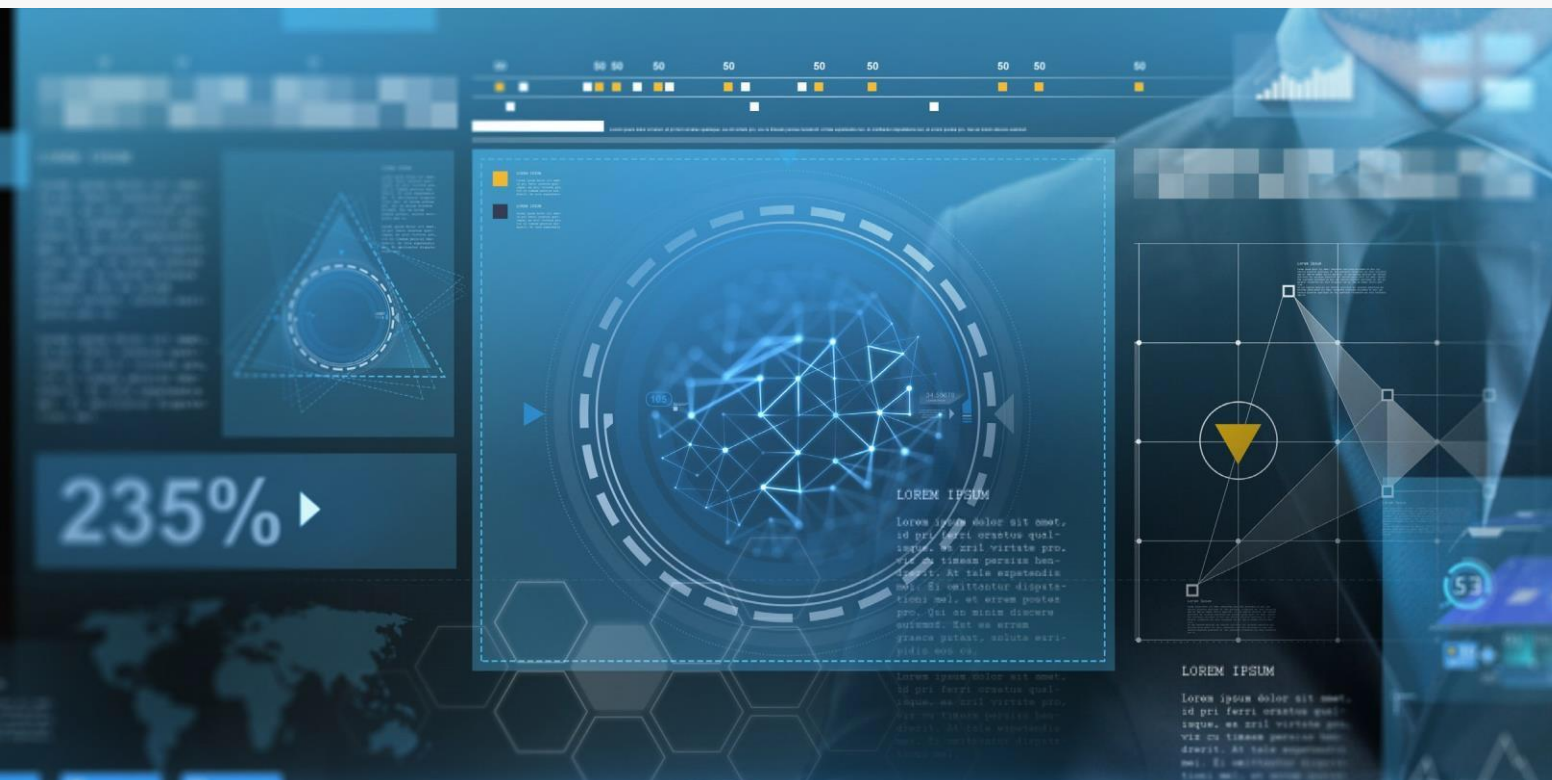# Better and Smarter with IoT

**MONNIT** ® KOREA

Monnit Korea provides innovative IoT wireless sensor solutions to customers
in wide range of industries at reasonable prices

# Why MONNIT?

One solution can bring several effects

**MONNIT® KOREA**
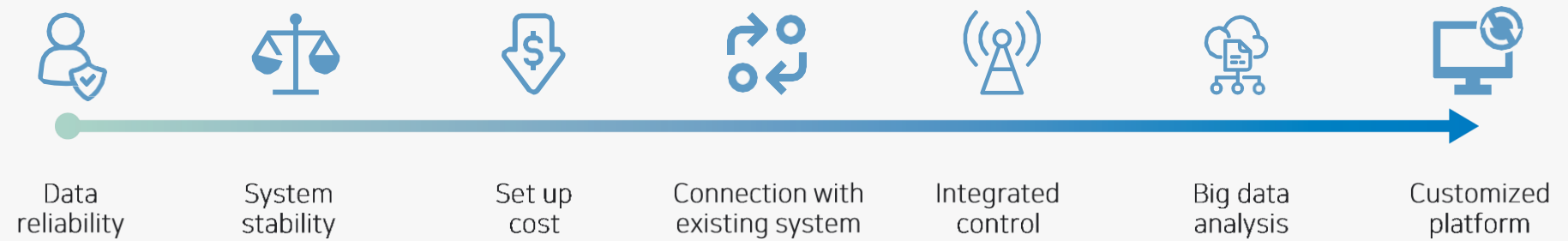


Quick response in case of emergency

Energy saving and labor cost reduction

Operational efficiency improvement through big data analysis
.
.
.

Various operational effects based on solution composition

# Clients Consideration

| Data reliability | System stability | Set up cost | Connection with existing system | Integrated control | Big data analysis | Customized platform |

# Competitiveness

## IoT Device & Service provider



All in

MONNIT® KOREA

# How it works

**Wireless sensor**

Collects data and transmits to the gateway

**Gateway**

Receives data from the sensor and transmits it to the cloud server

**Platform**

Data visualization and instant notifications

# Monnit Sensor Map

| | | | |
|---|---|---|---|
| Temperature | Temperature 3 Foot Probe | High Temperature | Low Temperature |
| Duct Temperature | Water Temperature | Thermostat | Thermocouple |

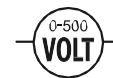| | | | |
|---|---|---|---|
| Dry Contact | Ultrasonic | Water Detection | Water Rope |
| DC Voltage Meter (200VDC) | AC Voltage Meter (500VAC) | DC Voltage Detection (200VDC) | AC Voltage Detection (500VAC) |
| 3 Phase AC Current Meter (20/150/500Amp) | | | |

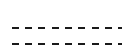| | | | |
|---|---|---|---|
| AC Current Meter (20/150/500Amp) | Resistance | DC Current Meter (0~20mA) | Button |
| Pulse Counter | Motion | Vehicle Detect Counter | Light Meter |

| | | | |
|---|---|---|---|
| Activity Detection | Open/Close (Door) | Control | Vibration Meter |
| Advanced Vibration Meter | G-force Snapshot | G-Force Max-Avg | Impact Detect |

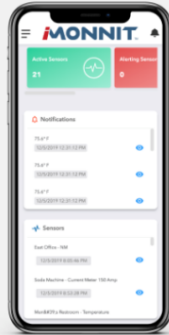| | | | |
|---|---|---|---|
| Tilt | Pressure Meter | Differential Air Pressure | Carbon Dioxide (CO2) |
| Air Quality | Carbon Monoxide (CO) | Hydrogen Sulfide | Tilt Detection |
| Air Velocity | Humidity | | |

# Why Monnit?

## Easy Setup and Use

All of Monnit's remote monitoring systems can be setup in about 15 minutes and our intuitive interface makes managing your system a snap!

## Exceptional Wireless Range

Our optimized RF communications platform provides superior wireless range for covering large areas.

## Low Power Long Life

Monnit wireless sensors feature industry leading power management, allowing sensors to last for up to 12+ years.

## 80+ Sensor Types

With over 80 different sensor types and more developed all the time, the sky is the limit for what you can monitor.

## Low Cost High Quality

Monnit wireless sensors start at just $49 and basic online sensor monitoring and notifications are FREE!

## Global RF Frequencies

Our wireless products are available in global frequencies (900, 920, 868 and 433 MHz).

**MONNIT** KOREA

# Network Security

## SENSOR PRINTS

Implementing 256-bit SHA3 authentication, SensorPrints creates a "fingerprint" for a Monnit Wireless Sensor that contains an authenticated sensor message.

**Top Case**

**Antenna & Circuit Board**

**2 AA-Batteries & Battery Tray**

**Bottom Case**
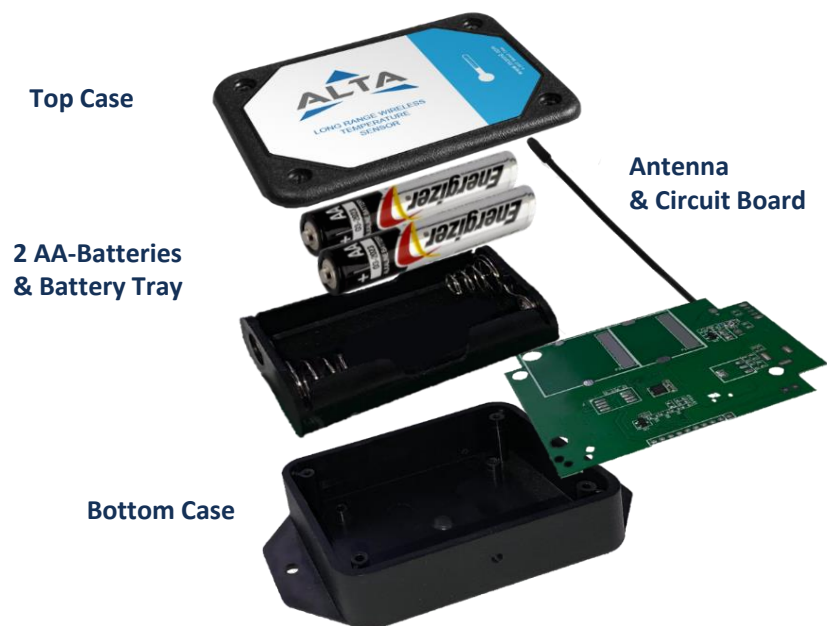
✓ **Integrated on-board data storage** allows ALTA sensors to store data messages if communication to a wireless gateway is disrupted (power outage, Internet outage, or out of range).
✓ **Over-the-air updates** allow ALTA products to be updated remotely if new fixes or features become available.

## GATEWAY ENCRYPTION

Monnit uses the same encryption methods used by websites to transmit financial data. Secure socket layer (SSL) protocol is employed with 128-bit AES encryption while sending and receiving data

Protocols Supported:
✓ DHCP
✓ DNS
✓ NTP
✓ UDP
✓ TCP
✓ SNMP
✓ Modbus TCP
✓ Serial Modbus

This encryption allows all transmitted data that would otherwise be difficult for someone to read, to also be encrypted. The encryption is bi-directional so both the data that is being sent as well as the responses being returned are encrypted.

M()NNIT
KOREA

# MONNIT's Strength

**300+ Meter**

Exceptional wireless range

**10+ Years**

Low power Log life

Integrated on-board data storage

Customized platform

Guaranteed quality

# Benefits

Increased productivity and reduce costs

Easy set up and installation

High quality for low price

Prevention of accidents

Integrated control with all devices

Secured Big Data

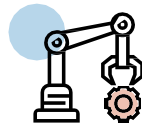# Monnit Korea
# Solution cost comparison

## Infrastructure

Structural health

monitoring

| Average cost of other providers | Monnit solution |
| --- | --- |
| $50,000 | $10,000 |

## Equipment / Facilities

Predictive

maintenance

| Average cost of other providers | Monnit solution |
| --- | --- |
| $30,000 | $3,000 |

## Environment

Well being enhancement

Air-quality monitoring

| Average cost of other providers | Monnit solution |
| --- | --- |
| $20,000 | $2,000 |

## Energy

Energy saving based on

Big Data analysis

| Average cost of other providers | Monnit solution |
| --- | --- |
| $60,000 | $18,000 |

*Cost is based on the actual installed site, prices may fluctuate depending on the site

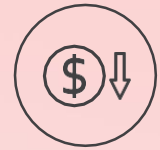# Building
# IoT Monitoring
# Solution

# Monnit Korea
## Building Solution

**Building lifespan extension**

**Accident prevention**

**Reduction of operating cost**

○ Building management with smart IoT sensors

Application cases

### Fire fighting facilities

Provides an immediate alarm when the fire detector for each area is activated

### Hot water circulation pump

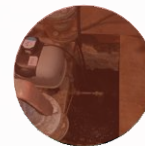Prevents hot water supply interruption accidents by providing an alarm when a fault occurs

### PLC Panel

Monitoring and subdivision of various alarms in PLC panel

### UPS inverter

Monitors the inverter output current of the UPS facility, and alarms when an abnormal current occurs.

### Septic tank

Prevents the overflow situation of the septic tank, which cannot be inspected at all times

### Piping equipment PS room

Water detection sensor is installed to prevent accidents caused by leakage of various pipes in the PS room

### Hot and cold water piping

Provides real-time alarm when abnormal pressure occurs

# Monnit Korea
## Building Solution

Real-time monitoring with Monnit software platform.
By managing all the buildings with sensors installed without visiting check up, it is possible to
increase operational efficiency and reduce labor costs, thereby greatly reducing overall operating costs.
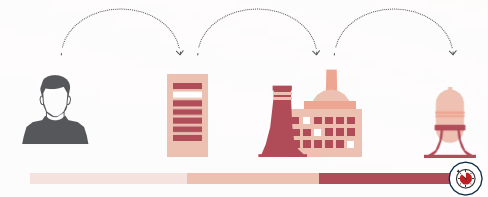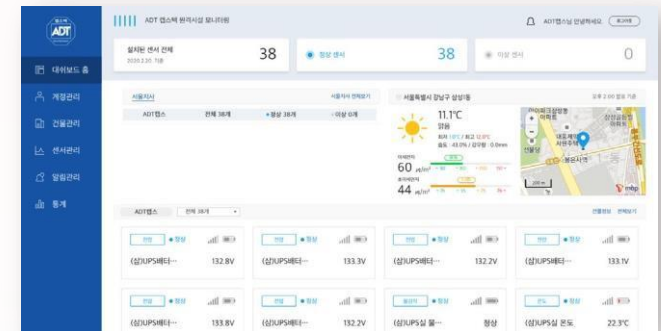
**Integrated control**
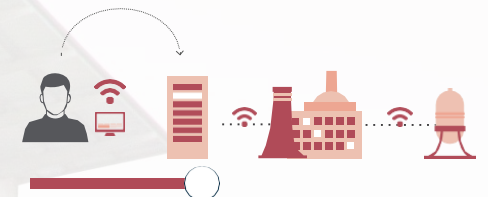
**Maintain cleanliness**

**Real-time data transmission**

Existing facility inspection method

Monitoring with Monnit sensors

# Monnit Korea

## Building Solution

Projects
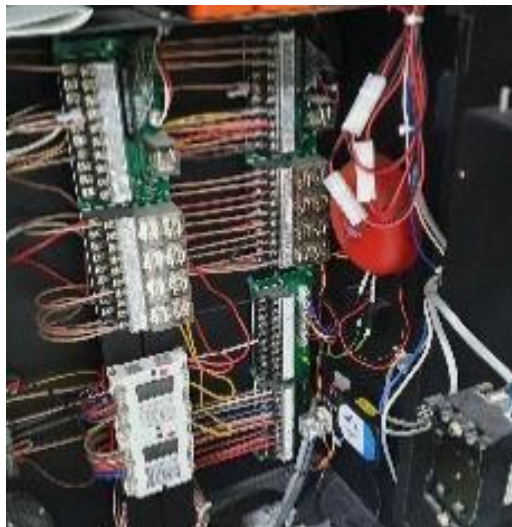


**HDC iControls**(2020.09)
Building management with 1000 sensors



**ADT Caps** (2020.07)
Platform development/ BMS integration



**Gangwon Inje 3821 Military Unit** (2020.10)
Septic tank IoT management solution

# Case study

Client : HDC

Establishing a digital twin for sustainable building management and forming an integrated control network by improving the operability of building facilities

# Platform development through open API

# Case study

## Building Facility Management

Building facility management platform was created to collect and show the data on building facility performance in Seoul area. The headquarters monitoring center is able to see all the data from sensors at one glance and receive alarms whenever any problem occurs.

Smart Factory
Monitoring
Solution

# Monnit Korea
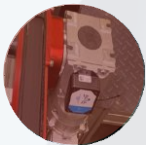# Smart Factory Solution

**Quality improvement**

**Productivity increase**

**Cost reduction**

## ○ Factory monitoring with smart IoT sensors

Application cases

### Conveyor belt

Prevents production line breakage through pre-failure inspection

### Flow meter

Smart metering implementation using Monnit sensor for the DC output value of the flow meter

### AHU Motor

Detection of abnormal vibration and temperature of the air conditioning motor

### MCC Panel

Establish predictive maintenance of facilities by grasping the amount of power in independent processes

### Temperature and Humidity Control

Monitoring and automation of HVAC system using environmental sensors and relay

### Gas ventilation treatment equipment

Measurement of abnormality in the toxic gas purification treatment – abnormal vibration and temperature

# Monnit Korea
# **Factory Solution**

Real-time monitoring with Monnit software platform.
By managing all the buildings with sensors installed without visiting check up, it is possible to increase operational efficiency and reduce labor costs, thereby greatly reducing overall operating costs.



## Smart Factory **Benefits**

Through a platform that can be accessed from a nywhere, it is possible for managers to efficiently manage site and facilities, and for workers to improve work efficiency and prevent safety accidents with a pleasant environment.

### **Real-time data collection and management**

Efficient data management is possible by quickly and accurately collecting various data generated in the factory and storing them in the cloud

### **Provision of instant alarms**

Provision of real-time alarms when parameters exceed the set threshold value

### **Data visualization and real time monitoring**

Monitoring of the overall factory status in real-time and creation of digital twin based on Big data

### **Data statistics and analytics report**

Event prediction and facility predictive maintenance based on big data analysis and machine learning algorithms

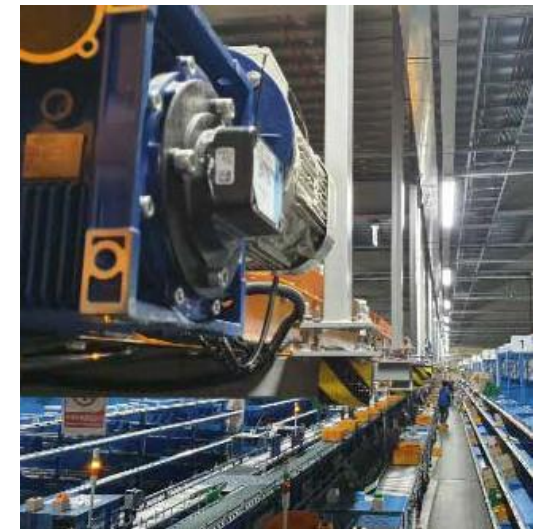![MONNIT KOREA logo]

# Monnit Korea
## Smart Factory

Projects



**SK Gas** (2021.01)
Gas facility predictive
maintenance IoT solution



**Daedong Door** (2020.06)
Production line motor status
Monitoring/predictive maintenance



**CJ Logistics Hub** (2020.11)
Conveyor belt real time monitoring/
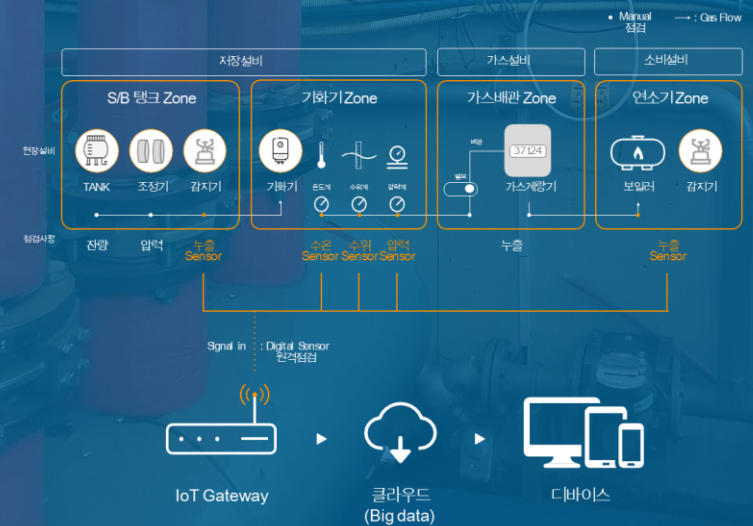Predictive maintenance of equipment

# Case study

Gas plant monitoring

Monnit wireless sensors are installed all over the plant to monitor gas leakage, pipe pressure, temperature of equipment, fuel levels for **predictive maintenance and accident prevention** purposes.



- Manual 점검    → : Gas Flow

| 저장설비 | | 가스설비 | 소비설비 |
|---|---|---|---|
| S/B 탱크 Zone | 기화기 Zone | 가스배관 Zone | 연소기 Zone |

현장설비

| TANK 조정기 감지기 | 기화기 온도계 수위계 압력계 | 가스계량기 | 보일러 감지기 |

점검사항

| 잔량 압력 누출 | 수온 수위 압력 | 누출 | 누출 |
| | Sensor | Sensor Sensor Sensor | Sensor | Sensor |

Signal in : Digital Sensor
원격점검

IoT Gateway  →  클라우드 (Big data)  →  디바이스

# Construction Site Monitoring Solution

# Monnit Korea
# Smart Construction Solution

- Real-time monitoring
- Equipment control
- Workers' safety
- Operational efficiency

## ○ Construction site **Monitoring**

### Tower crane
Detection of abnormal vibrations and measurement of working hours

### Cement curing
Real-time monitoring of cement curing temperature

### Piping equipment
Measures liquid or vapor pressure up to 300 PSI $(21\ kgf\ /cm^2)$

### Construction site safety management
Abnormal vibration monitoring, fire alarm, Summer heat wave alarms, air quality

# Monnit Korea
# **Construction Site Solution**

Collection of data with wireless sensors and provision of instant notification anytime, anywhere, when parameters are beyond the threshold range are detected. With a remote monitoring solution, it is possible to manage the site without a visit. In addition, checking the working environment in real time protects the safety of workers.



## ◯ Real time monitoring **with Monnit Platform**

Monnit Korea provides an open API to customers build their own platform.





**Real-time alarm**

**Remote Monitoring**

**Big Data**

# Monnit Korea
# **Construction Site Solution**

## Projects



**SK Construction** (2020.11)
Collapse prevention of
support structures



**Hanhwa Construction** (2020.04)
Comprehensive monitoring of the
construction site



**Samchully gas** (2020.09)
Gas pipe predictive maintenance
solution

# Case study

## Gas pipe monitoring

**Samchully**

Monnit wireless vibration, tilt and shock sensors were installed on numerous gas pipes under the bridges around South Korea to **monitor status of pipes and prevent possible accidents.**
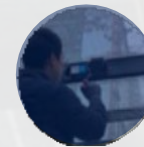
# Smart City

# Monnit Korea
# Smart City Solution

## ○ Monitoring of Infrastructure and Public sites

### Shopping malls and markets monitoring
Prevention of accidents such as fire, collapse of infrastructure and etc.
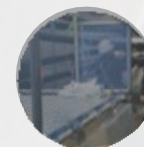
### Urban infrastructure management
Bus and subway stations, environmental conditions monitoring

### Public Facility Digital Twin
Pre-accident prevention, facility predictive maintenance, real-time integrated control

### Collector management
Real-time management of urban infrastructure facilities

# Monnit Korea
# **Smart City Solution**

Projects



**Seoul city underground
collector** (2020.09)
Prevention of urban infrastructure-
related equipment failure



**Seoul city bus station** (2020.09)
Environmental conditions
monitoring and display



**Korea Expressway
Corporation** (2020.07)
Real-time bridge monitoring
system

# Case study

## Bridge structural health

Korea Expressway Corporation

Monnit wireless vibration, tilt and shock sensors were installed to monitor structural health of bridges and **collecting the data on structure vibration** during pick hours and depending on weather conditions.

MAXIMIZE PROFITS

EXPAND INSIGHT

REDUCE LOSS

RAPID ROI

24/7 PEACE OF MIND

INCREASE EFFICIENCY

Winner IoT Innovations 2020

ALTA ADVANCED EDGE GATEWAY FOR LONG RANGE WIRELESS SENSORS

MONNIT

ALTA LONG RANGE WIRELESS ADVANCED VIBRATION METER INDUSTRIAL

ALTA LONG RANGE WIRELESS 0-150 AMP AC CURRENT METER

MONNIT KOREA

# Our
# Customers

| Construction | Smart Factory | Building FM | Logistics | Hospital | Platform development |
|---|---|---|---|---|---|
| SK 건설 | SAMSUNG 삼성전자 | HDC 현대산업개발 | CJ 대한통운 | VEOLIA | DAELIM |
| 현대건설 | 'TORAY' | Dongwon 동원산업 | Dongwon 동원로엑스 | 한양대학교구리병원 | LG |
| 롯데건설 | Pulmuone 풀무원 | SAMSUNG 삼성SDS | | | hp |
| 대림산업 | CJ FEED&CARE | ADT | Smart city | Smart campus | Smart Farm |
| posco | HI·LEX DAEDONG | KOLON | LX 한국국토정보공사 | 세종대학교 SEJONG UNIVERSITY | Dongwon 동원팜스 |
| 한화건설 | DOOSAN 두산인프라코어 | JLL | JCDecaux | | |

MONNIT KOREA

# Thank you.