

7th JAPAN-ASEAN Smart City Network High Level Meeting

Introduction of **Smart Lighting & Smart City Solutions**

Contributing in Development of Zero Carbon Society

Smart City Promotion
2025 November 10

MinebeaMitsumi
Passion to Create Value through Difference

Presentation



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MinebeaMitsumi
Passion to Create Value through Difference

What is MinebeaMitsumi ?

Presentation

Toward becoming a one-of-a-kind **INTEGRATION** manufacturer of precision components by maintaining a diverse portfolio.

1,522,703 million yen

94,482 million yen

(Fiscal year ended March 2025)



Precision Technologies

255.7 billion yen

composition **17%**

Main Products

Ball bearings,
rod-end bearings,
spherical bearings,
fasteners,
pivot assemblies



Motor, Lighting & Sensing

407.7 billion yen

composition **27%**

Main Products

HDD spindle motors,
stepping motors,
fan motors, DC motors,
LED backlights,
resonant devices,
sensing devices



Semiconductors & Electronics

527.6 billion yen

composition **34%**

Main Products

Precision components,
optical devices,
power supplies,
mechanical components,
automotive products,
analog semiconductors
components for home security units



Access Solutions

328.1 billion yen

composition **21%**

Main Products

Automotive parts (door latches, door handles, etc.),
industrial machinery components,



*INTEGRATION means "combining" rather than "simple gathering" of the Company's proprietary technologies to create new products in various fields through the INTEGRATION of our advanced technology.

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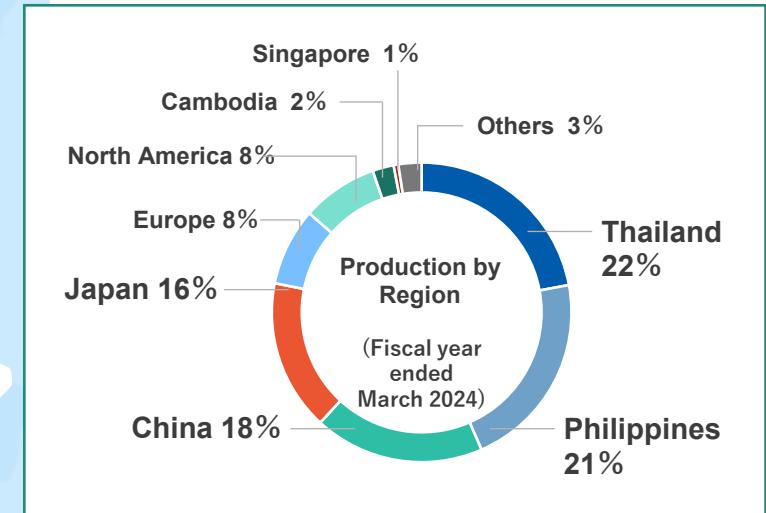
* Net sales of 4.5 billion yen for Other business is omitted here.

What's MinebeaMitsumi ?

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Global Network

We support our customers' manufacturing with our speedy and overwhelming supply capacity utilizing our global network.



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Overview of Smart City Solutions

Presentation

Overview of Smart City Solutions: Smart Lighting as core part

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Synergy and Integration of IoT technology and MinebeaMitumi's original technology

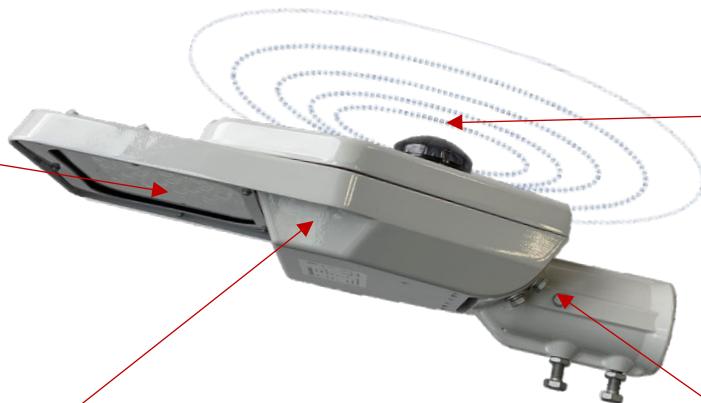
Backlight= Lens technology



Power technology



Energy Saving

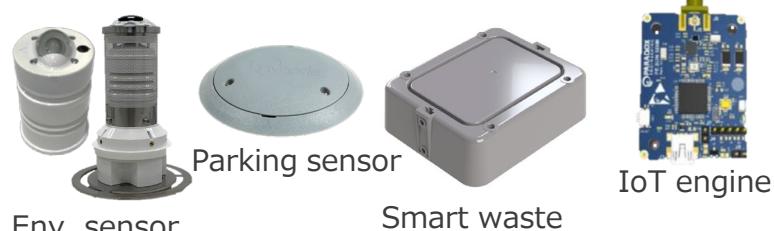


Wireless technology



Semiconductor technology

Development of sensors and IoT products to support smart city solutions



Die casting technology



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Overview of Smart City Solutions: 5 main features

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① Efficient Lighting



High Efficiency
Lighting and Dimming
Control



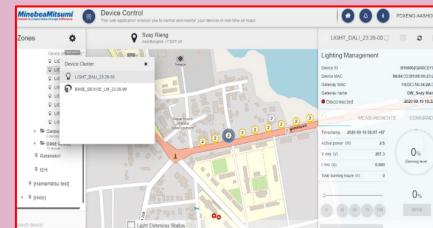
② Wireless technology



Robust and effective
wireless mesh network
based on 6LoWPAN



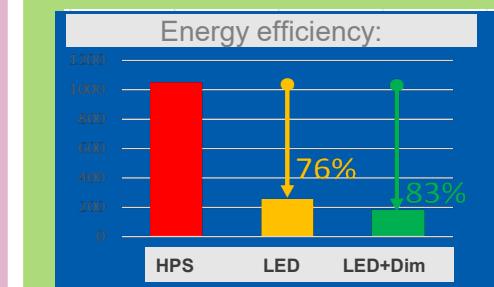
③ Centralized management



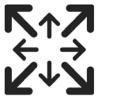
All devices can be centrally
managed and controlled
from a same CMS.



④ Energy Saving & GHG emission reduction



Energy efficient LED
lamps + Dimming
control



⑤ Expandability



Can add new IoT devices to
the same network platform
to expand smart solutions

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Dimming control : What is dimming?

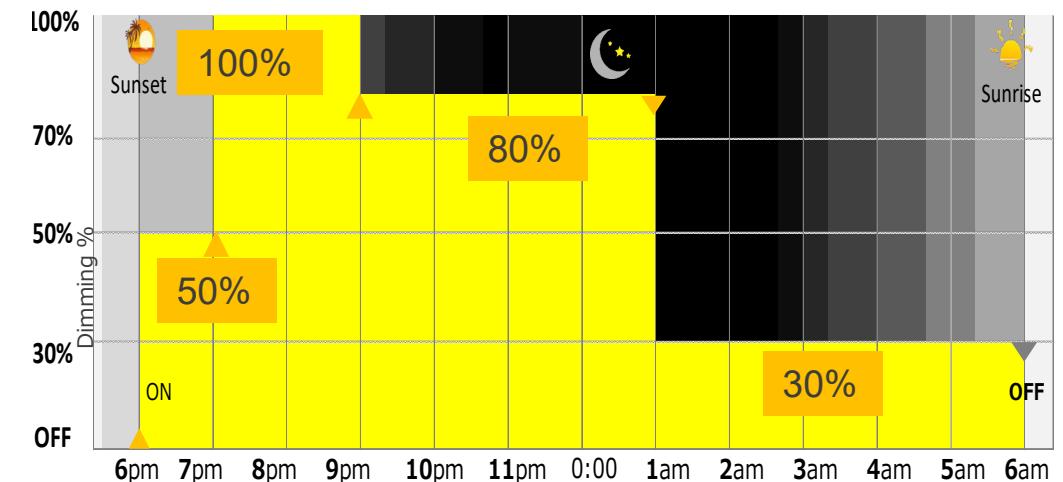
We offer advanced lighting system that significantly helps in energy savings by applying dimming control of lights to provide optimum brightness on road to match the traffic volumes and people's activities.



■ Comparison of brightness at various dimming level



■ Example of dimming pattern(Ave.60%)



Overview of Smart City Solutions: Energy Saving & GHG emission reduction

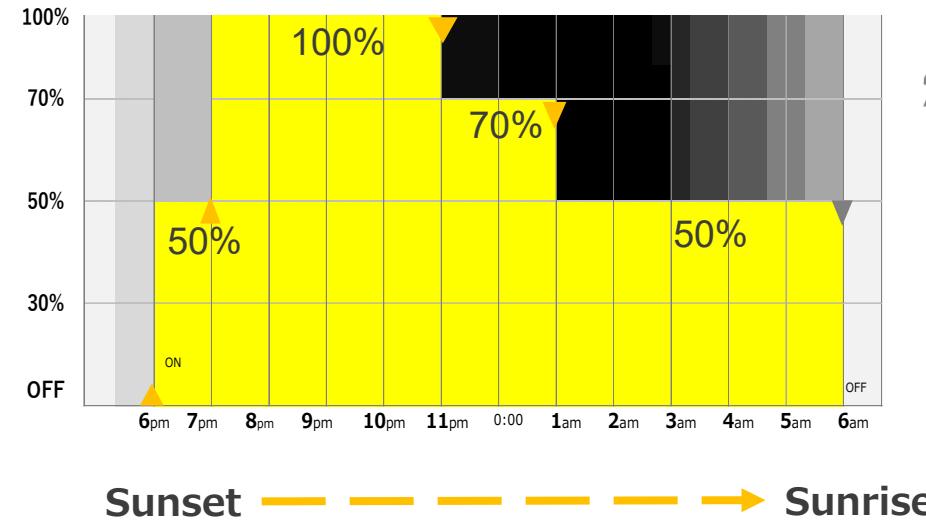
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Our smart LED streetlights can reduce power consumption up to 90% compared to conventional mercury lamps. This is a significant contribution to the reduction of CO₂ emissions.

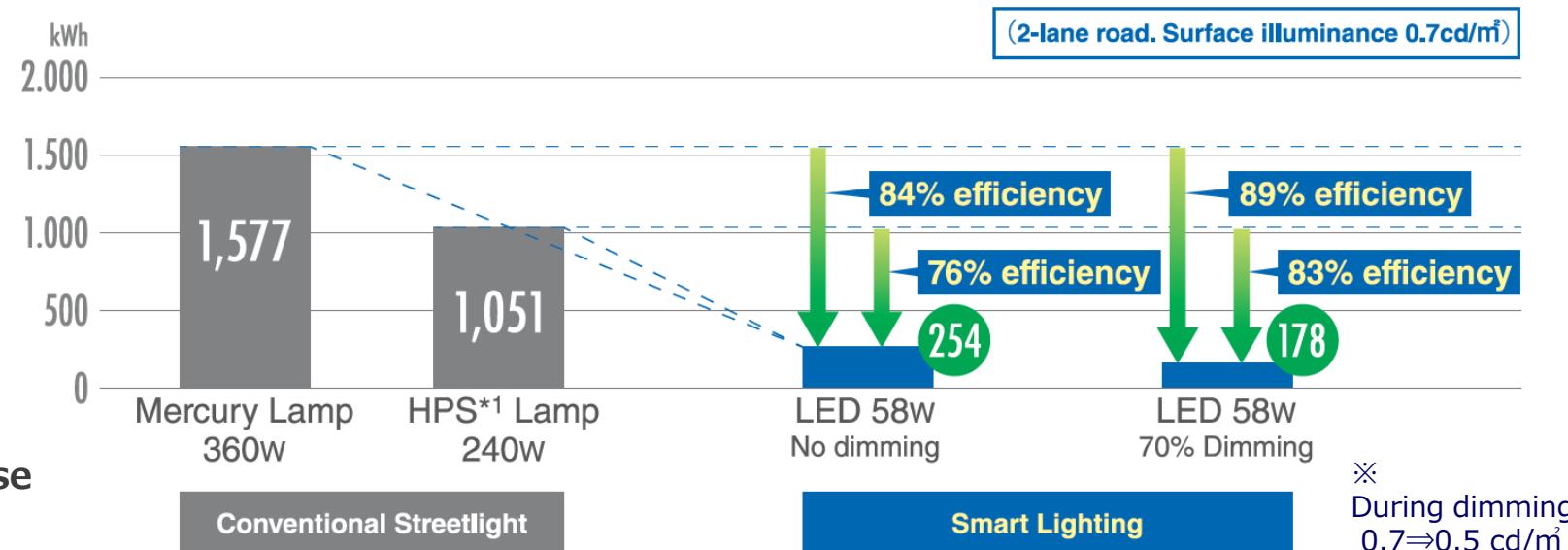


Excellent energy-saving performance and CO₂ emission reduction

■ Dimming pattern (Average 70% dim)



■ Energy efficiency achieved after implementation of Smart Lighting: Comparison of annual power consumption by 1 unit of lamp



If 1,000 conventional lamps are replaced by smart lighting (average 70% dimming),
The **annual electricity cost saving** is **26.9 Million Yen**
from mercury lamps. 16.8 Million Yen cost saving from HPS lamps

※Electricity tariff : 19.25 Yen / kWh

※CO₂ emission factor is 0.462 t-CO₂ / kWh

CO₂ emission reduction

- 646 t-CO₂ from Mercury
- 403 t-CO₂ from HPS

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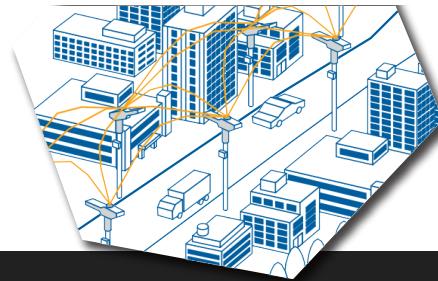
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Overview of Smart City Solutions: Centralized management from CMS

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Real time monitoring and data collection to facilitate instant sharing of any occurrence

It is possible to centrally manage sensors and devices connected to the network from the same CMS screen, so it is possible to improve the efficiency of operation management.



Monitoring by CMS



Street lamp in the field



CMS map view

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Narrowband Network monitor
This web application enables you to monitor your network on maps

Zones Diamond Island Asia/Bangkok +7 DST off > PE_GW_172.17.1.67 CONNECTED

Device only created *

Root No gateway
Unassigned
[Removed]
Japan
Philippines
Cambodia No gateway
Diamond Island 9 gateways
PE_GW_172.17.1.131 No node
PE_GW_172.17.1.135 6 nodes
PE_GW_172.17.1.139-NB-Elysee 73 nodes
PE_GW_172.17.1.163 40 nodes
BASE_DEVICE-00-90:D0
D-029
D-030
D-031

Search node
D-098 [84:84:33:01:03:25:46:37]

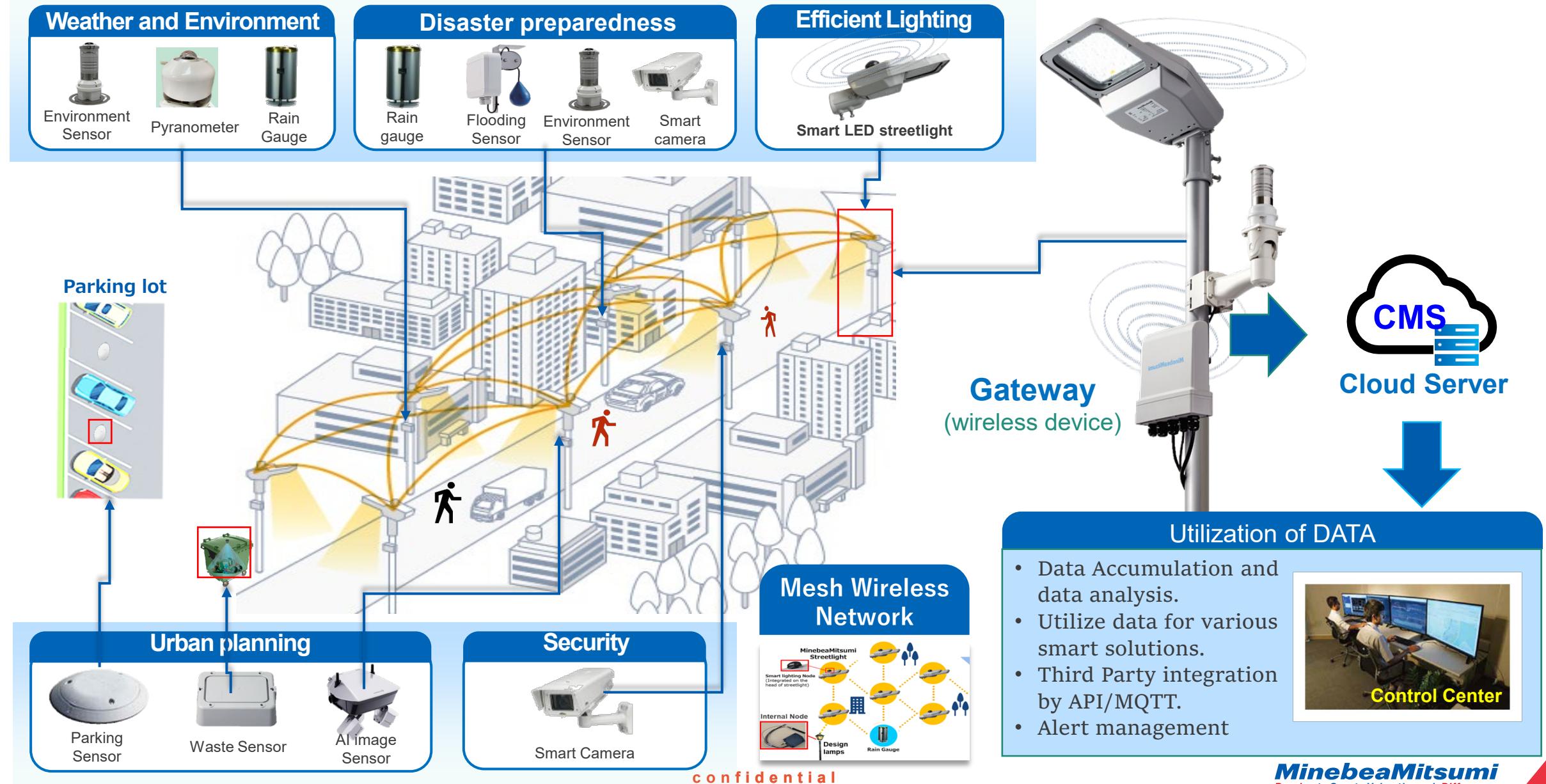
All smart streetlights and IoT devices can be located and controlled from the same CMS.

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Overview of Smart City Solutions

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Use cases of Smart City Solutions

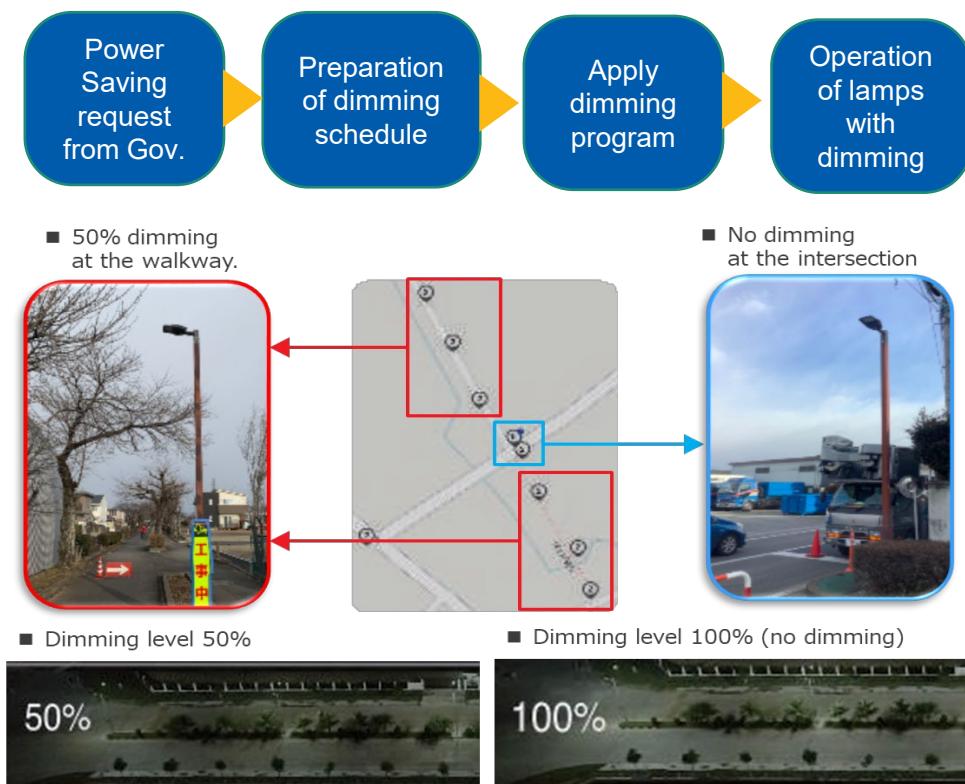
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Smart lighting and IoT sensors in Nasushiobara City

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- IoT network for central management of lamps.
- Quick response to Government request to save electricity

On March 16, 2022, a strong earthquake of M7.4 struck off the coast of Fukushima Prefecture. After that, smart LED streetlights at some roads excepts for those intersections were operated at 50% dimming level and this kind of operation reduced about 36% of electricity consumption.



Utilize sensor data

- to prevent Heat stroke,
- to predict solar power generation.



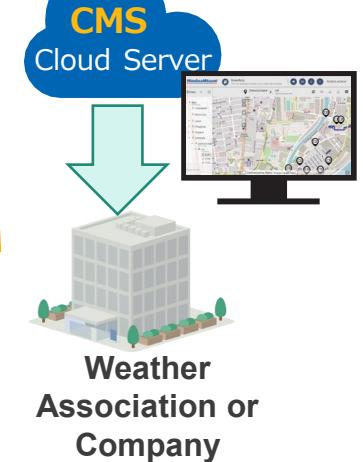
Prevent heat stroke accidents by monitoring weather condition and alert dispatch to residents about the risk.



Predict Solar power generation using solar radiation data.



Energy saving/CO₂ emission reduction by Advance Energy Management



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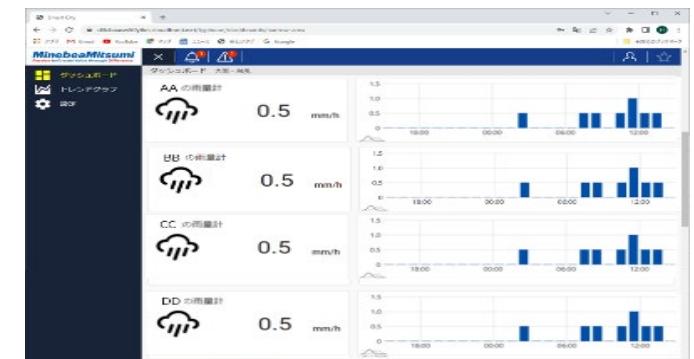
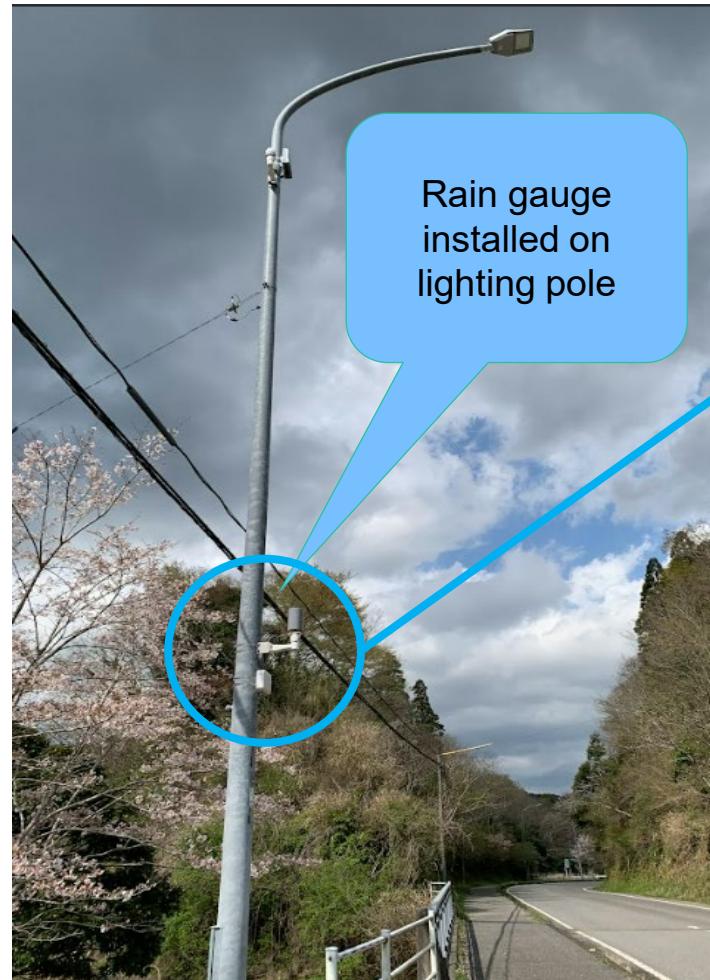
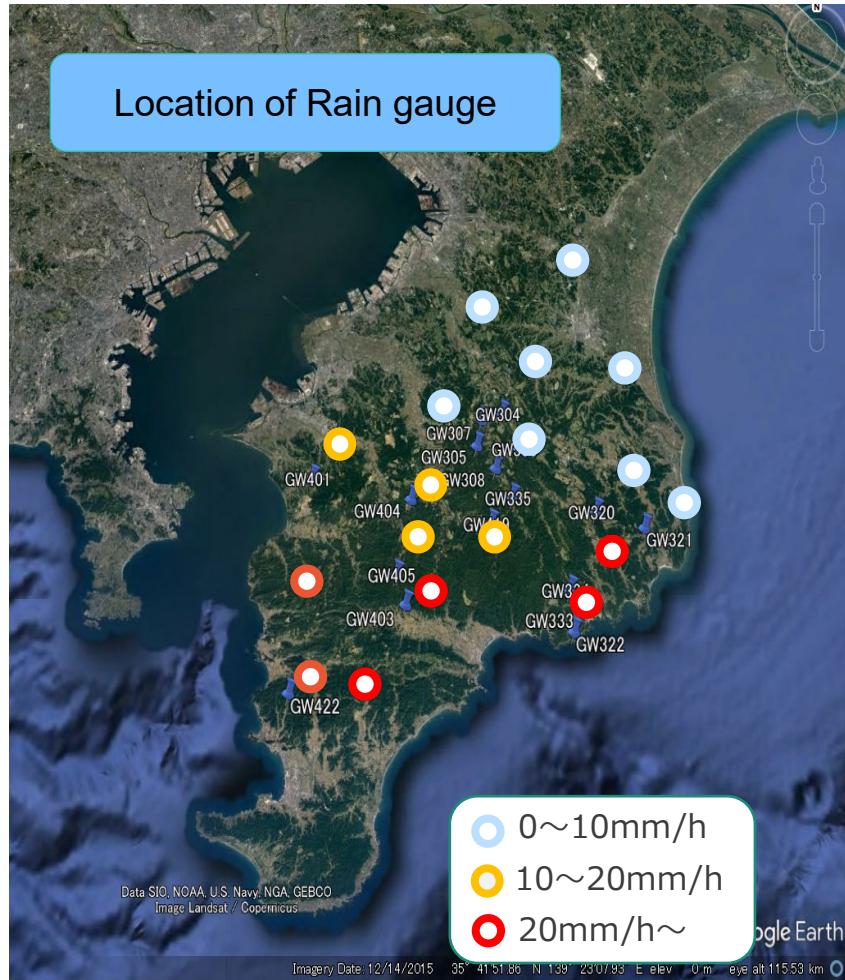
Weather and Environment information solution in Chiba

15

Problem: sudden and heavy rainfall effect in traffic condition at multiple points.

Solution: Monitoring the rain level using Rain Gauge.

And system shall send an alert notification when rainfall exceeds a certain level.



Advanced Monitoring System

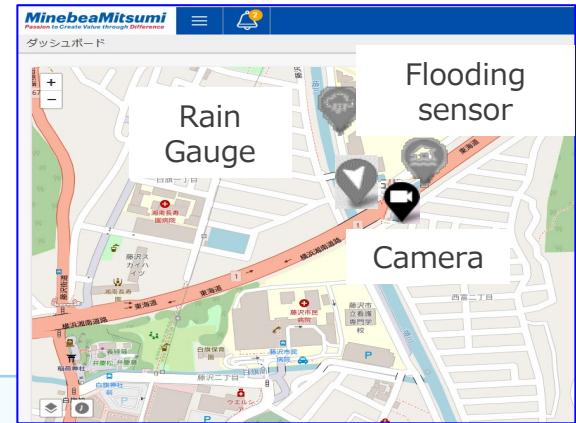
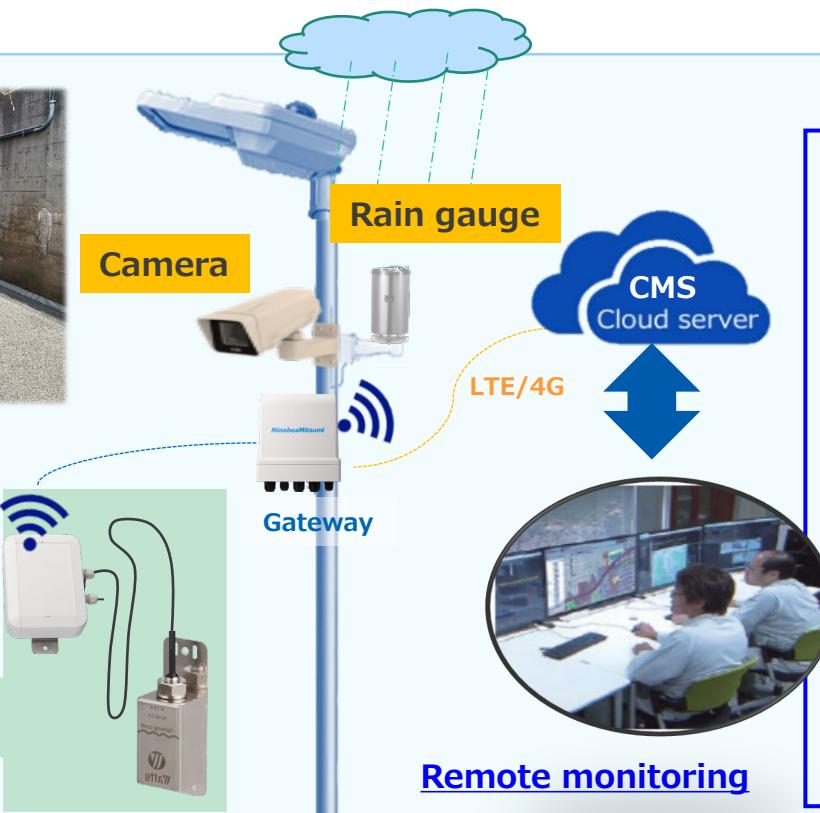
Weather and Environment information solution in Fujisawa

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Problem: Underpass are easy to get flooded during rainfall and it blocks traffic flow.

Solution: Monitoring of rain level and water level using flooding sensor, rain gauge and camera.

By installing Rain gauges, Flooding sensors and camera, the city has good visibility of the condition at the field. In addition, the system will send alert notification to the city to inform the water level at certain threshold points.



Sensor data



Remote monitoring



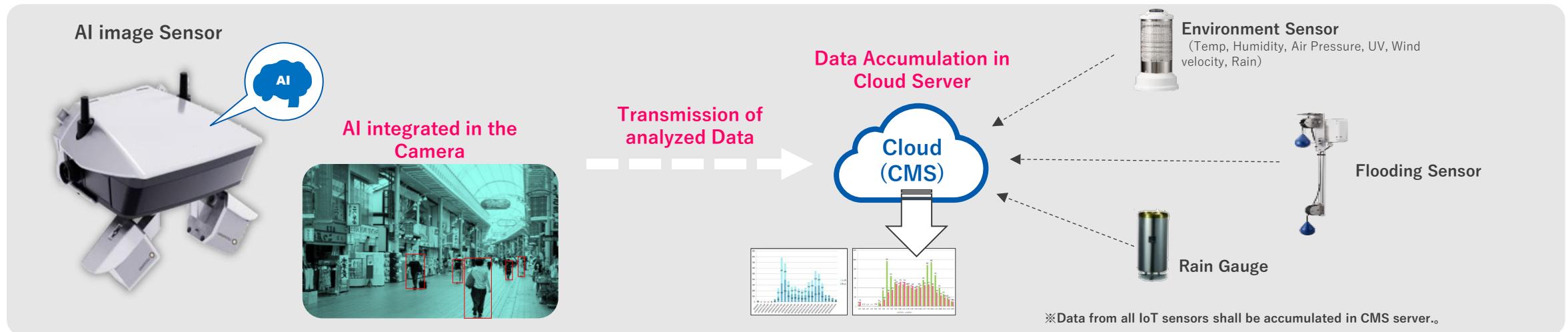
Alert Notifications at different water level based on custom setting

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Urban Planning Solution using AI Image sensor

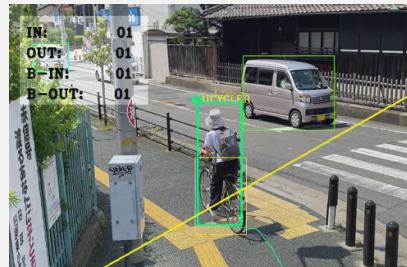
Under
Verification

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Use case

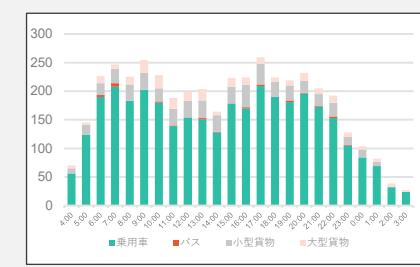
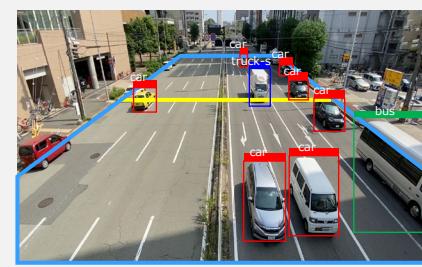
Streets, Shopping area, Parks, Stations



- ✓ Pedestrian and bicycle counting
- ✓ Detecting time spent and number of people
- ✓ Detecting crowds

Use case

Road intersections, streets, Traffic volume survey area etc.



- ✓ Counting vehicles by type and flow direction
- ✓ Counting vehicles by flow direction at intersections

Smart City Promotion in South East Region

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