ul>	<ul style="list-style-type: none"><li>- 100 x 35 x 25 mm<sup>3</sup></li><li>- Industrial Asset</li></ul>	<ul style="list-style-type: none"><li>- 55 x 55 x 20 mm<sup>3</sup> (M)</li><li>- Collateral Asset</li><li>- Vehicle Asset</li></ul>	<ul style="list-style-type: none"><li>- 55 x 55 x 20 mm<sup>3</sup></li><li>- Hospital Asset</li></ul>	<ul style="list-style-type: none"><li>- 40 x 16 x 11 mm<sup>3</sup></li><li>- Hospital Asset</li></ul>
LBS (Location-based Service)					



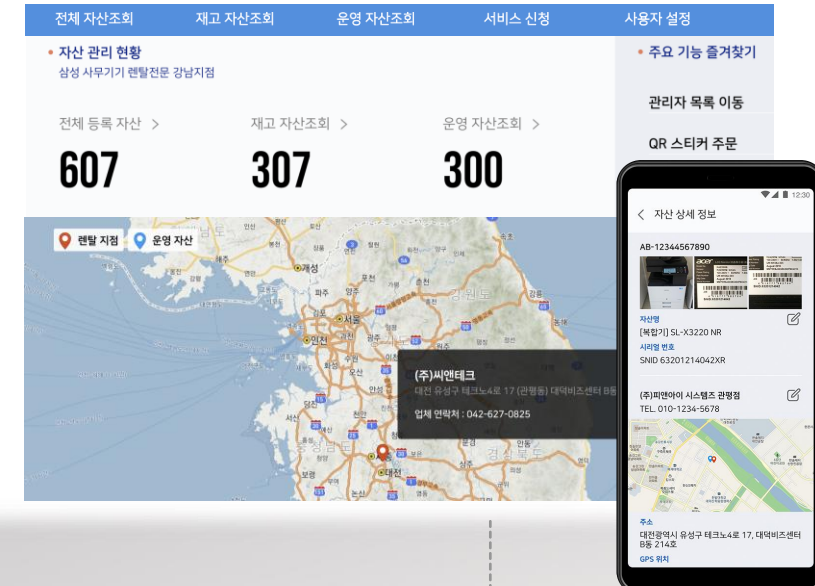
## II. Core Technologies

### 2. WEB/APP Platform

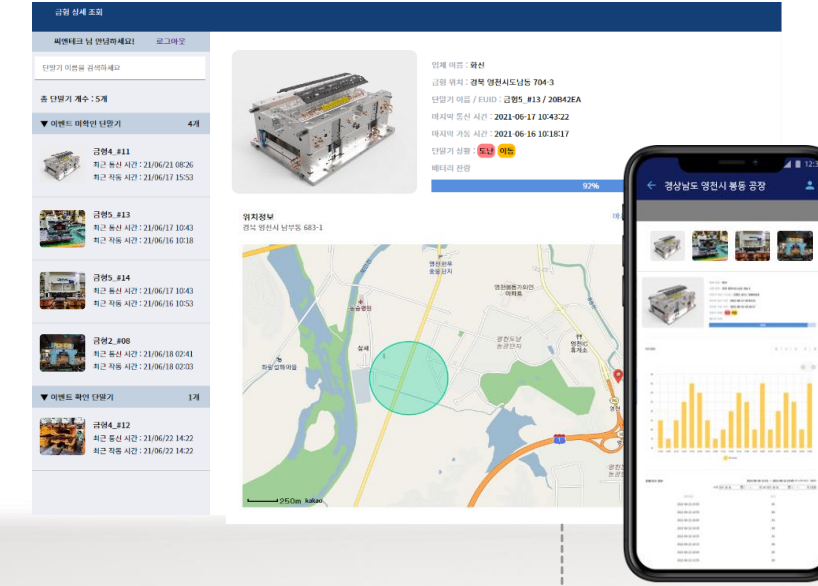
#### Collateral Asset



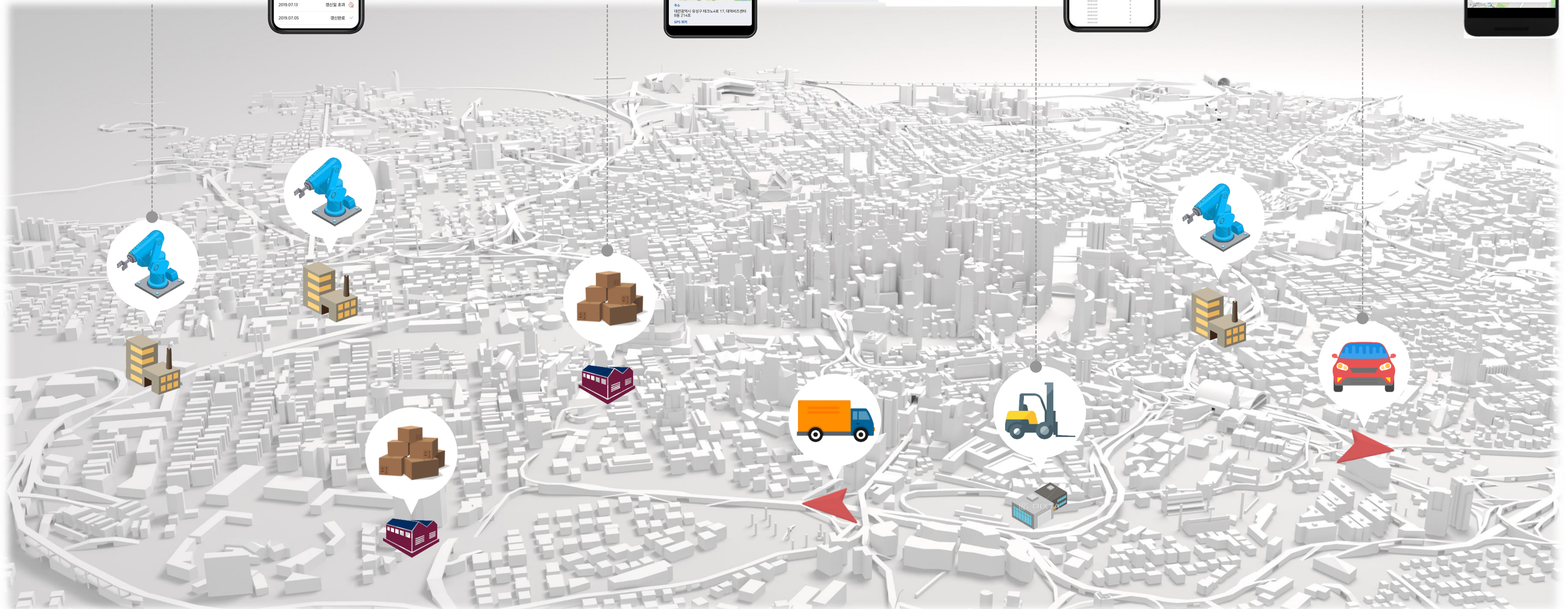
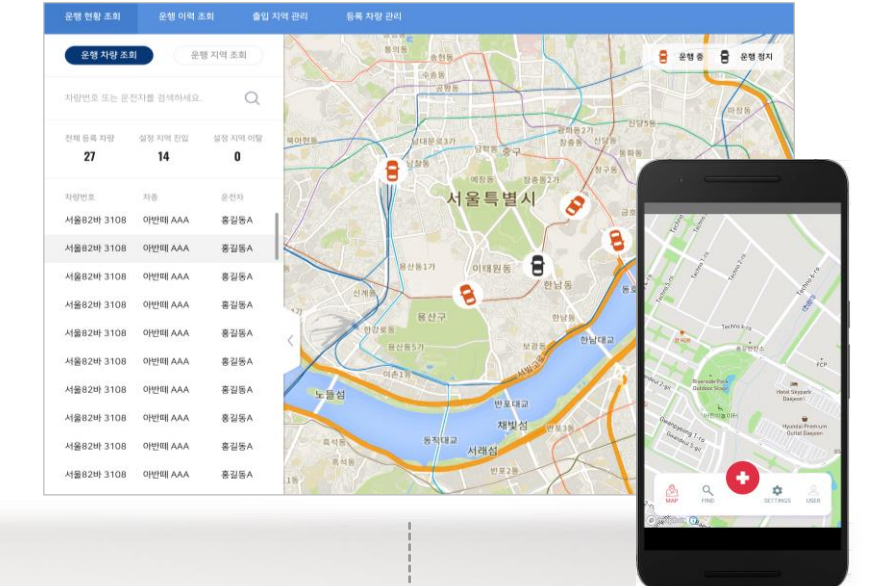
#### QR Inventory



#### Industrial Asset



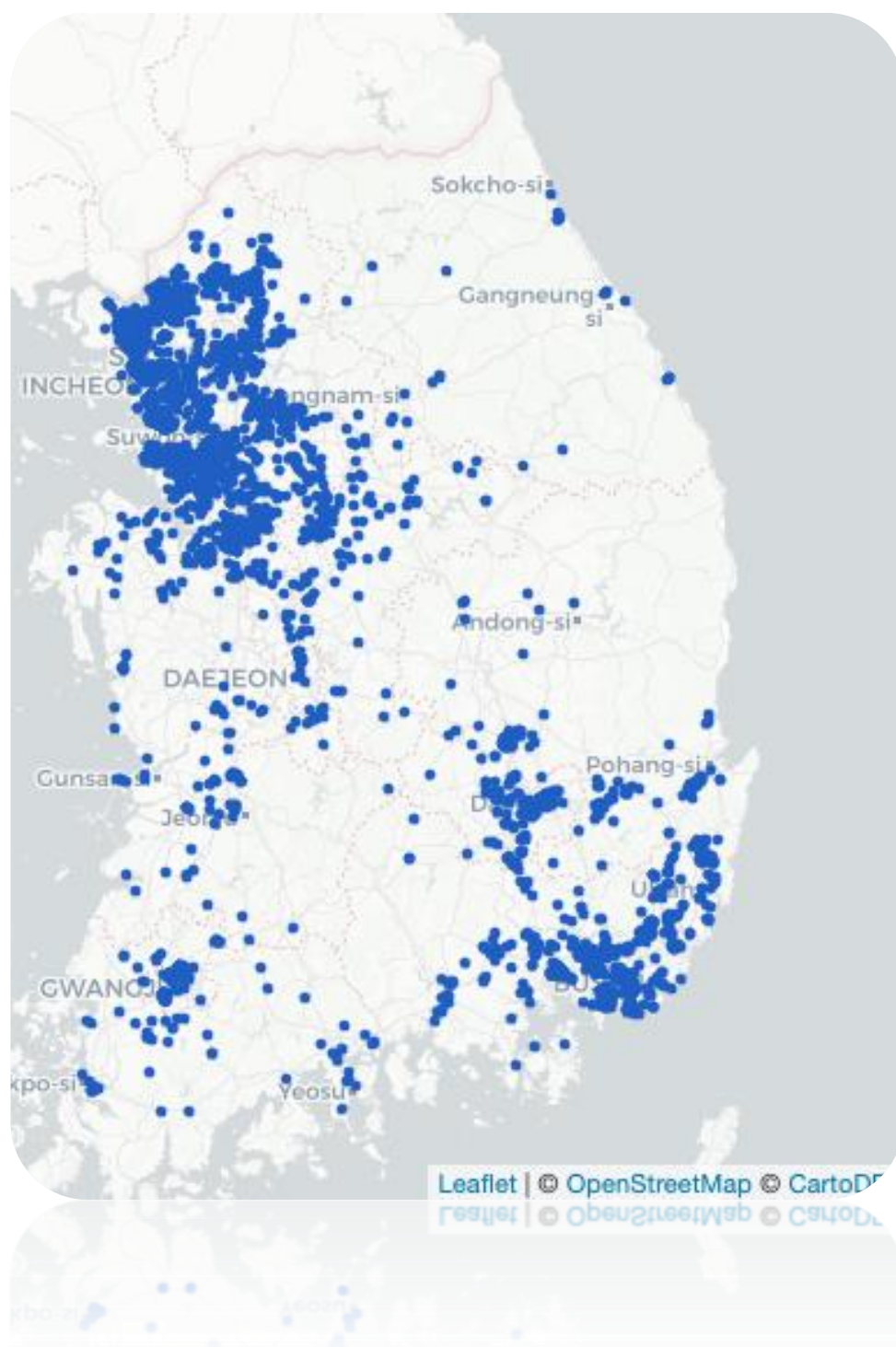
#### Fleet Management





## II. Core Technologies

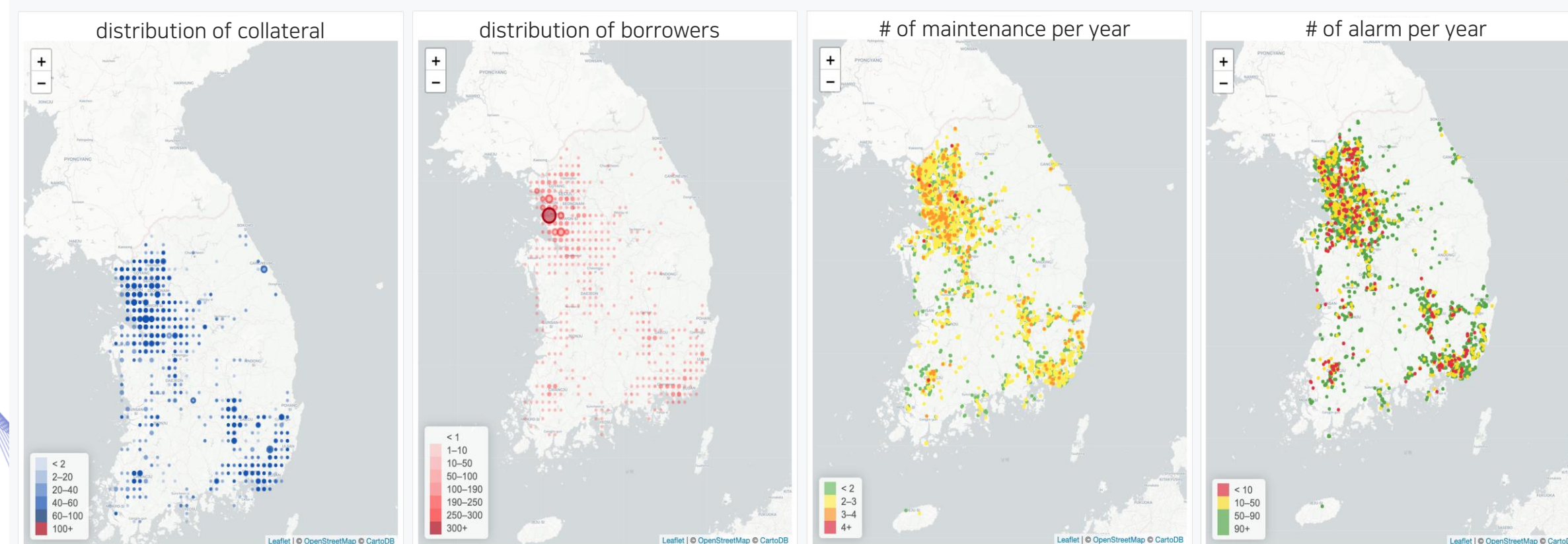
### 3. Big Data Analysis



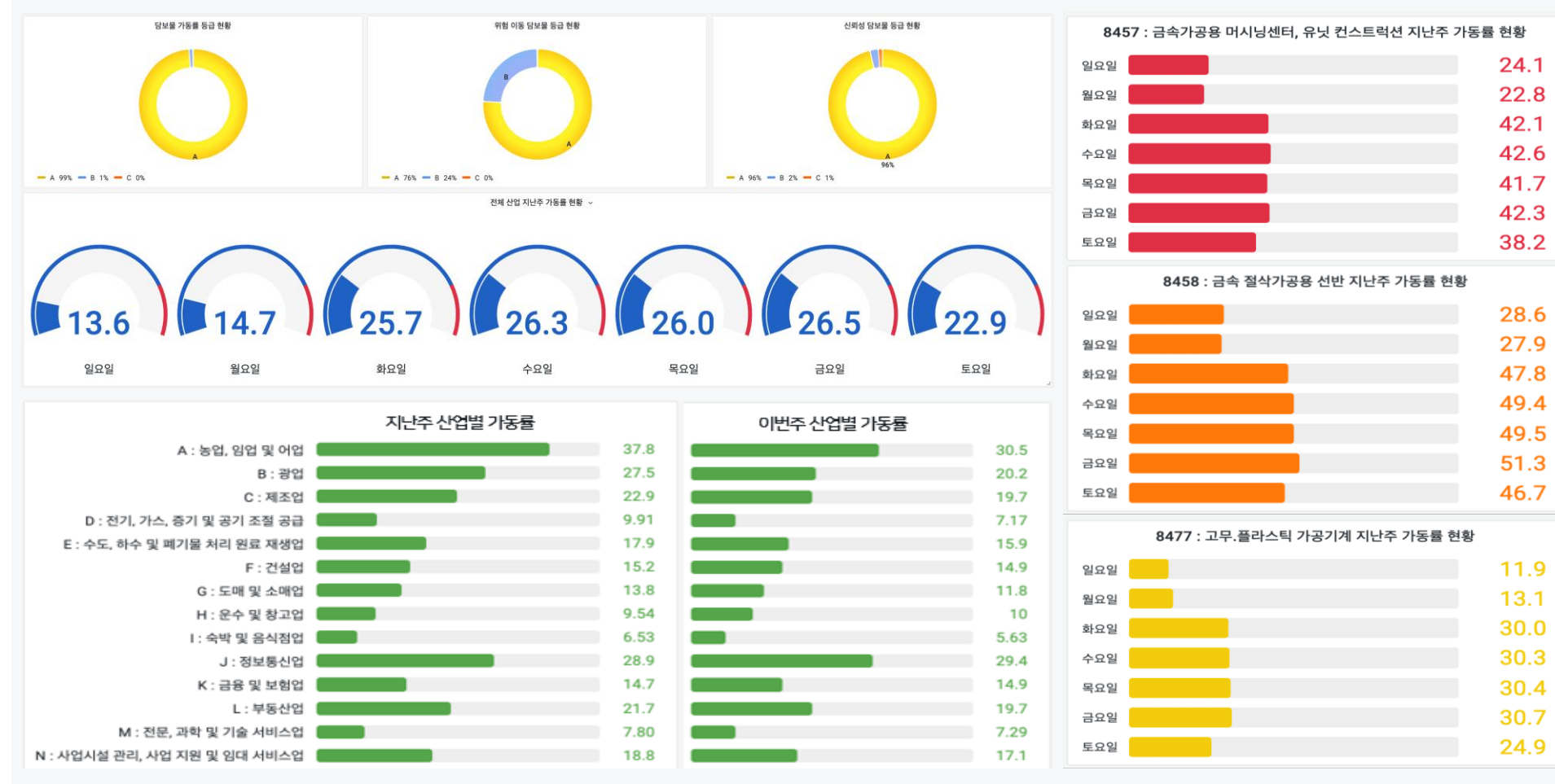
#### Bigdata analytic systems

- data-driven decision in asset management
- strategic service implementation
- improved operational efficiency
- customer personalization
- more effective marketing
- new revenue opportunities

#### ➤ Geographical analysis: distribution patterns, cumulative incidence



#### ➤ Capacity utilization rate: by industry, by year/month/week





## II. Core Technologies

### 4. Network & Coverage

#### 3G

World 1<sup>st</sup> commercial IoT networks with best coverage



2018

#### LTE Cat.M1

Cellular technology targeting the IoT or M2M communications



2019

#### Sigfox Ready

ISM-band IoT network for one global OG network



2020

#### Global LTE

IoT communication service for 600+ cellular network in 190 countries

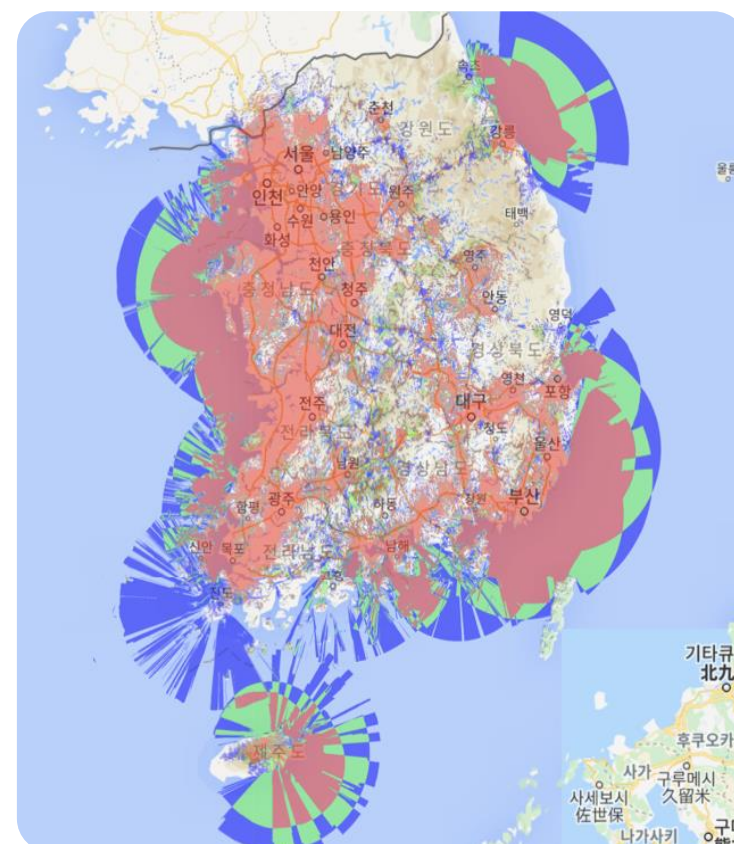
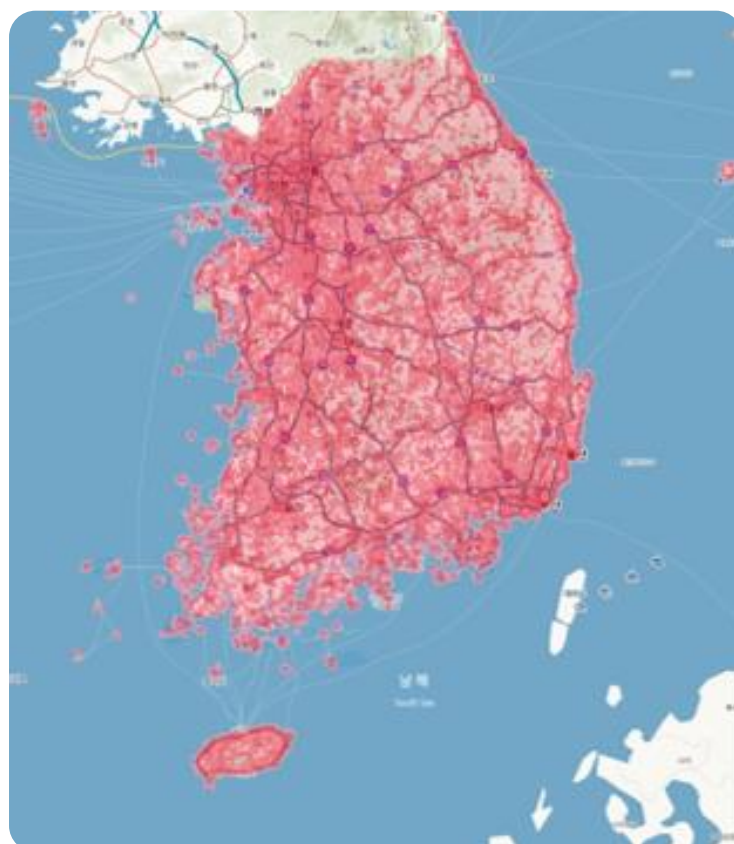
##### MQTT ANYWHERE

- Global low-power MQTT communication over cellular networks
- Reliable, consistent sensor messaging coverage in 190 countries

2021

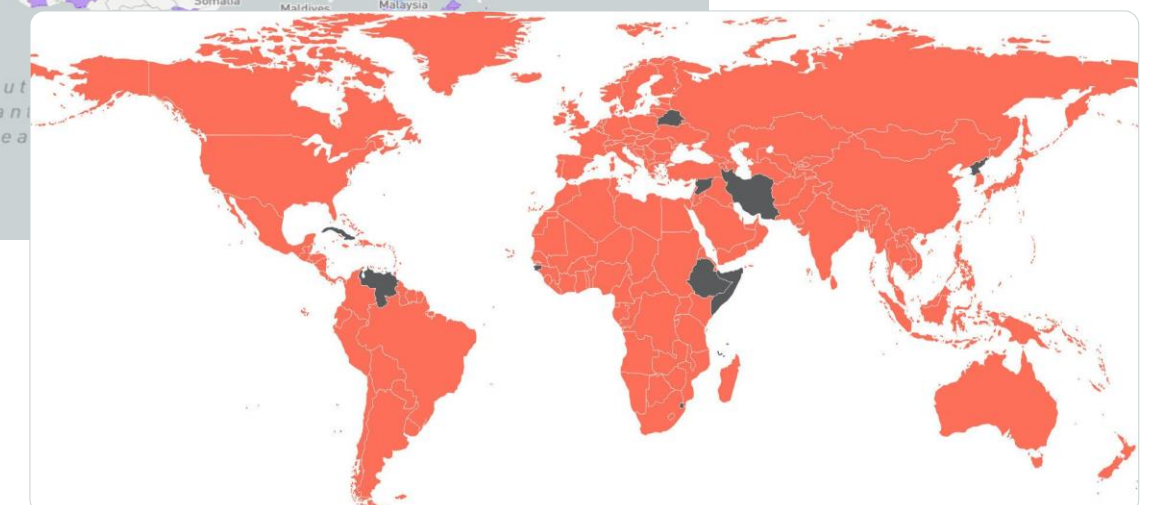
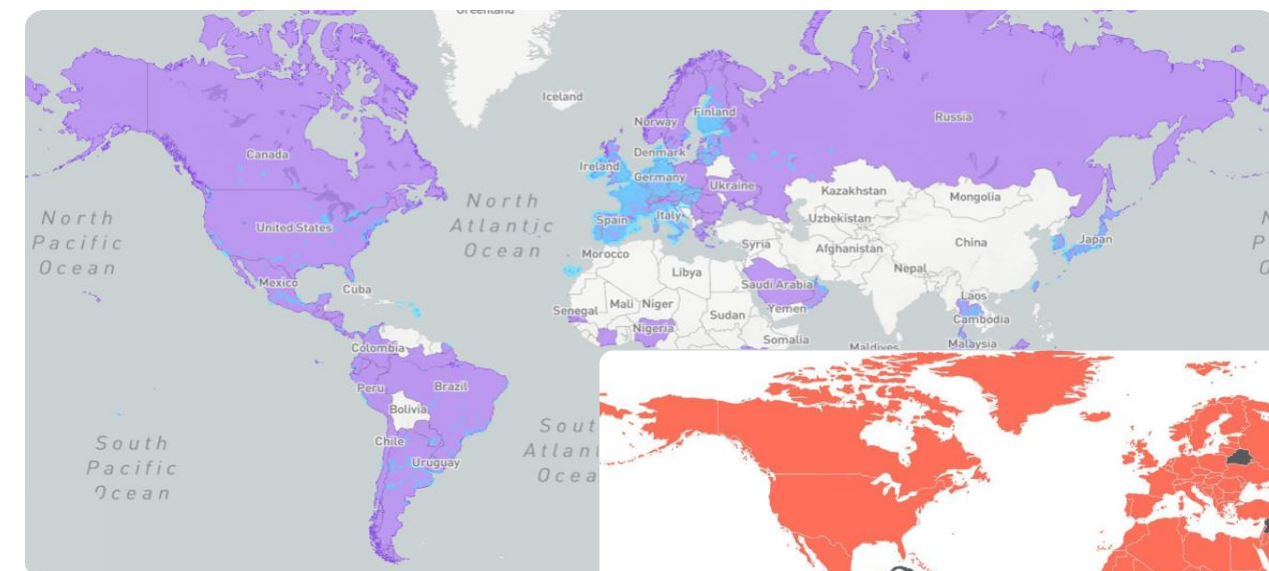
#### Domestic Coverage (South Korea)

- WAN technology: 3G & LTE, Sigfox
- Network coverage: 100%



#### Global Coverage

- WAN technology: Sigfox, Global LTE
- Sigfox coverage: over 70 countries, operated by local OG Network Operators
- Global LTE coverage: over 190 countries, compatible with over 600 networks worldwide





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### III. C&Tech's IoT Solutions

#### 1. Collateral Asset Management

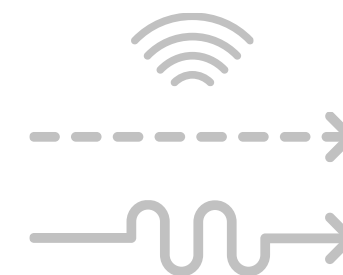
##### ■ Overview

- ✓ Asset management monitoring: operation status, real-time location tracking and tracking
- ✓ Alert messages for unauthorized movement or disconnection of IoT devices
- ✓ Emergency dispatch service by security guards
- ✓ Provides big data analysis results for event logs from risk collateral

IoT device attached to equipment:  
sensing the vibration/direction/movement/location



Real-time WEB/APP monitoring:  
asset status, events, and location



Utilization rate

GPS tracking





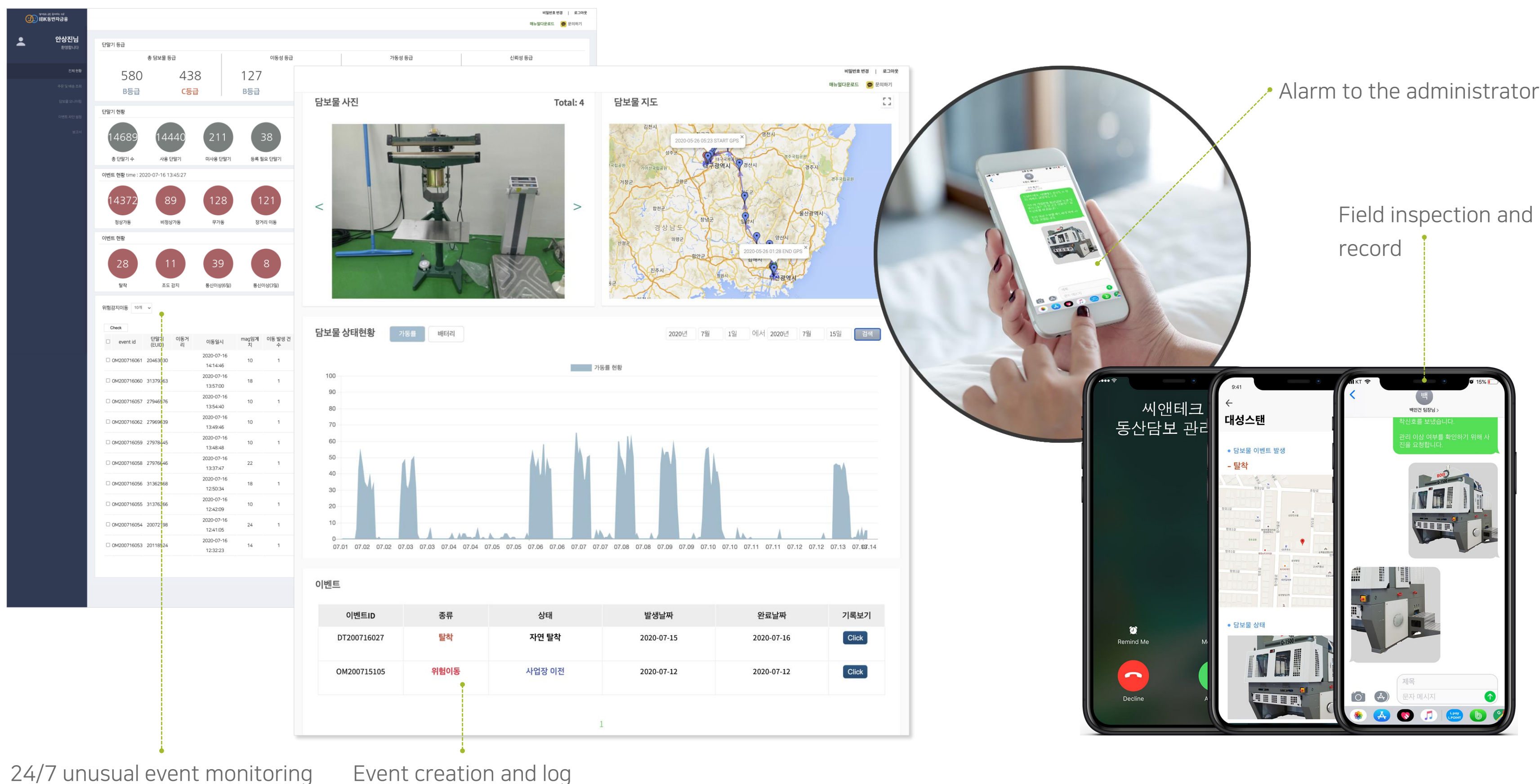
# III. C&Tech's IoT Solutions

## 1. Collateral Asset Management

### ■ WEB/APP Platform

- ✓ The 24h central control center is operated using the real-time management WEB dashboard, and now more than 20,000 collaterals are registered on the our platform.

Major Emergencies: Suspicious movement, forced detachment of the device



### III. C&Tech's IoT Solutions

#### 2. Smart QR Inventory Management

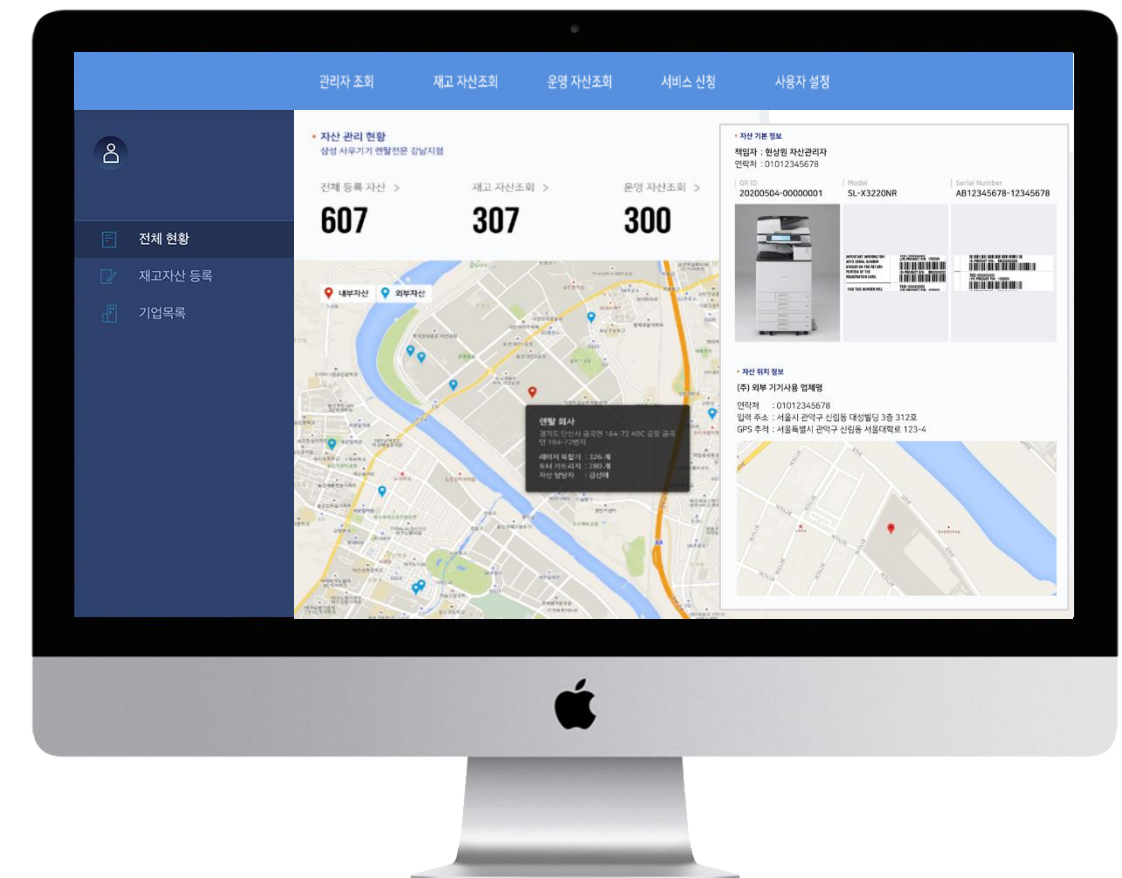
##### ■ Overview

- ✓ Inventory management platform: inventory status, location and warehousing history
- ✓ Warehouse APP support for managers and workers to implement an easy warehousing process
- ✓ Automated warehouse/delivery schedule and inventory shortage notification based on management history
- ✓ Support for anti-counterfeiting technology for a valuable asset such a luxury, jewel, and electronics

Inventory management using  
smart QR and warehouse APP



Centralized real-time inventory  
management WEB/APP platform





# III. C&Tech's IoT Solutions

## 2. Smart QR Inventory Management

### ■ WEB/APP Platform

- ✓ Centralized real-time monitoring of the current status, location, and warehousing history, including registered information on inventory assets held in the warehouse

### WEB/APP Platform for Smart QR Inventory Management

**WEISER**

전체 자산조회   재고 자산조회   운영 자산조회   서비스 신청   사용자 설정

• 자산 관리 현황  
삼성 사무기기 렌탈전문 강남지점

전체 등록 자산 >   재고 자산조회 >   운영 자산조회 >

**607**   **307**   **300**

• 주요 기능 즐겨찾기

- 관리자 목록 이동
- QR 스티커 주문
- 재입고 자산 승인

Map of South Korea with a callout for (주)씨앤테크: 대전 유성구 테크노4로 17 (관평동) 대덕비즈니스센터 B동 214호. 업체 연락처: 042-627-0825.

Select a warehouse on the map

### Management information for the selected asset

Inventory status

registered information

location

management history

• 자산 기본 정보

관리자 : 현상원 현장기사  
연락처 : 01012345678  
자산종류 : 레이저 복합기

QR ID: 20200504-00000001   Model: SL-X3220NR   Serial Number: AB12345678-12345678

수정하기

• 자산 위치 정보

(주) 외부 기기사용 업체명  
관리자 : 01012345678  
주 소 : 대전광역시 유성구 테크노 4로 17, 대덕비즈니스센터 B동 214호~215호  
S 수신 : 자산의 GPS가 입력 주소로부터 54m 거리에서 수신되었습니다.

수정하기

• 자산 관리 이력

관리일	자산 관리자/담당자	자산 위치	자산 상태
2020.12.24, 13시 43분	홍길동 B	렌탈 전문점명	재 입고 등록
2020.6.1, 11시 17분	홍길동 B	(주) 외부 기기사용 업체	출고
2020.6.1, 10시 57분	홍길동 B	렌탈 전문점명	배송 중
2020.5.21, 13시 32분	[담당자] 홍길동 A	렌탈 전문점명	재 입고 승인
2020.5.16, 9시 24분	홍길동 A	렌탈 전문점명	재 입고 등록

1 2 3 4 5 6 7 8 9 10

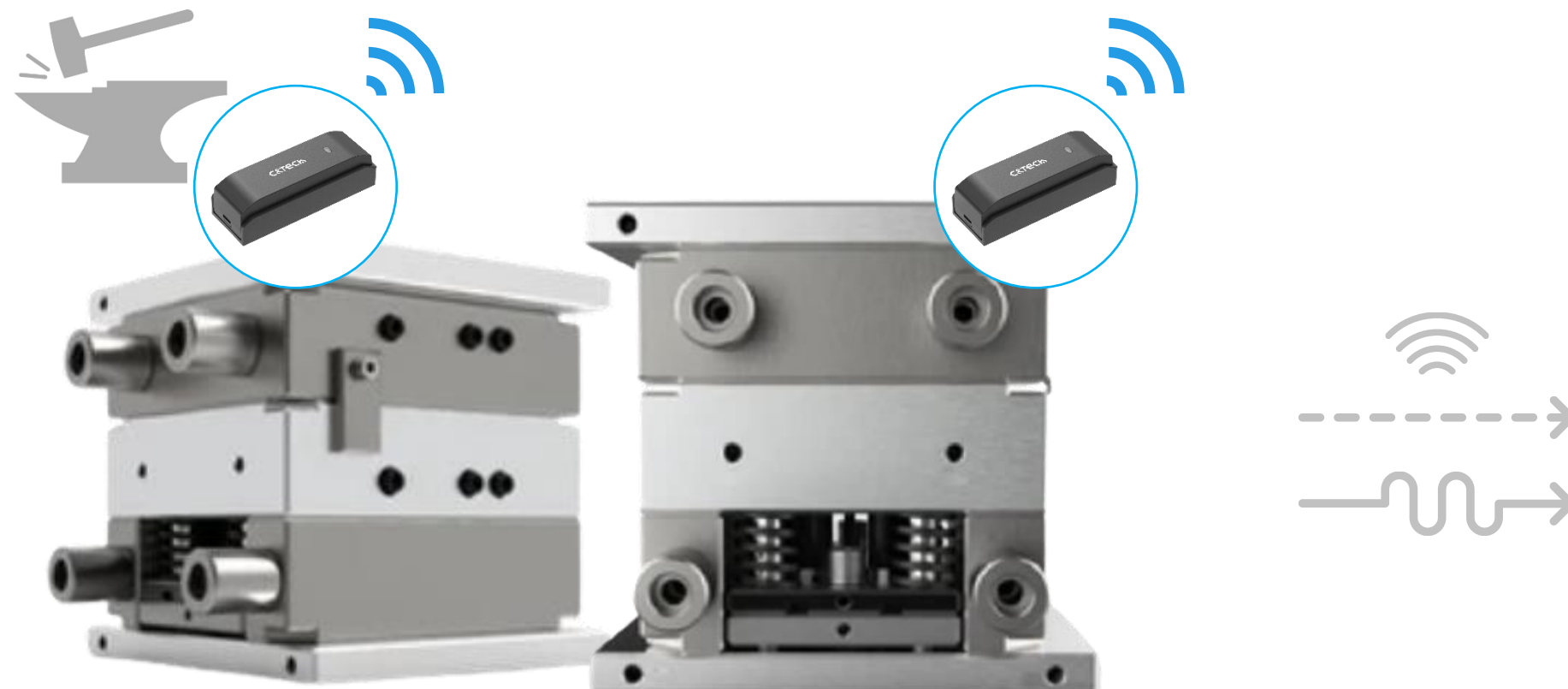
# III. C&Tech's IoT Solutions

## 3. Industrial Asset Management

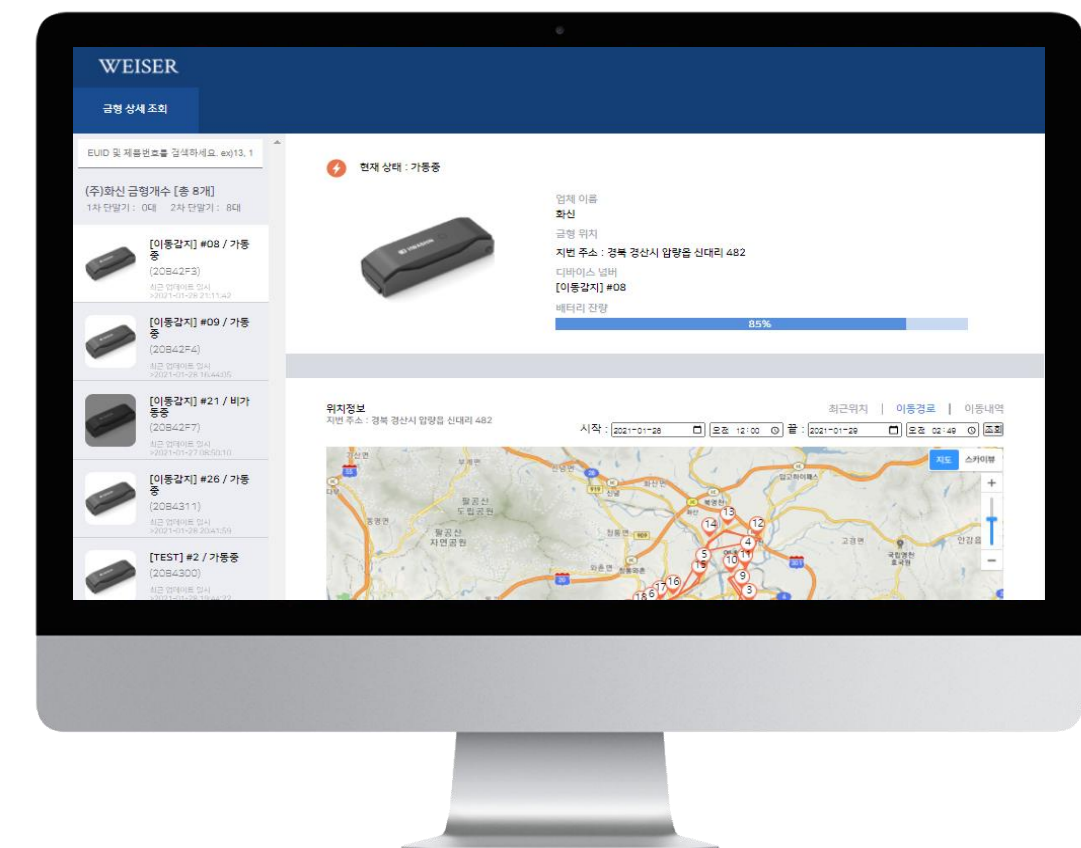
### ■ Overview

- ✓ Robust and durable industrial asset management IoT device for harsh environments
- ✓ Support customer-defined geofence for rental/lease businesses: automatic SMS notification service when leaving the safe area
- ✓ State classification through intelligent device edge processing: "abnormal movement" or "in production"

Robust industrial IoT devices attached to production tools or equipment



Real-time monitoring the status and location of industrial assets on the WEB/APP platform





# III. C&Tech's IoT Solutions

## 3. Industrial Asset Management

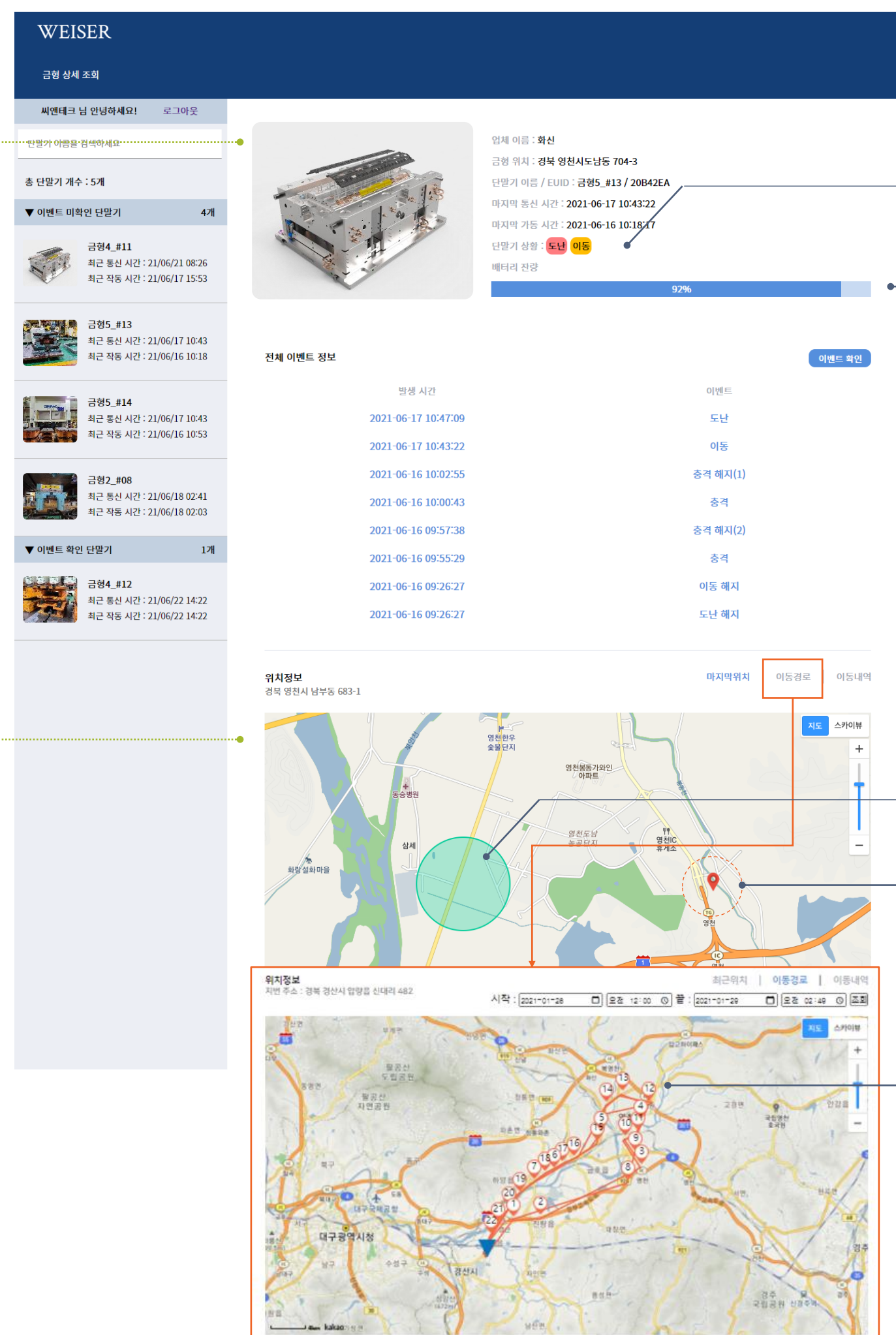
- WEB/APP Platform

Real-time management status and location check

Basic information of registered asset

Registered asset list and event log

Location and route check



### III. C&Tech's IoT Solutions

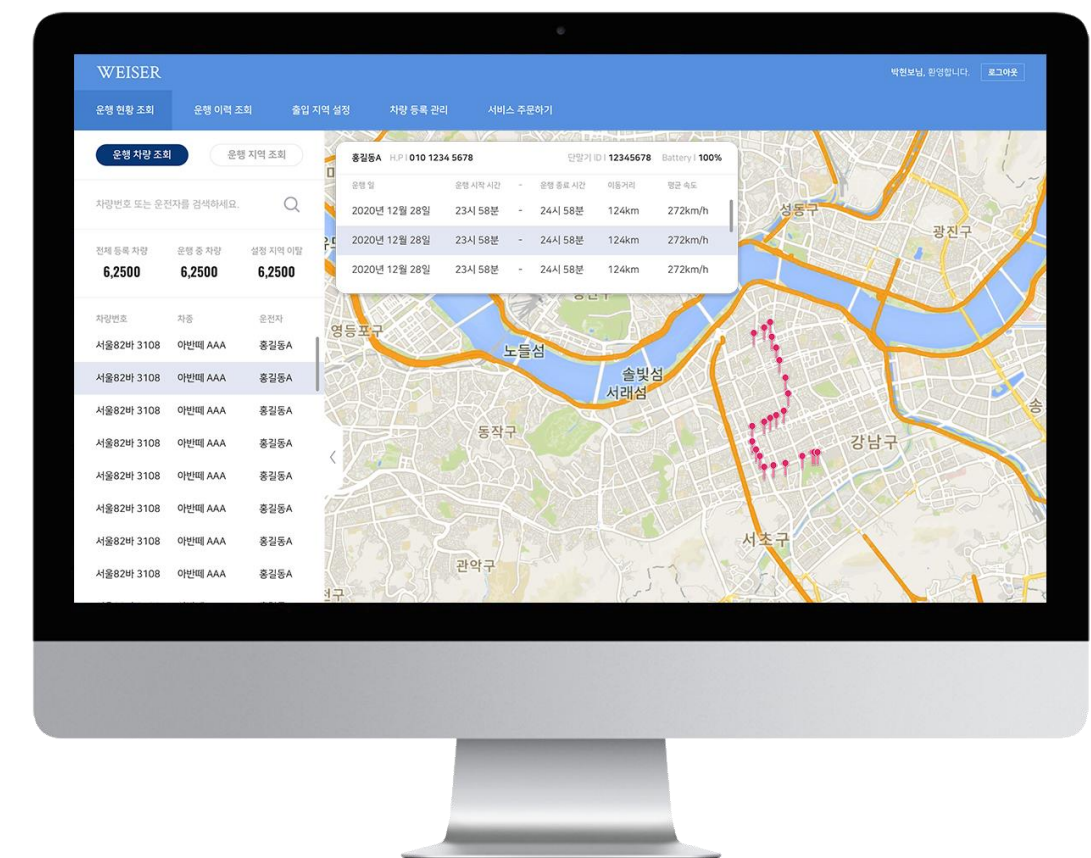
#### 4. Fleet Management

##### ▪ Overview

- ✓ Real-time fleet management service: vehicle status and location, driving route, speed violations
- ✓ Database support for vehicle maintenance, automatic creation of driving records for corporate vehicles
- ✓ Alert Notification: entering prohibited areas, driving vehicles during non-business hours
- ✓ Emergency Alert Message Service: theft and collision accidents

GPS-based location and driving route,  
vehicle status information

Centralized real-time fleet management  
WEB/APP platform





### III. C&Tech's IoT Solutions

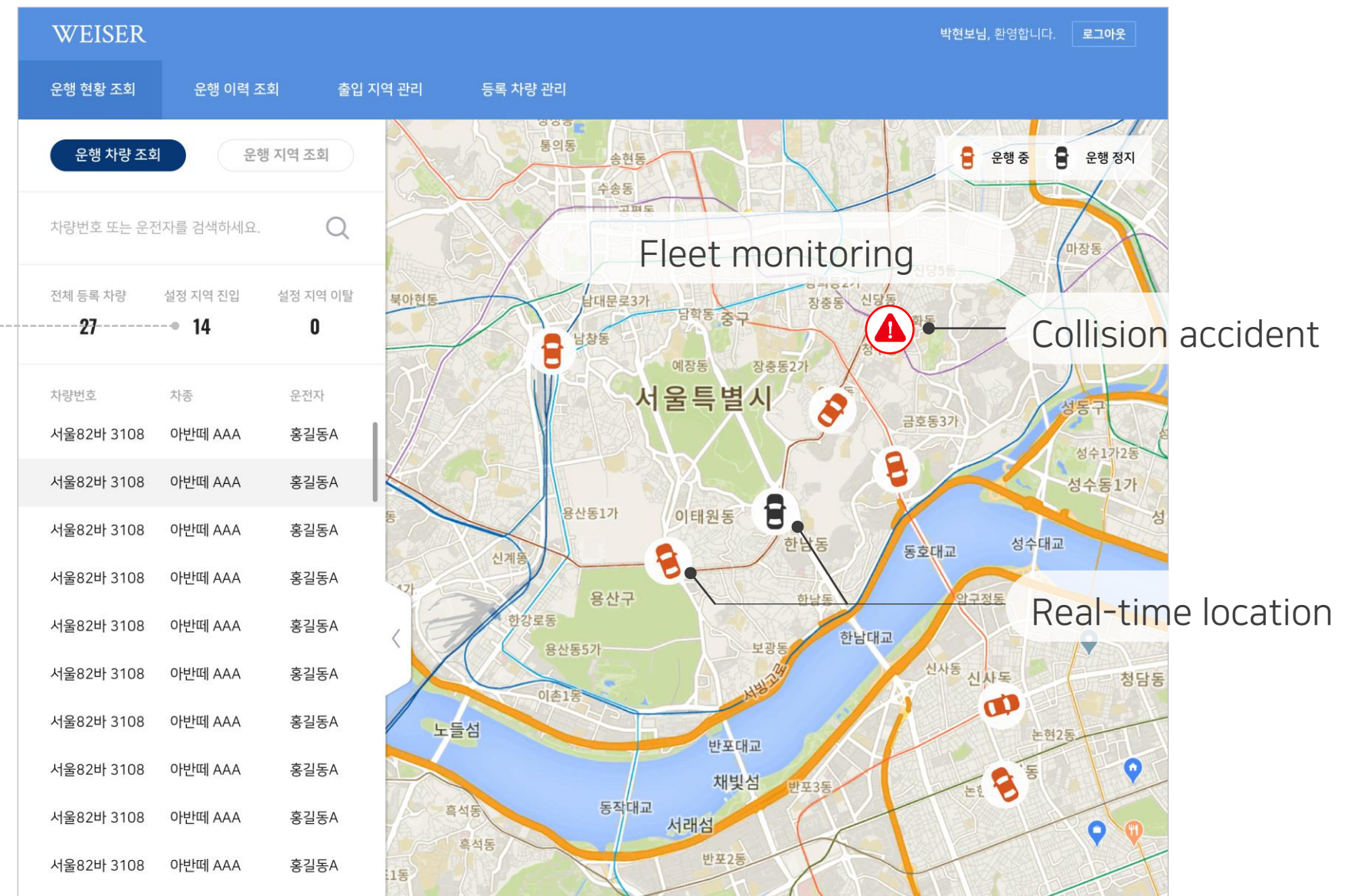
#### 4. Fleet Management

- WEB/APP Platform

- Monitoring fleet location, event and status

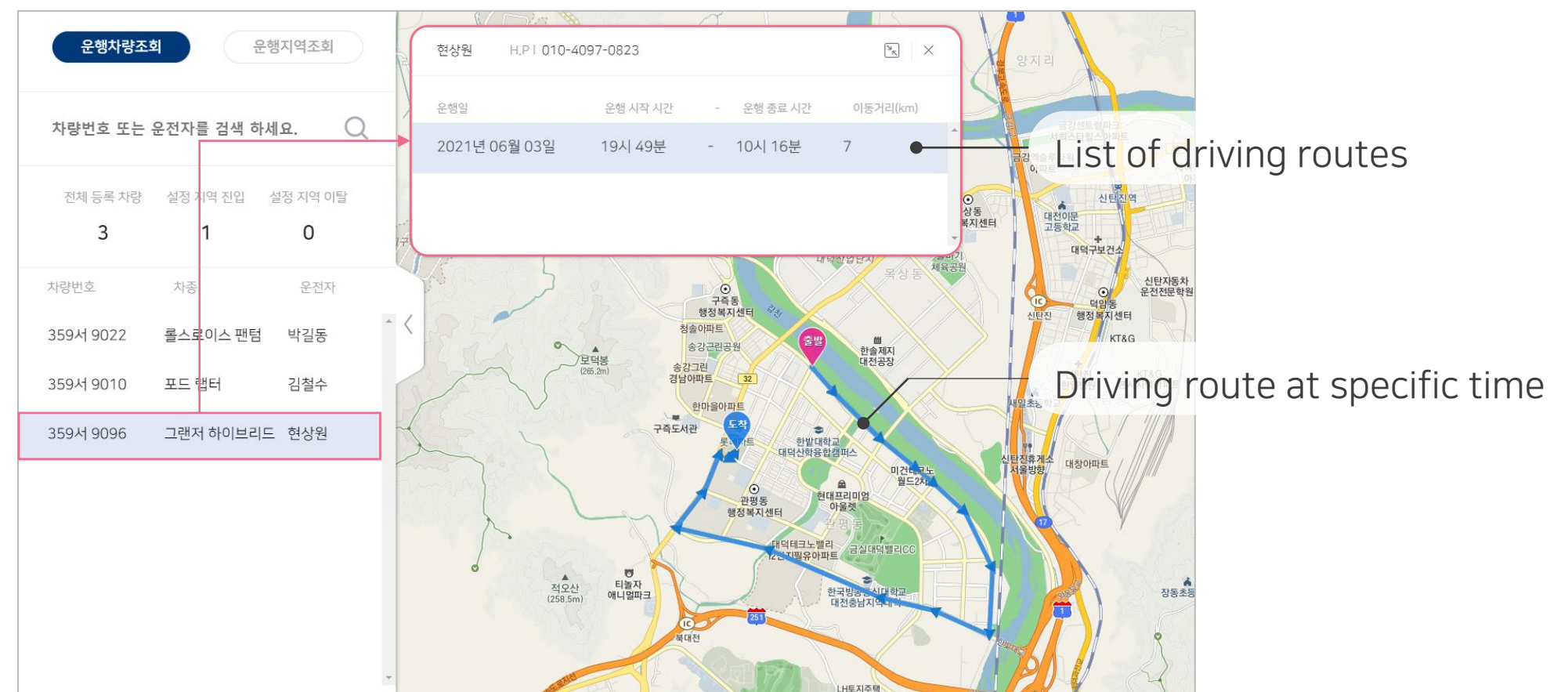
Notification of entry/exit to geo-fence

List of registered vehicle



- Driving route and record management

Select vehicle to view driving route





### III. C&Tech's IoT Solutions

#### 5. Smart Hospital (RTLS)

##### Overview

- ✓ Positioning technology for real-time tracking and monitoring of hospital assets
- ✓ Infra-less RTLS: Sectorized-space by utilizing IoT Device (beacon-mode)

Integrated WAN/PAN Technologies into One IoT Device  
(LTE + WiFi + BLE)



RTLS Solution WEB/APP Platform  
: Monitoring WEB + APP for Users



Digital Twin  
WebGL MAP support

Location Service  
Sector-based Tracking

Positioning Technology  
Indoor: BLE/ Outdoor: GPS

Easy-to-Install  
Infrastructure-free

Status Monitoring  
In used/ Standby

Asset Database  
WEB-based Management



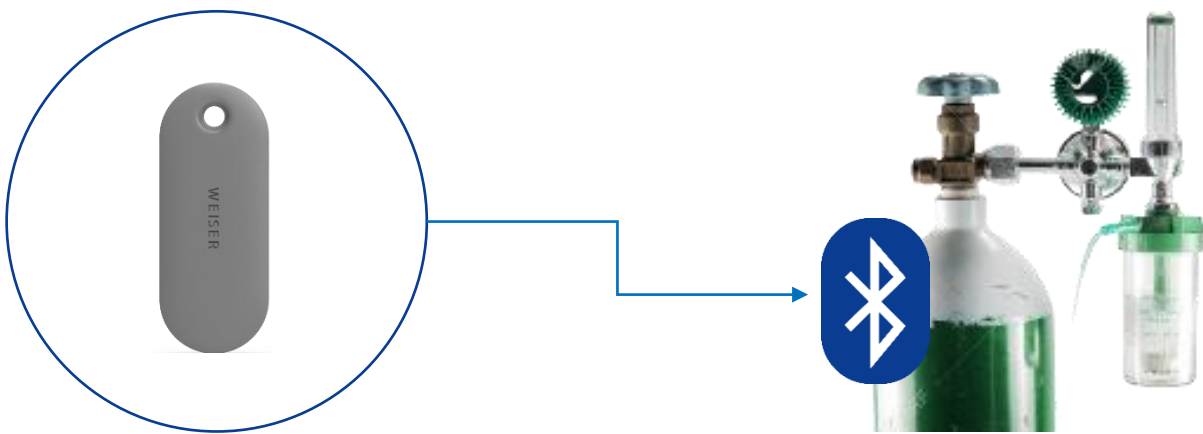
III. C&Tech's IoT Solutions

5. Smart Hospital (RTLS)



- Asset Tag for Smart Hospital



IoT Tag



BLE Tag

	IoT Device	BLE Device
Product		
WAN	LTE Cat.M1	-
PAN	WiFi & BLE	BLE
Battery	800mAh (rechargeable)	CR2032
Positioning	Indoor and Outdoor	Indoor-only
Sensors	Accelerometer, GPS	-
Application	Diagnostic or therapeutic medical devices	General assets, including inventory items
Operation Mode	<sup>(1)</sup> Beacon or <sup>(2)</sup> Tracker	Tracker
Size & Weight	55x55x20mm <sup>3</sup> , 50gram	40x16x11mm <sup>3</sup> , 15gram

### III. C&Tech's IoT Solutions

#### 6. Smart Access Control Kiosk, VLOCK

- Accurate, Easy-to-use, and High reliable



##### 1 Accuracy of digital thermometer level ( $\leq \pm 0.3^{\circ}\text{C}$ )



- ✓ Meet the US FDA guideline
- ✓ High-precision black body to provide absolute temperature
- ✓ Automatic removal of measurement errors using real-time calibration algorithms

##### 2 World's first 'thermal camera – black body' integrated kiosk

- ✓ Use thermal imaging sensor developed by KAIST research team for ten years
- ✓ World's first black body integrated thermometer system design
- ✓ User-friendly remote temperature screening system

##### 3 Privacy security using 'feature extraction' facial recognition method



- ✓ Facial encryption by using 128 feature extractions
- ✓ Access control system free from personal information leakage
- ✓ Easily connect to group wares and attendance systems



6. Smart Access Control Kiosk, VLOCK

- VLOCK Product Package and Specifications

VLOCK Product Package



VLOCK Specifications

Product, Manufacturer (Country of Origin)	VI-1A-VLOCK, C&Tech (South Korea)
Sensor Sensitivity	75 mK
Accuracy	±0.3℃ (0.5°F), range: 36℃ to 39℃ (96°F to 102°F)
Camera Resolution	Thermal imaging: 80x60, Real imaging: 5M
Frame Speed	Thermal imaging: ≤ 20 Hz, Real imaging: 60 Hz
Tablet	Android 10, Touchscreen 10.4" (WUXGA+) TFT LCD
Recommended Distance	0.5 m ~ 1.5 m
Output Temperature	+32℃ ~ +40℃
Operation Temperature	+15℃ ~ +32℃
Storage Temperature	-20℃ ~ +65℃
Wireless Connection	Wi-Fi, Bluetooth
Supply Power	110-240 VAC, 50/60 Hz
Power Consumption	≤ 25Watt
Physical Specification	330x370x1,800, 20kg