

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

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Presentation

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MinebeaMitsumi
Passion to Create Value through Difference

What is MinebeaMitsumi ?

Presentation

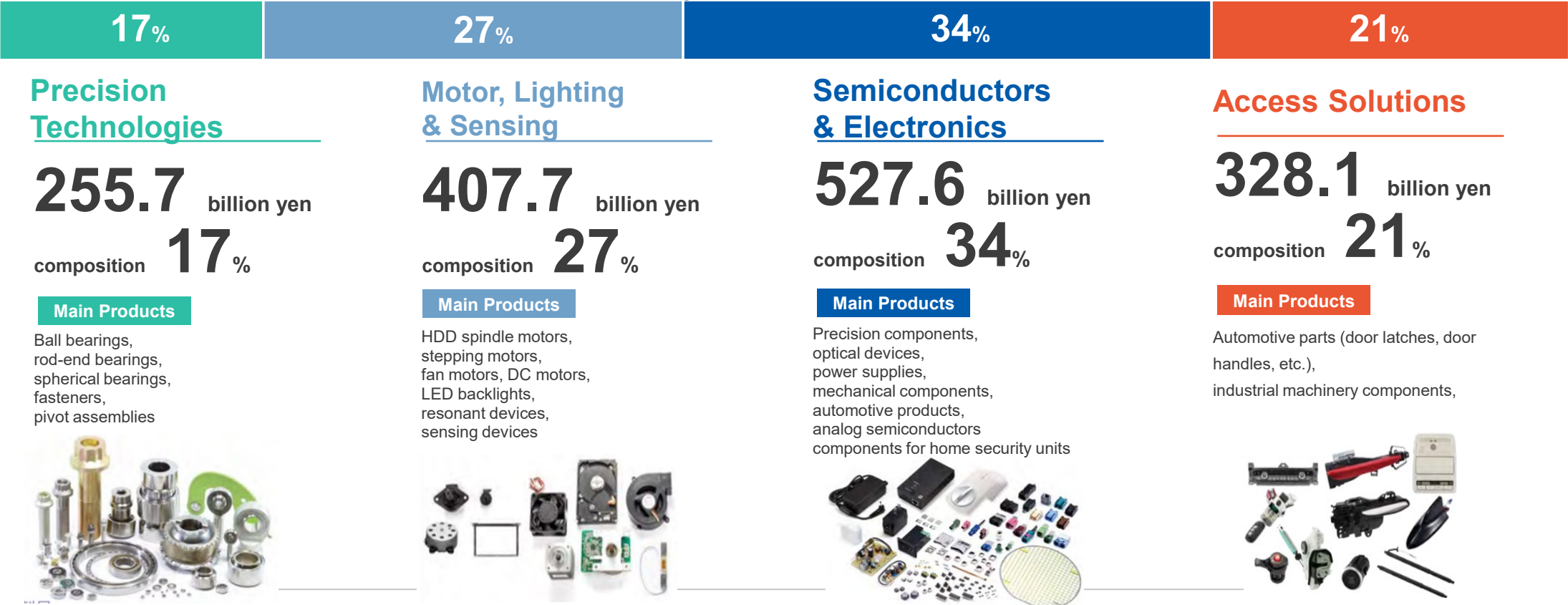
What's MinebeaMitsumi ?

(Fiscal year ended March 2025) 4

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)



*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.

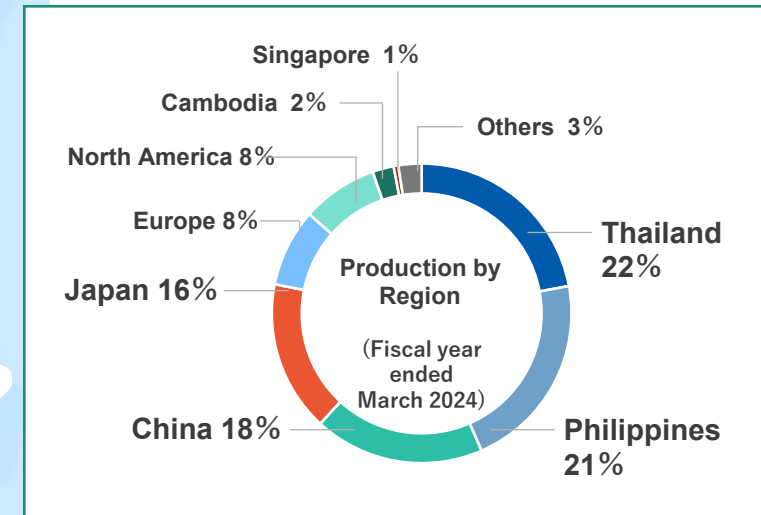
129
Production · R&D
Locations

102
Sales Locations

28
countries



As of May 11, 2023



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A blue diagonal banner on the left side of the slide, featuring a background image of industrial machinery and components.

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Overview of Smart City Solutions

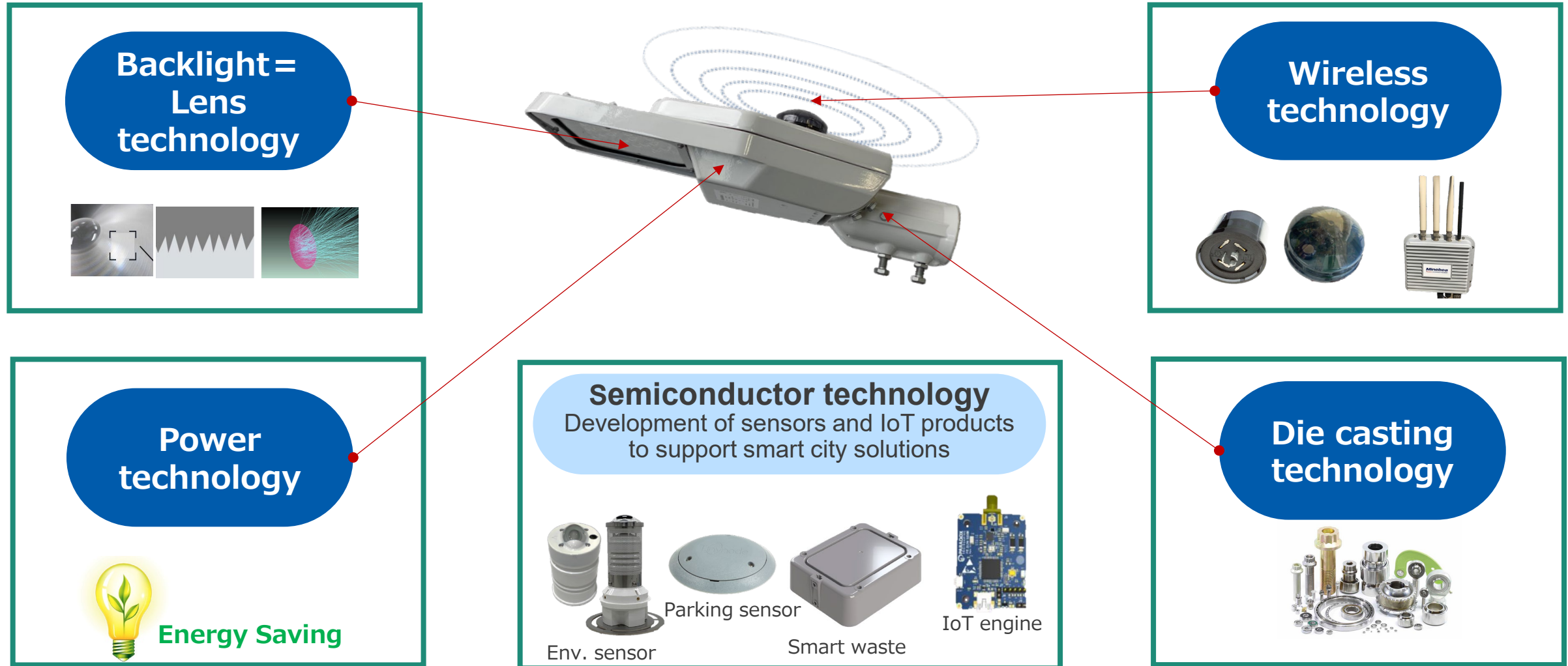
A red diagonal banner at the bottom right corner of the slide.

Presentation

Overview of Smart City Solutions: Smart Lighting as core part

7

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



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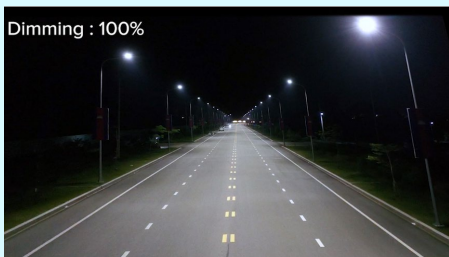
Overview of Smart City Solutions: 5 main features

8



①

Efficient Lighting

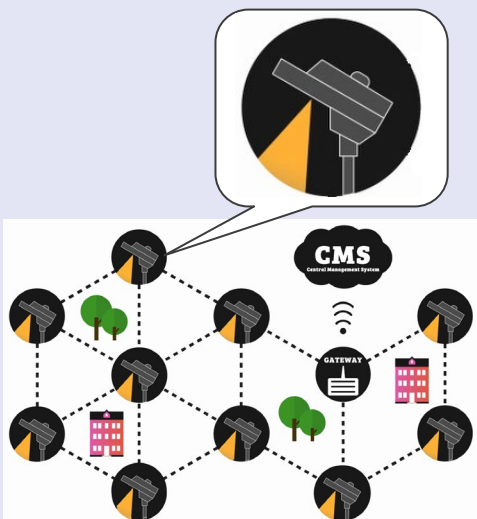


High Efficiency Lighting and Dimming Control



②

Wireless technology

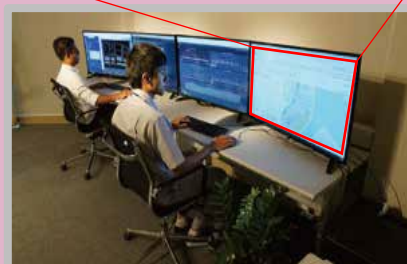
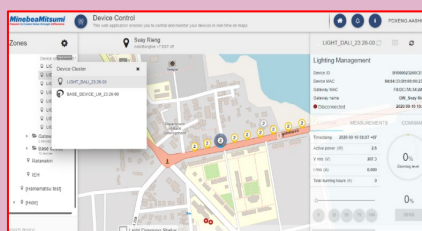


Robust and effective wireless mesh network based on 6LoWPAN



③

Centralized management

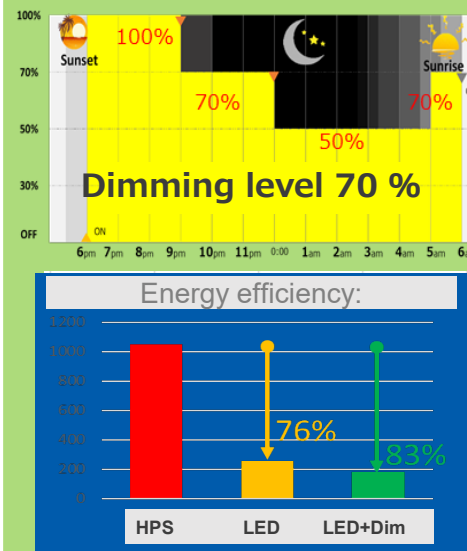


All devices can be centrally managed and controlled from a same CMS.



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

Dimming control : What is dimming?

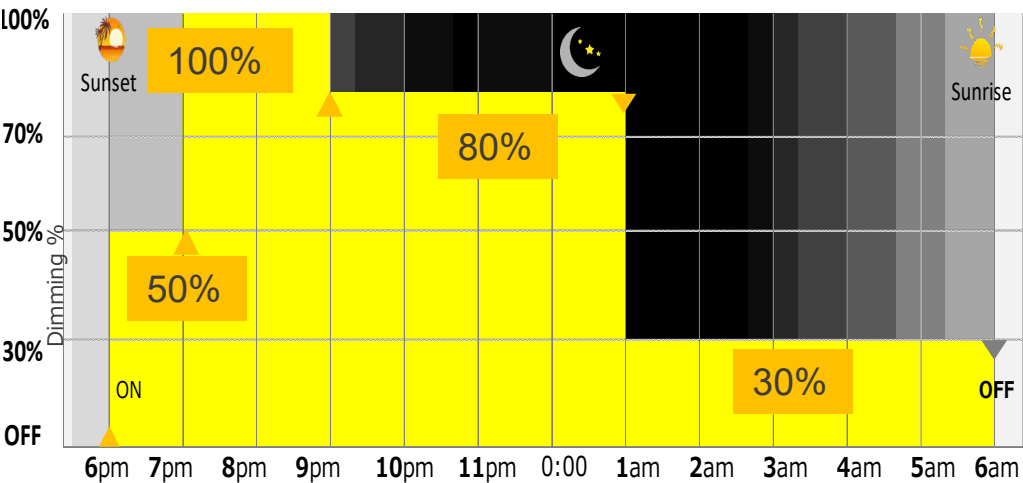
We offer advanced lighting system that significantly helps in energy savings by applying dimming control of lights to provide optimum brightness on road to match the traffic volumes and people`s activities.



■ Comparison of brightness at various dimming level



■ Example of dimming pattern(Ave.60%)



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

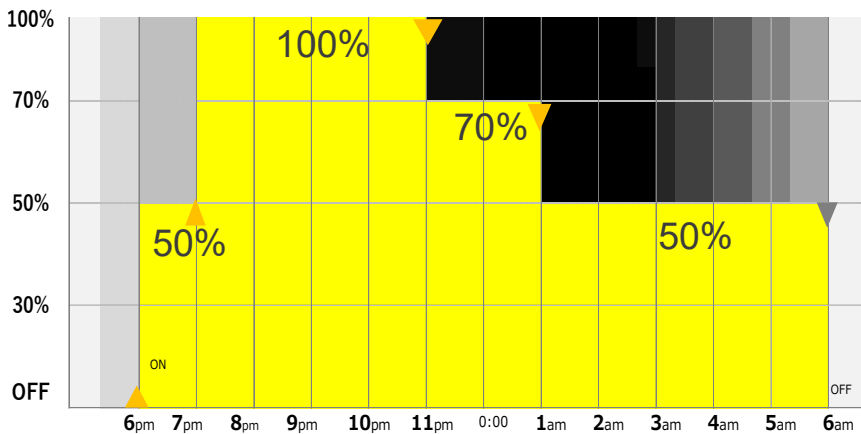
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Our smart LED streetlights can reduce power consumption up to 90% compared to conventional mercury lamps. This is a significant contribution to the reduction of CO₂ emissions.



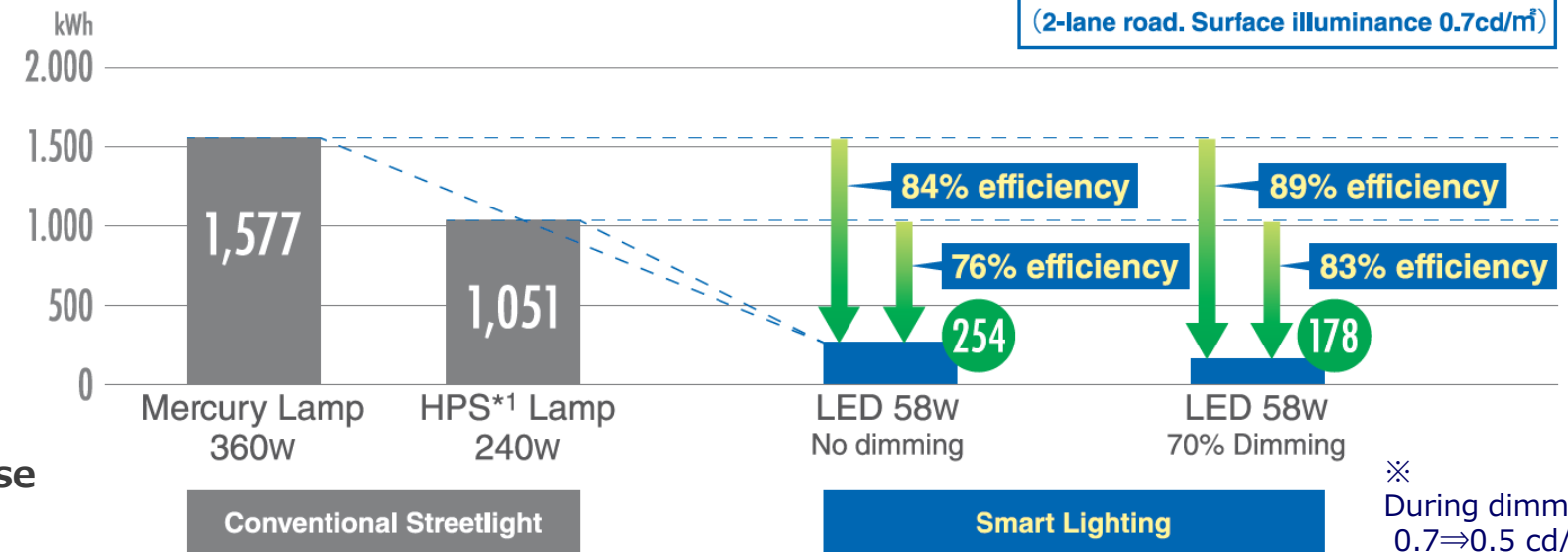
Excellent energy-saving performance and CO₂ emission reduction

■ Dimming pattern (Average 70% dim)



Sunset —————> Sunrise

■ 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

CO₂ emission reduction

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

※Electricity tariff : 19.25 Yen / kWh ※CO₂ emission factor is 0.462 t-CO₂ / kWh

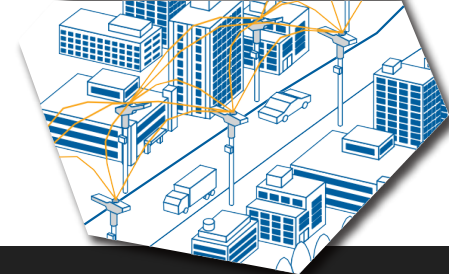
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Overview of Smart City Solutions: Centralized management from CMS

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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

PDENG.ASHOK_BAJRACHARYA

Zones

- 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]

Status

Diamond Island
Asia/Bangkok +7 DST off
CONNECTED

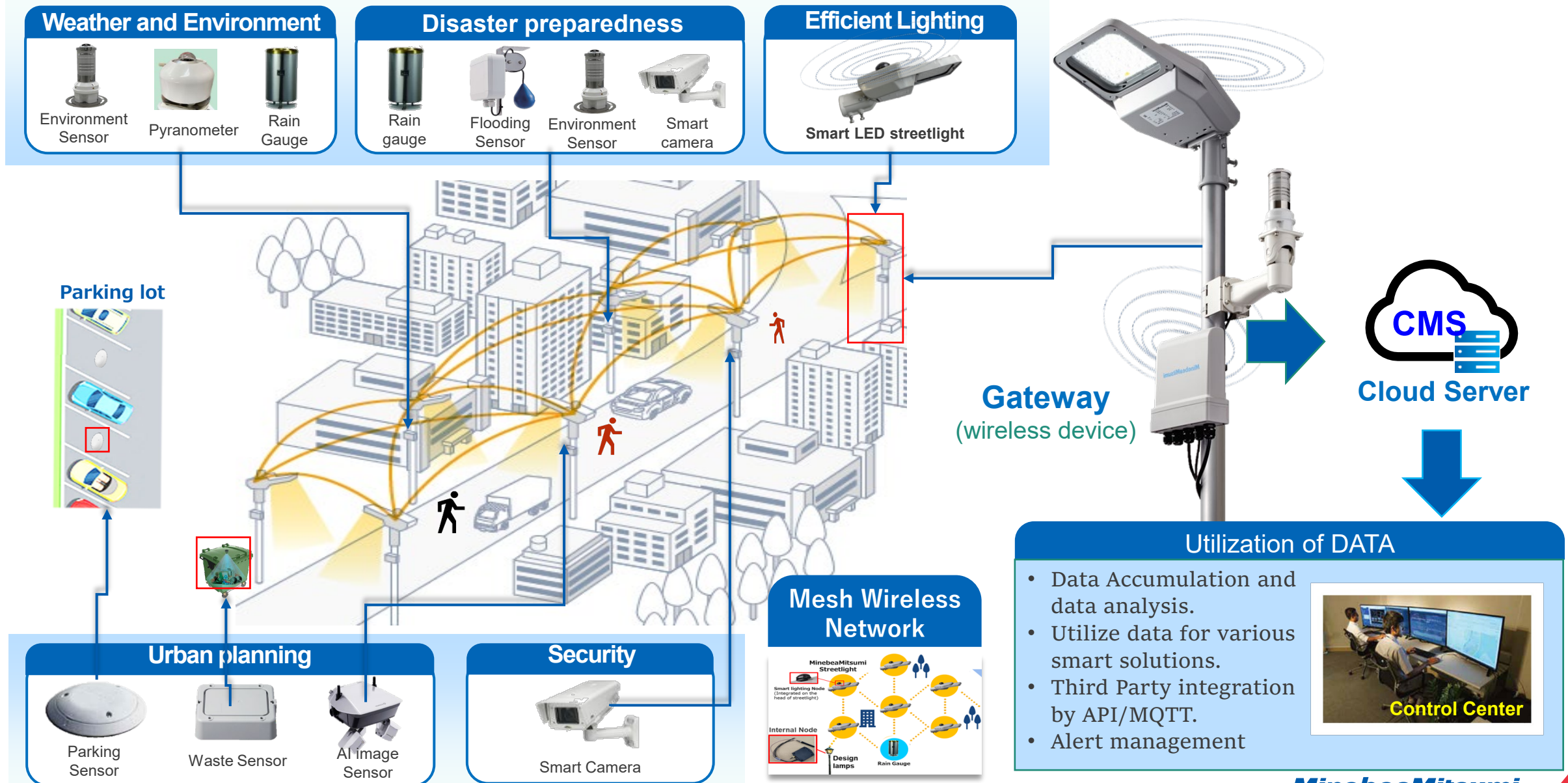
PE_GW_172.17.1.67

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



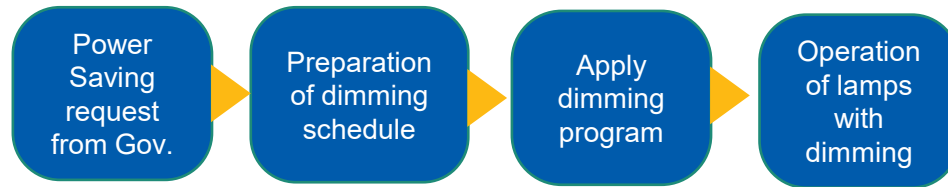
Presentation

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

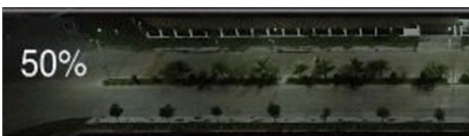
On March 16, 2022, a strong earthquake of M7.4 struck off the coast of Fukushima Prefecture. After that, smart LED streetlights at some roads excepts for those intersections were operated at 50% dimming level and this kind of operation reduced about 36% of electricity consumption.



■ 50% dimming at the walkway.



■ Dimming level 50%



■ No dimming at the intersection



■ Dimming level 100% (no dimming)



Utilize sensor data

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

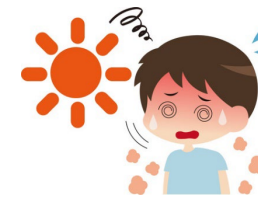


Sensor Devices



Env. Sensor Pyranometer

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

CMS
Cloud Server



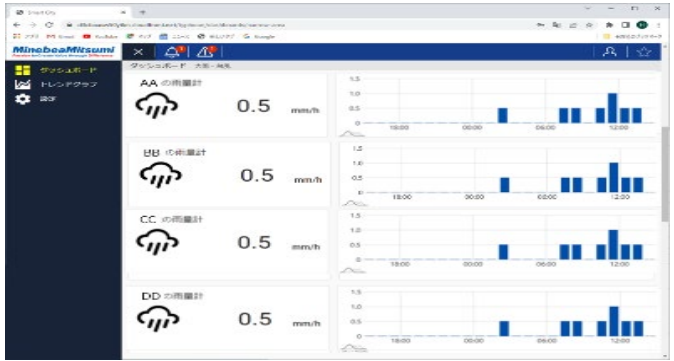
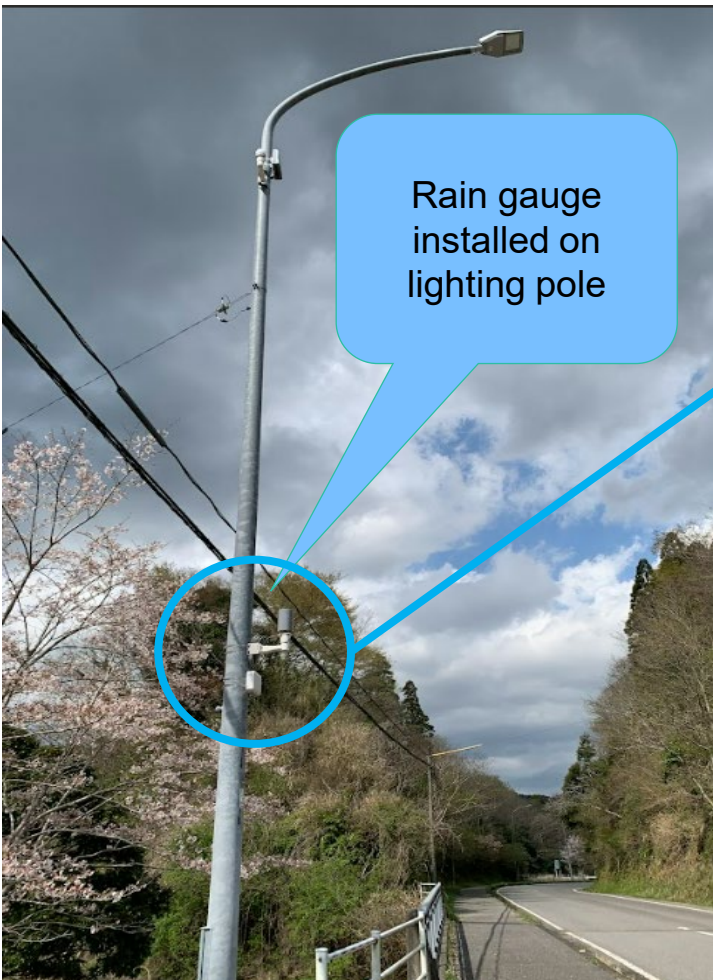
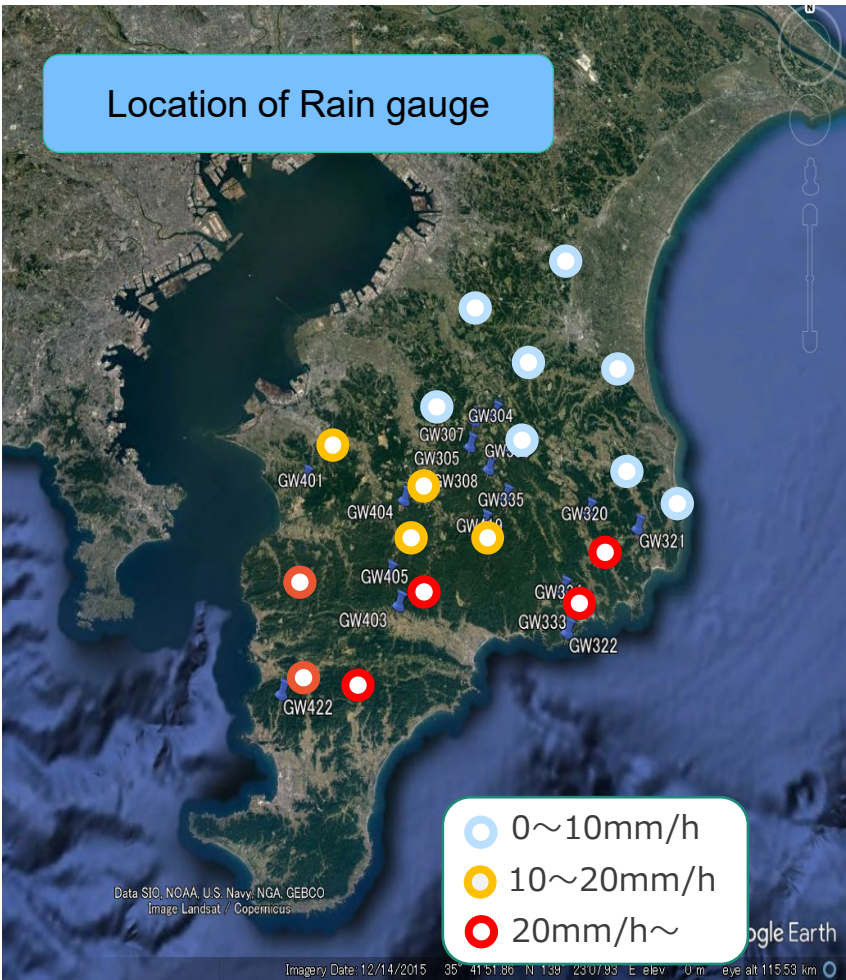
Weather Association or Company

Weather and Environment information solution in Chiba

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.



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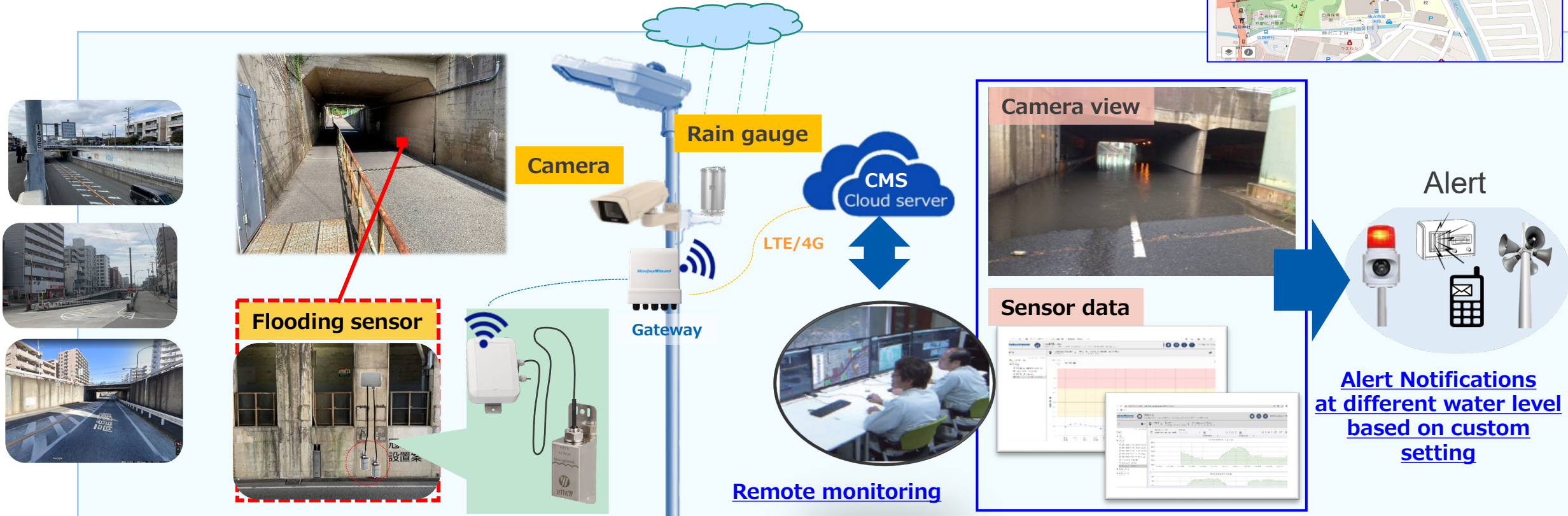
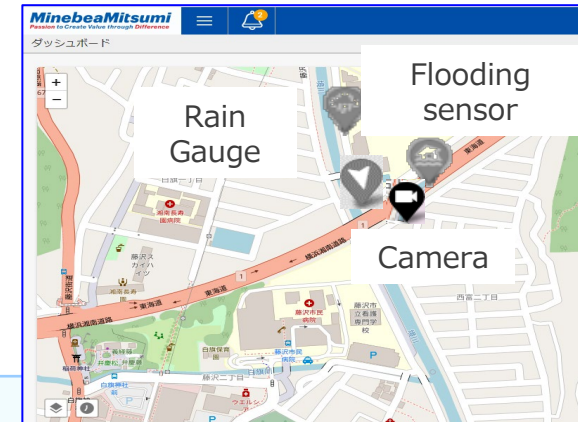
Weather and Environment information solution in Fujisawa

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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.

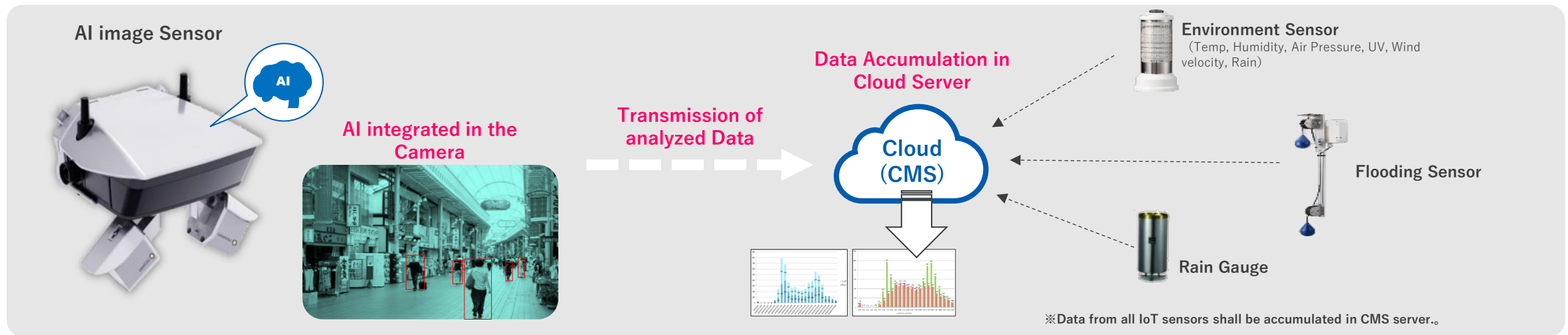


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Urban Planning Solution using AI Image sensor

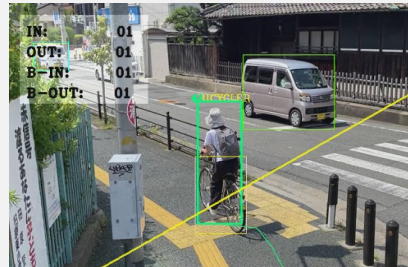
Under
Verification

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Use case

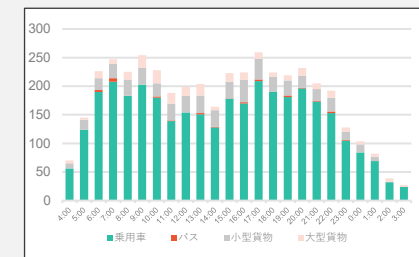
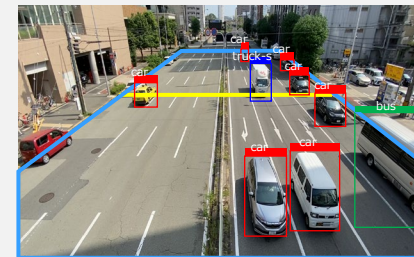
Streets, Shopping area, Parks, Stations



- ✓ 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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