



Solution ideas for
**Security
and Safety**

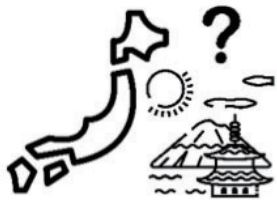


Safety and Security solutions offered by Japan

Let's find Safety & Security solutions which will help your society, business.

Japan, as one of the safest countries in the world.

Why Japan?



Why Japan for physical security systems?

- World 9th ranking country with Global Peace Index 2018 by Institute for economics and peace.
- Japanese Quality and Hospitality guaranteed
- Durable, easy to maintain and control
- Highest cost performance in the world

What is this “Solutions for Safety and Security”?

- Japanese Government and some Japanese big solution vendors get together to show Best Japanese safety solutions for developing countries.
- Check solutions if you would like to introduce in your country, Gov, infrastructures, cities and towns to increase its value.

What is this?



How to use?








How to start a contact with Japanese solution companies?

- Ask Japanese organizations in your country, such as JICA, JETRO and so on.
- JICA and JETRO will ask Japanese companies to start communications.

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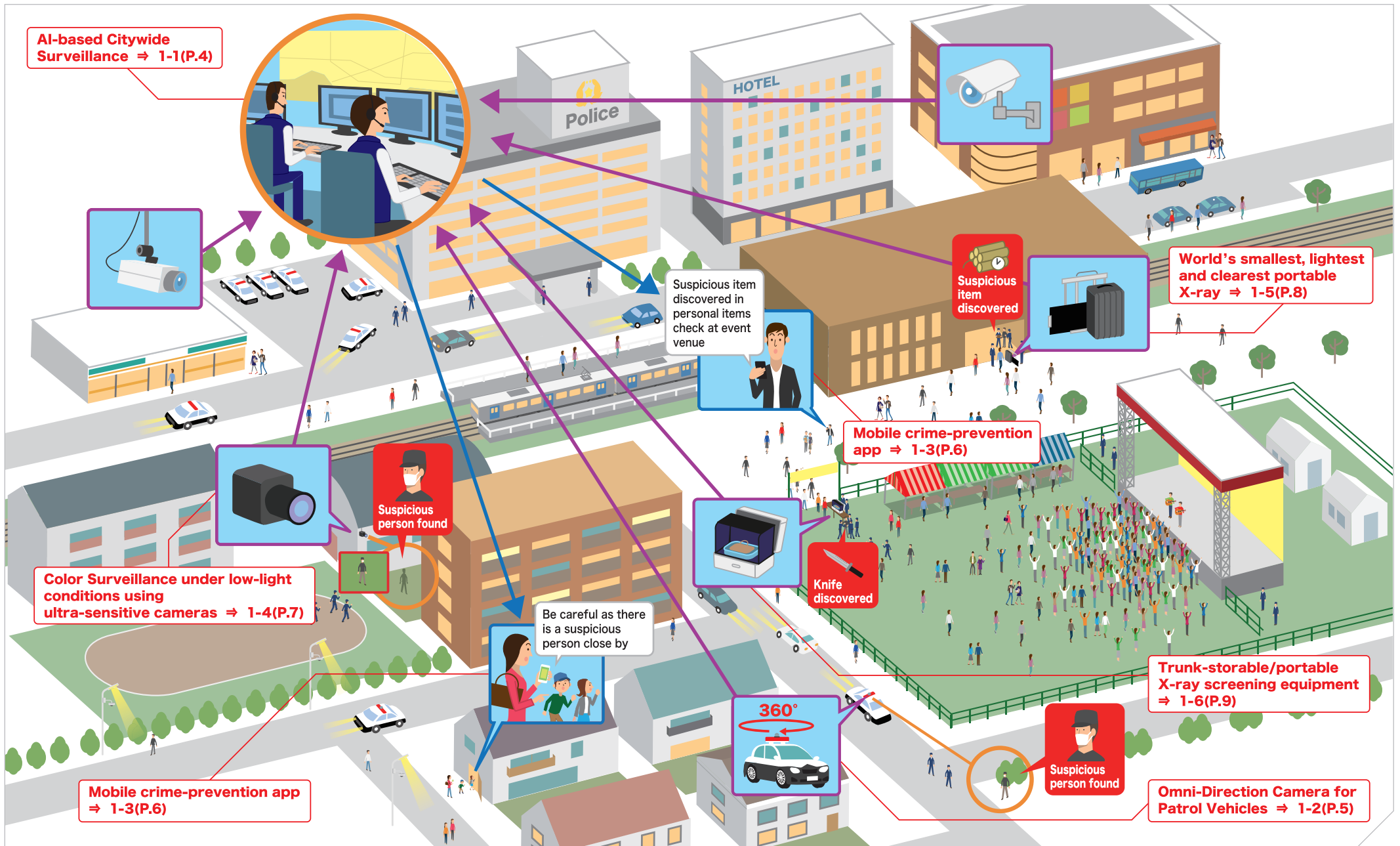
Solution ideas for security and safety

This document consists of the following five categories.
It presents solutions that are able to respond to issues envisaged in each category.

Category	Security Themes
 1 Law Enforcement	<ul style="list-style-type: none">a. Safety surveillanceb. Surveillance of specific/designated locationsc. Checking of belongings
 2 Transport Hubs (airports, ports, land borders, railways, etc.)	<ul style="list-style-type: none">a. Enhancement and greater efficiency of safety managementb. Terrorism preventionc. Crime prevention
 3 Large-scale facilities (energy plants, etc.)	<ul style="list-style-type: none">a. Disaster preparednessb. Terrorism prevention
 4 Events (international conventions, exhibitions, sports tournaments, etc.)	<ul style="list-style-type: none">a. Venue security (detecting suspicious persons, searching for lost children, etc.)b. Security outside event venues
 5 Public areas (residential districts & commercial facilities, etc.)	<ul style="list-style-type: none">a. Detection of abnormal activity and rapid response in residential districtsb. Detection of abnormal activity and rapid response at commercial facilitiesc. Visitor management/cash management



category 1 Law Enforcement





1 - 1

Law Enforcement

Theme a. Safety Surveillance

Solution

AI-based Citywide Surveillance

Potential applications

Police and security services, airports, train stations and other urban infrastructure and large facilities

Need for this solution

With the increasing sophistication and complexity of urban functions, improvements are needed to the security level of cities and the operational efficiency of the police and security services

What this solution helps to achieve

- Able to enhance security through detection and automatic warning of intrusions into restricted areas
- Improve efficiency of surveillance operations through detection, searching, and tracking of specific persons and vehicles
- Visualization of entire facility

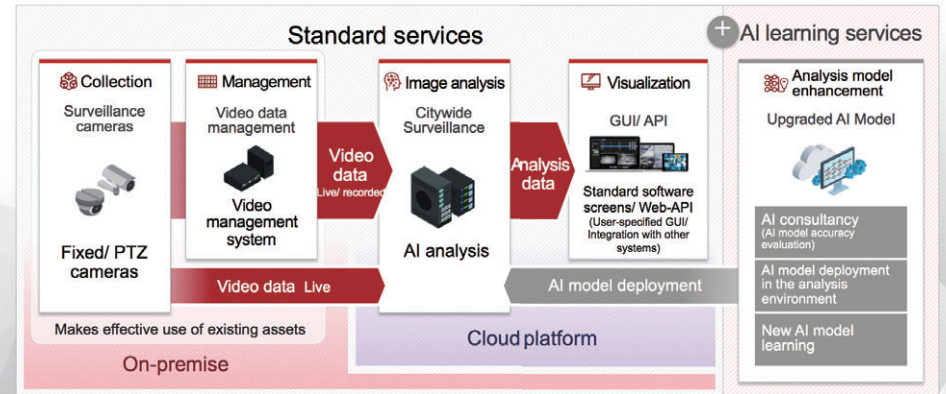
Features

- High-precision, diverse video analysis using advanced AI technology
- Bulk, high-speed video analysis using super-computer technology
- Customizable with construction of new AI recognition models, etc. in response to customer's environment and particular requirements, through the use of AI

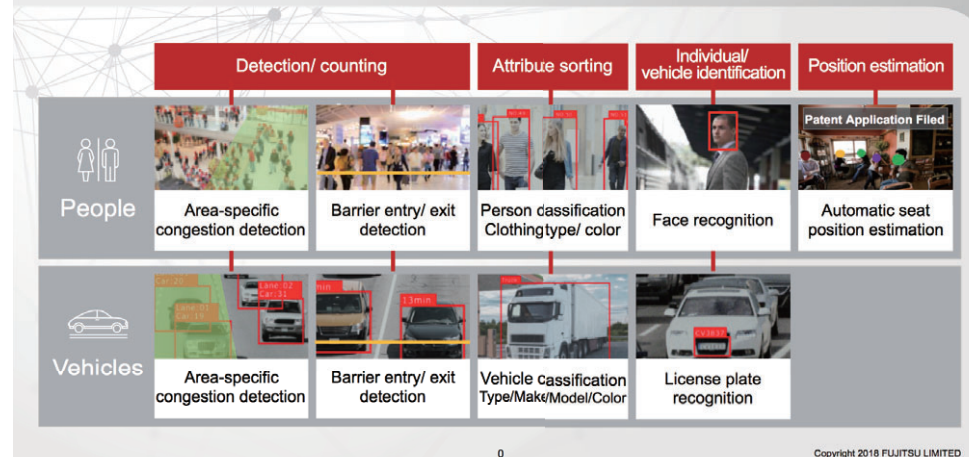
Where it is being used

In use in Japan and overseas, but details may not be disclosed

System Overview



AI Image Analysis Functions





1 - 2 Law Enforcement

Theme a. Safety Surveillance

Solution

Omni-Directional Camera for Patrol Vehicles (reference product)

Potential applications

Police, local government, security companies, road companies

Need for this solution

Assist with communication during on-site searches and with searches by streaming video filmed by patrol cars in the field to headquarters in real time

What this solution helps to achieve

- Clear, 360° video from the field can be streamed to headquarters in real time

Features

- Filming and streaming of video data
- Video can be controlled freely in all directions (360°) from the command center
- Clear video can be filmed in crime hotspots even at night

Where it is being used

This solution is in use, but details cannot be disclosed

Omni-Directional Camera for Optimizing Patrol Video Data for Investigation

"Patrolling is the most important task of policing"--- spending huge amount of time, resources for that--- Why not taking video data from vehicle??

360 Degree Camera

Video Data for---

- 1 Stock Evidence
- 2 Identify Hotspot

Clear Video Image for---

- 3 Realtime Communication
- 4 Grasp Situation of Patrol Area



1 - 3

Law Enforcement

Theme a. Safety Surveillance

Solution

Mobile crime-prevention app (reference product)

Potential applications

Police, local government, security companies, schools

Need for this solution

With the popularization of smartphones and other mobile devices, everyone, from children to the elderly, is able to obtain crime-prevention information in real time and protect themselves, so applications and services for smart phones are needed.

What this solution helps to achieve

- Able to obtain crime-prevention information through notifications of police information in specified areas and dangerous areas
- Users themselves can take emergency action if they encounter a crime or other incident

Features

- Simple interface can be set up to suit user's age
- Push-based real-time crime-prevention notifications
- Crime prevention functions such as personal alarm and route guidance to nearest police station

Where it is being used

Japanese police

Case Study

Crime Prevention Application: MIMAMOCCHI



Crime prevention app from Fukuoka Prefectural Police

- Targeted mainly at children and young females
- Launched in January 2017
- 44,000 downloads since launch



Background to app

- Fukuoka Prefecture has Japan's second highest rate of sexual violence per 100,000 people
- 80% of victims of sexual violence are females aged 10 to 20 years old

Features



Easily adopt to protect yourself!



1 - 4

Law Enforcement

Theme b. Surveillance of specific/designated locations

Solution

Color surveillance under low- light conditions using ultra-sensitive cameras

Potential applications

Cities, airports, ports, power stations, and other specific locations that require wide-angle and telephoto images, limited-time events, etc.

Need for this solution

Need for clear surveillance under low- light conditions in locations that require wide-angle, telephoto images

What this solution helps to achieve

●Enables filming of clear, color images even in low-light conditions for safety and security

Features

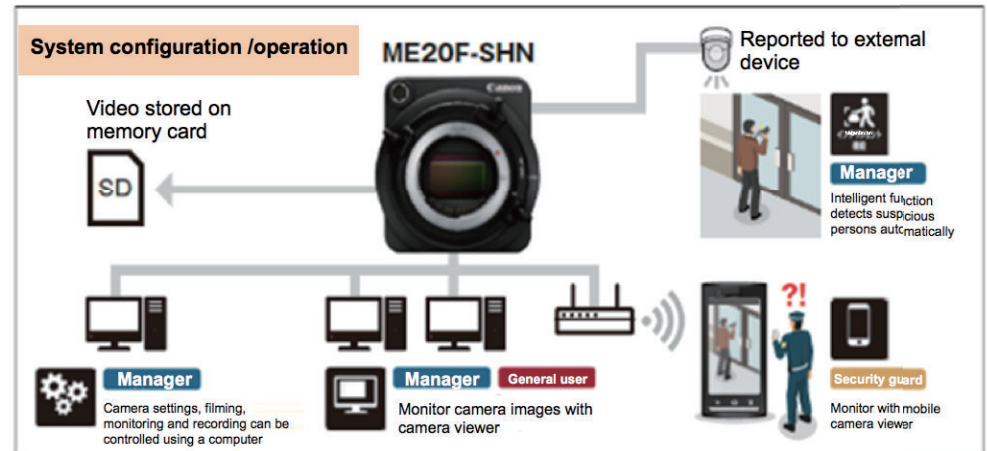
With Network Camera ME20F-SHN

- Ultra-sensitive (ultra-low intensity)/color filming with full-size C-MOS sensor
- Wide-angle and telephoto filming possible with use of variety of EF lenses
- Camera body without lens is small and lightweight * About \$24,000

Where it is being used

This solution is in use in Europe, but customer information cannot be disclosed.

(as of October 2018)





1 - 5

Law Enforcement

Theme c. Checking of belongings

Solution

World's smallest, lightest and clearest portable X-ray

Potential applications

Police, Riot squads, Maritime Patrol Agency, Ministry of Defense

Need for this solution

With suspicious items and the way they are being brought in becoming increasingly diverse, in addition to permanently fixed X-ray, there is also a need for portable X-ray that can quickly inspect suspicious items anywhere, easily and clearly.

What this solution helps to achieve

- Can inspect the bottom of suspicious items where micro switches, etc.
Bottom blind is 1.7 mm (min 1.5 mm)
- Can be placed thin scanner behind suspicious items (thin scanner 21.5 mm)
- Can inspect suspicious items in water

Features

- Entire portable X-ray (X-ray source, scanner, image display) weighs only 10 kg and is easy to carry
- Works on batteries (500 times full recharges) or AC power.
- Can be connected by wired or wireless.
- Inspections can be performed in a short time (image is displayed in 6 seconds).
- Images can be shared between inspection site and command center.
- Delivery Period: 6 months; Cost: 15-17 millions JPY.

Where it is being used

Asian police, maritime police (introduced in 2018)

Equipment configuration



Scanned image is displayed in 6 sec.



Image display monitor



Exposure instructions Switched on from PC

External appearance

Stored in trunk for transport; Approx. 10 kg)



System configuration

Shared with command center



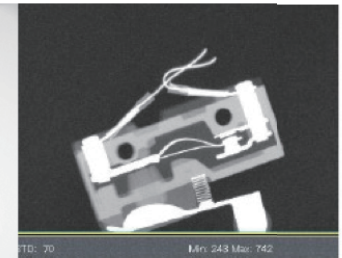
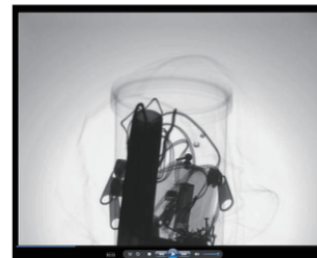
Security network



Shared with on-site security



Sample images





1 - 6

Law Enforcement

Theme c. Checking of belongings

Solution

Trunk-storable/portable X-ray screening equipment

Potential applications

Event security companies, VIP security, Security at key facilities

Need for this solution

At events held during a specific timeframe, such as the Olympics, Summit meetings, and VIP tours, quick and precise portable X-ray inspection without AC power in narrow space as temporally is required.

What this solution helps to achieve

- Can be transported anywhere and X-ray inspection, regardless of a lack of power source.
- Can inspect baggage without taking up space.

Features

- Can be assembled and disassembled in 5 minutes.
- Works on batteries (500 times full recharges) or AC power.
- Can inspect quickly (17 seconds per scan).
- Can be used outdoors (up to 35°C).
- Can used for inspection of suspicious items by disassembled (X-ray source, scanner, image display) .
- Leak-prevention shutter.
- No need for qualified chief X-ray operator.
- Delivery Period: 6 months; Cost: 12 millions JPY

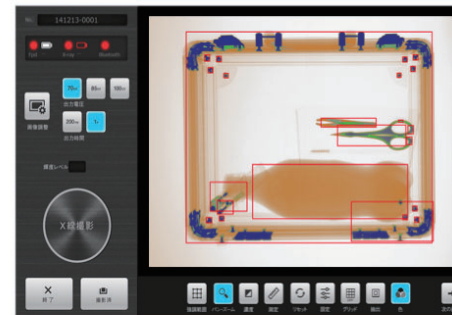
Where it is being used

Asian X-ray inspection company (delivered in 2018)

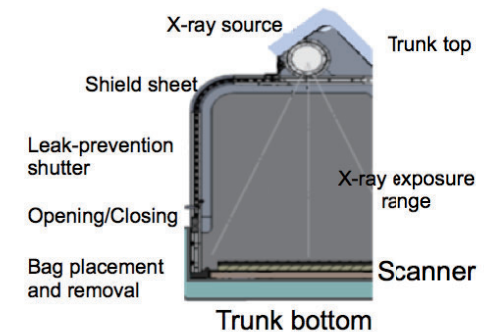
External appearance



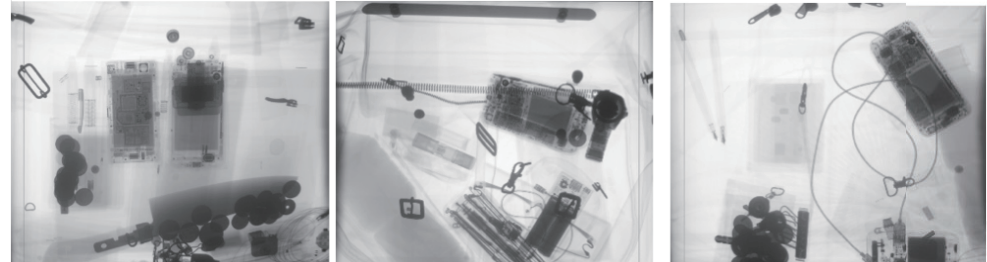
Image display monitor



Equipment configuration



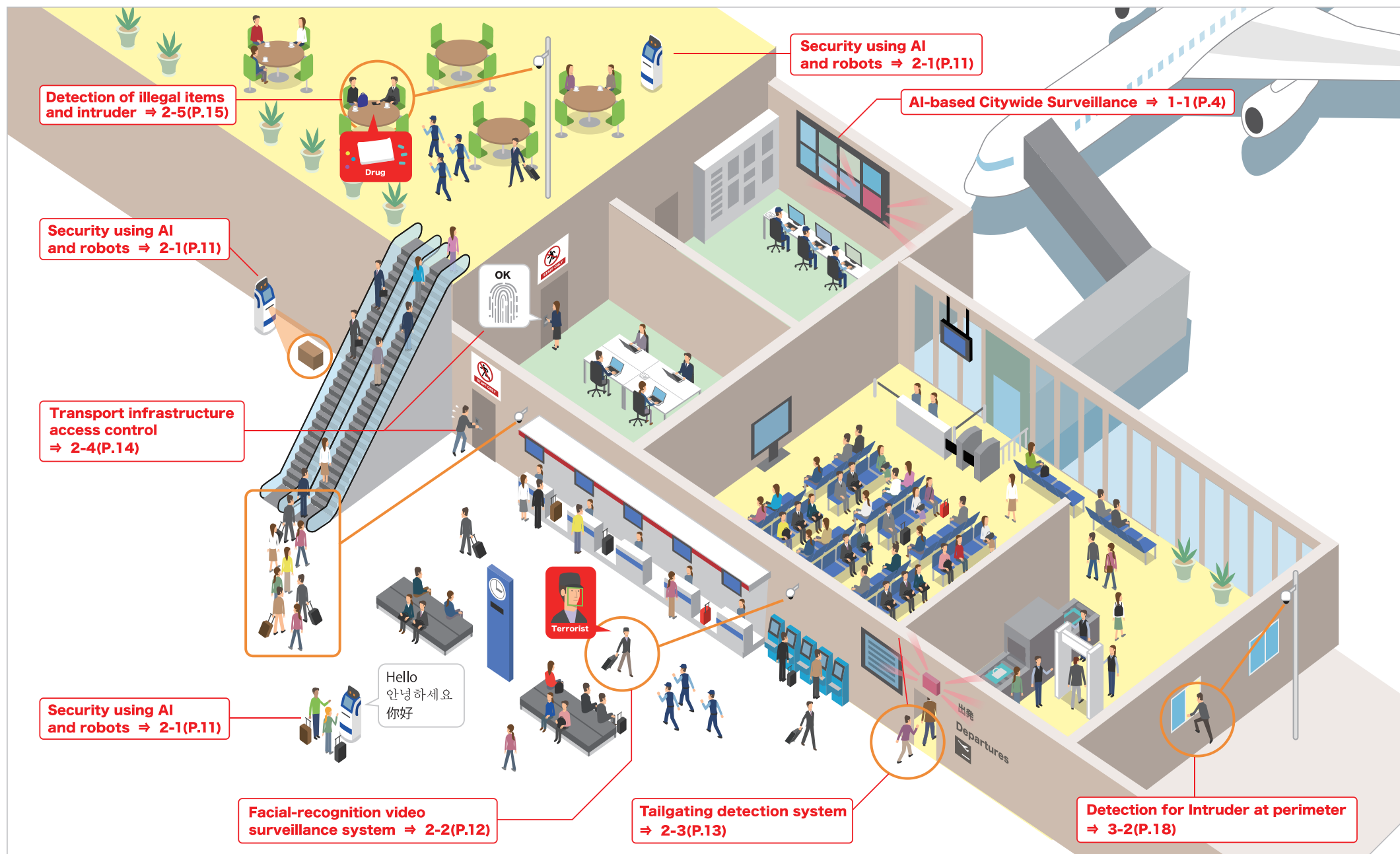
Sample images





category 2

Transport Hubs (airports, ports, land borders, railways, etc.)





2 - 1

Transport Hubs

Theme a. Enhancement and greater efficiency of safety management

Solution

Security using AI and robots

Potential applications

Airports, famous sightseeing spots

Need for this solution

Given that airports and other iconic national facilities are visited by a large number of unspecified people, not only the reinforcement of security, but the promotion of the advanced nature of the facilities and the acceleration of processing are also required at the same time.

What this solution helps to achieve

- With the use of AI, robots, etc., facilities can be monitored for longer periods and more consistently than the visual vigilance.
- Even areas that are off-limits to people due to pandemics, etc. can be continuously monitored by robots
- Introduction of robots is expected to increase the newsworthiness of the facility

Features

- By using AI for X-ray screening, carrying in of hazardous items can be thoroughly eliminated and screening times reduced
- Security robots used for security patrols including restricted areas, equipped with multilingual announcements, extinguishing fires, detection of explosive items or gas.

Where it is being used

These solutions are in use, but details cannot be disclosed.





2 - 2

Transport Hubs

Theme b. Terrorism prevention

Solution

Facial-recognition video surveillance system

Potential applications

Airports, train stations, event venues, government agencies, private-sector companies, etc.

Need for this solution

In the control of entry and exit to airports, etc., strict controls are conducted inside the gate, but controls are often more lax in other areas. From the perspective of preventing damage, security measures both inside and outside the gate are needed.

What this solution helps to achieve

- Prevent terrorism by quickly detecting blacklisted individuals in areas outside the gate
- In the event the blacklisted individual escapes, their route can be tracked

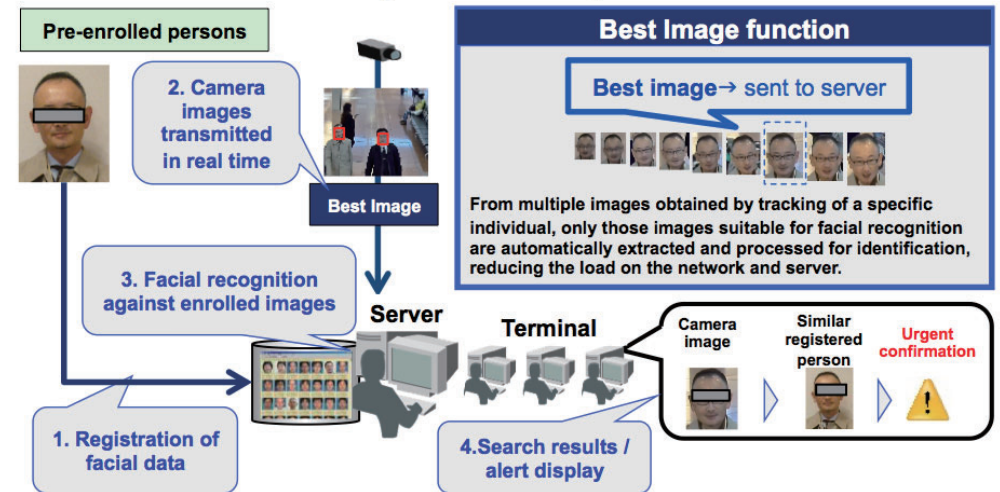
Features

- Detect subject outside gate area and raise alarm
- Automatically track subjects at checkpoints
- Help narrow down escape routes

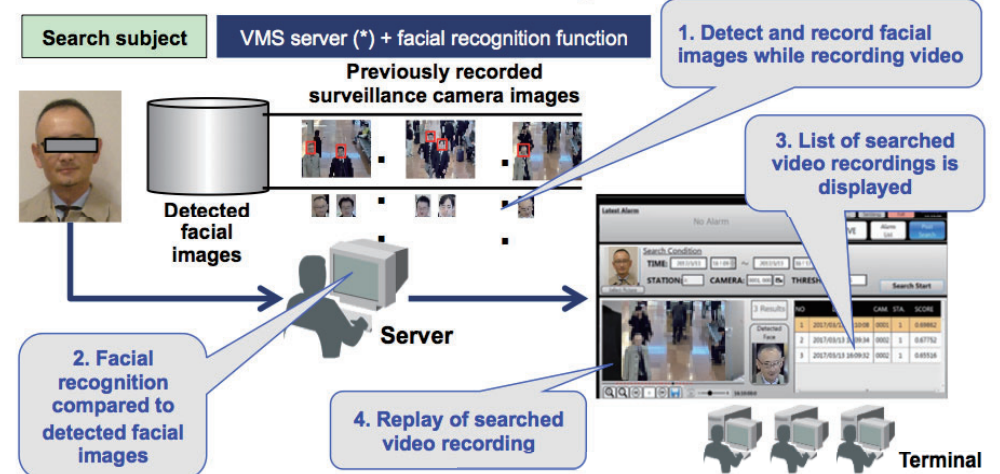
Where it is being used

K Airport in country P (Verification trials in 2016 and 2017)

Real-time detection of pre-enrolled persons by camera images



Search for subject's movement route using automatically recorded images





2 - 3

Transport Hubs

Theme b. Terrorism prevention

Solution

Tailgating detection system

Potential applications

Airports, data centers, printing plants, 24-hour fitness clubs, etc.

Need for this solution

Recognition and control at entry and exit points has become common, but this does not prevent people who have not been recognized gaining unauthorized access by entering with (tailgating) the recognized person, so such systems are not sufficient.

What this solution helps to achieve

- Able to prevent information leaks from data centers and companies' security areas
- Able to control areas of restricted access/pass-back

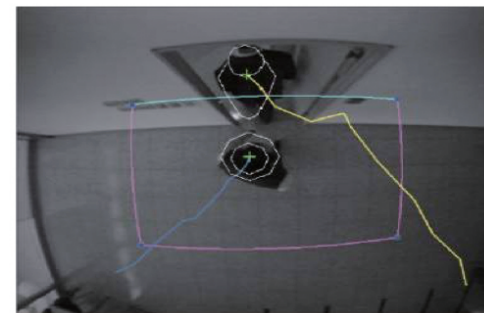
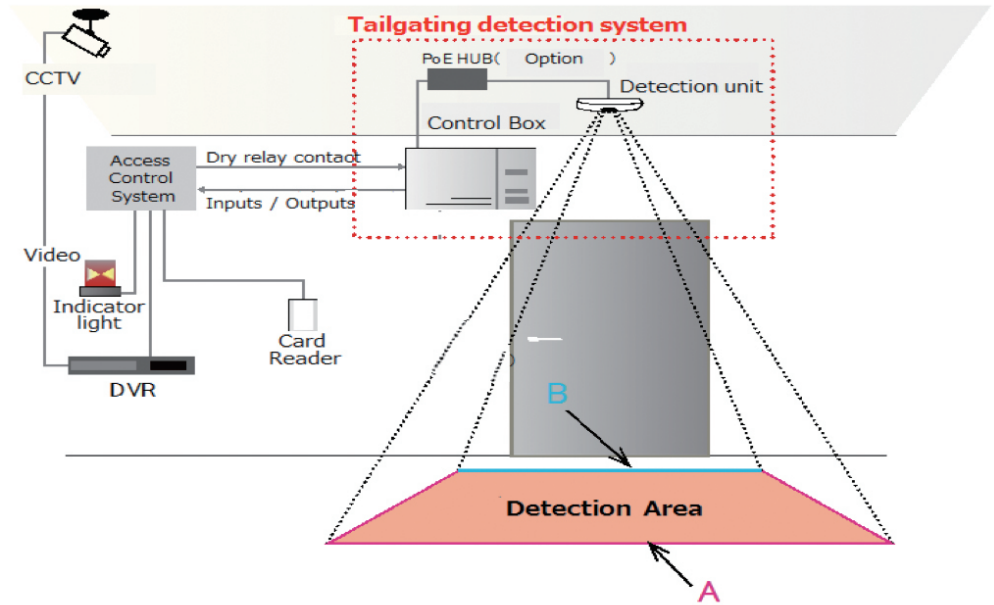
Features

- Detects unrecognized persons and raises alarm
- Door cannot be unlocked when more than one person is present
- Identification of unauthorized personnel linked with camera

Where it is being used

Major data center in USA (since 2016), and other locations

System configuration



Unauthorized access by tailgating is quickly detected using special-purpose image processing technology. Linking system to Access Control System will ensure areas with high security levels.



2 - 4

Transport Hubs

Theme b. Terrorism prevention

Solution

Transport infrastructure access control

Potential applications

Train station depots, airport back office facilities, etc.

Need for this solution

To enable the prevention of crime and information leaks, as well as post-damage tracking, the various areas of a facility need to be divided into levels based on their degree of confidentiality and importance, and access controls suited to each level are needed.

What this solution helps to achieve

- Able to restrict access to and from doors that are not on the usual traffic route and to control the range of passage according to access eligibility
- Able to link to other equipment (security sensors, security cameras, fire detectors, etc.) to control access according to the circumstances

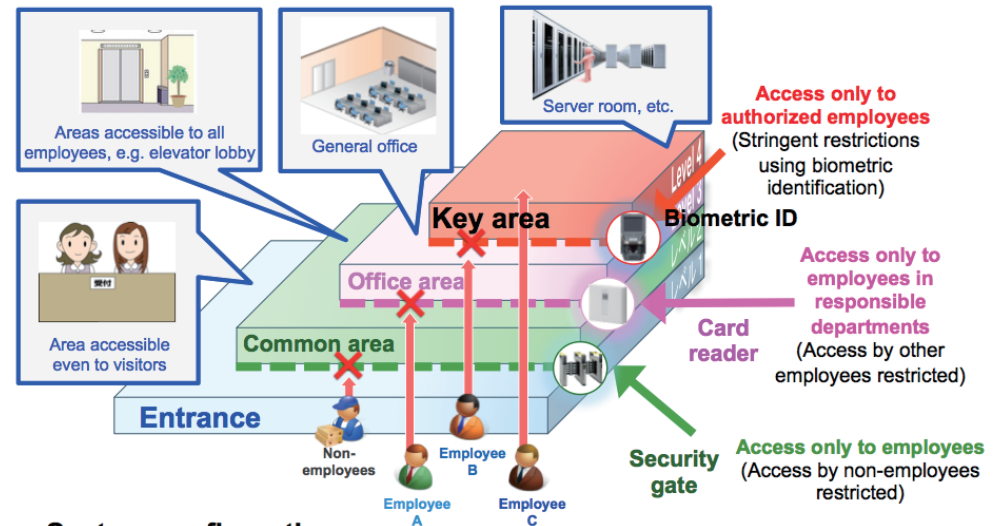
Features

- Use of appropriate identification methods, e.g., non-contact ID cards, fingerprint identification, and biometric identification, to restrict opening and closing of power-locked doors
- Able to detect abnormal situations via central control, surveillance and operation of doors from the server
- Check history is accumulated in a database and can be tracked

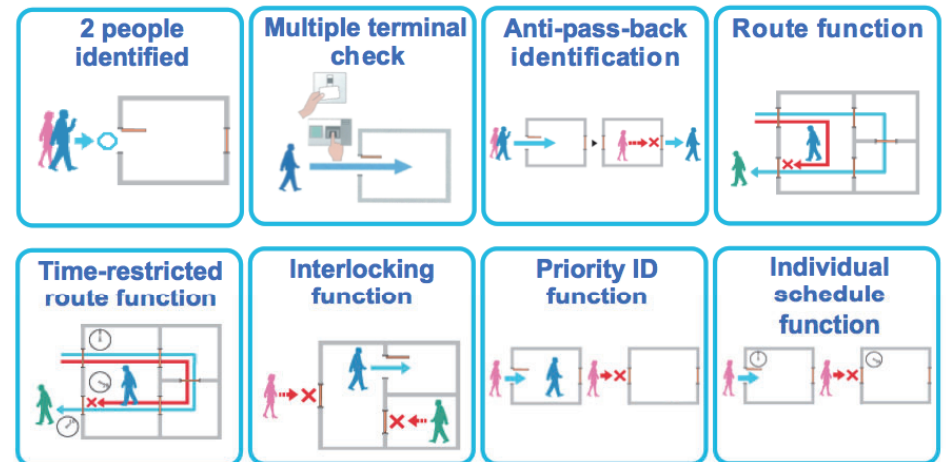
Where it is being used

Railway facility in southeast Asia

System overview



System configuration





2 - 5

Transport Hubs

Theme c. Crime prevention

Solution

Detection of illegal items and intruder

Potential applications

Airports, factories, key facilities, data centers, etc.

Need for this solution

At international airports, the use of fake passports and handovers of drugs, USB memory sticks, etc. have become major problems. A system for detecting such illegal items is needed.

What this solution helps to achieve

- Detect the throwing over of fake passports and drugs to prevent illegal entry and the spread of illegal substances such as drugs

Features

- Detects even relatively small items
- Able to monitor across wide areas, which can be set by computer
- Can be linked to cameras to confirm unauthorized actions

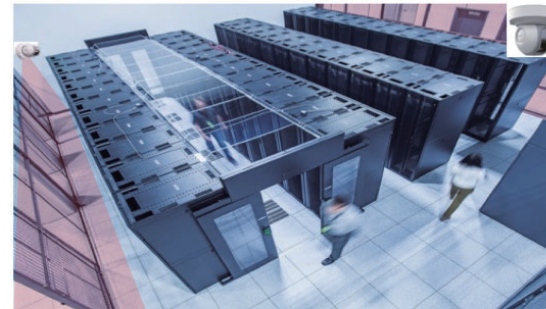
Where it is being used

International airport in Europe (2017)

Application examples



Detects illegal handovers of prohibited items, etc. in international airports using laser sensors and swiftly notifies security personnel



Quickly detects intruder infiltrating the data center, obtaining data illegally using USB memory stick, etc. and throwing it outside, and sounds alarm

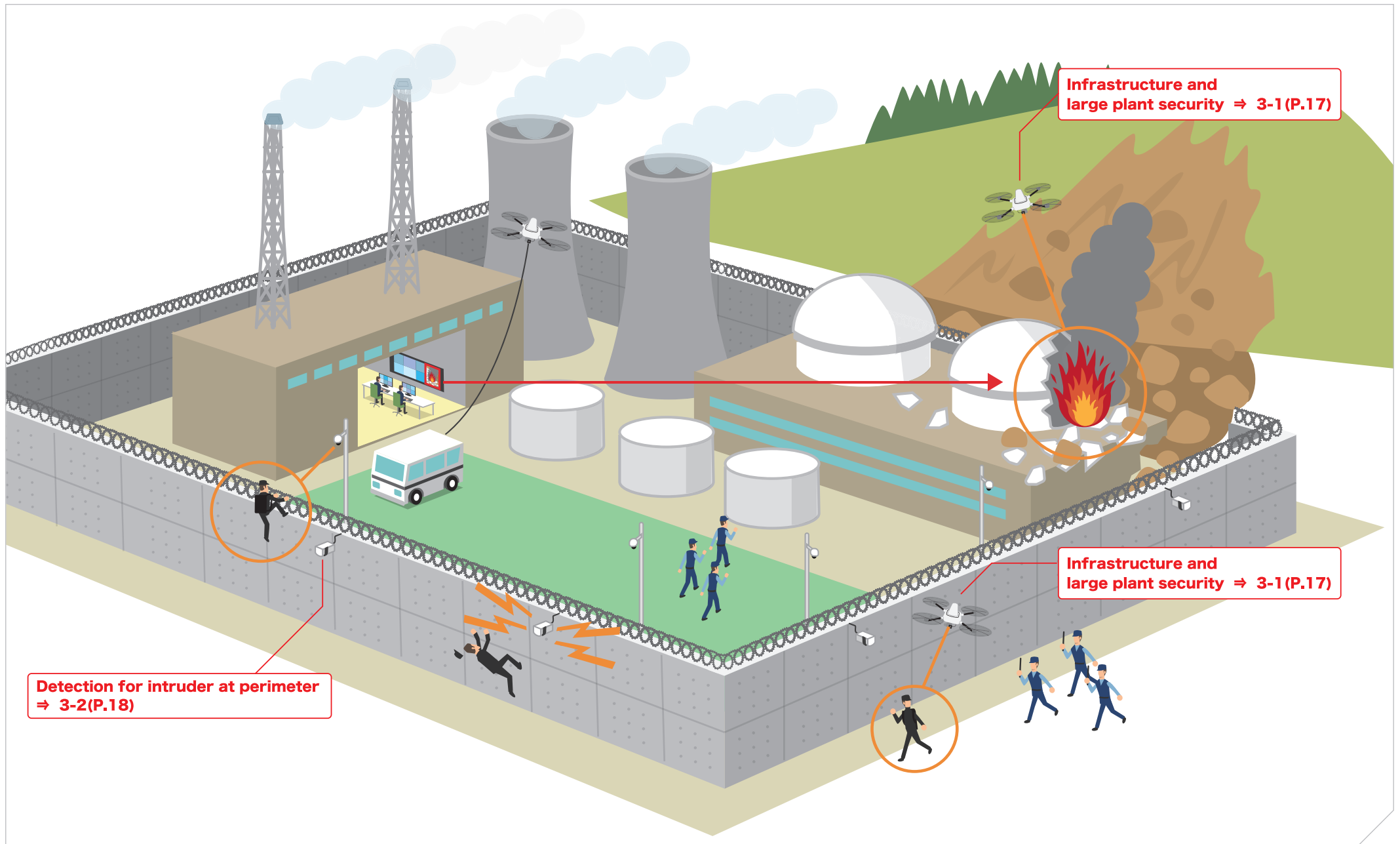


Uses laser sensors to detect intruders infiltrating data center, etc. from the ceiling and swiftly notifies security personnel of illegal access



category 3

Large-scale facilities (energy plants, etc.)





3 - 1

Large-scale facilities

Theme a. Disaster preparedness

Solution

Infrastructure and large plant security

Potential applications

Energy infrastructure, large-scale plants

Need for this solution

Given the enormous impact these facilities can affect people's life in the event of a disaster or major incident, quick confirmation of status is required for early recovery. In large-scale facilities such as energy infrastructures, there are many areas that are difficult to visually confirm, so status check by utilizing drone is required.

What this solution helps to achieve

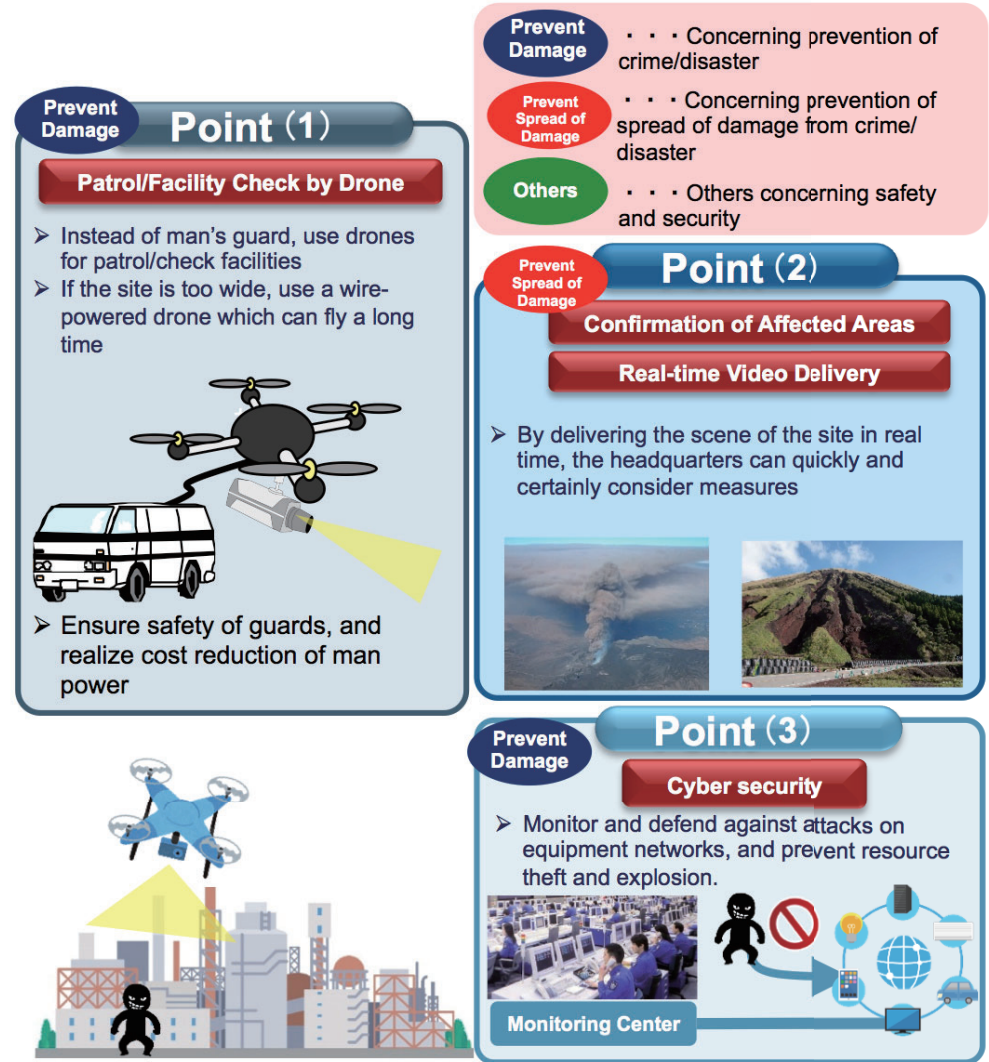
- Patrols and facility inspections carried out by security guards can be replaced with drones.
- Monitor and defend equipment networks against attacks on. Prevent resource theft and explosion.

Features

- Able to (1) ensure safety of security guards, (2) reduce costs through reduction in security guard numbers, (3) conduct early confirmation of site status
- At times of disaster, in particular, it can take a long time for visually to confirm the state of the site, but the use of drones can contribute to the prevention of secondary damage and quick counter-measures.

Where it is being used

These solutions are in use, but details cannot be disclosed.





3 - 2

Large-scale facilities

Theme b. Terrorism prevention

Solution

Detection for intruder at perimeter

Potential applications

Nuclear power stations, wind power stations, mega solar farms, prisons, airports, etc.

Need for this solution

At large key facilities, fences and other physical barriers are insufficient to prevent intruders infiltrating the facility from outside. A system is needed to automatically detect and identify and, where necessary, repel intruders.

What this solution helps to achieve

- Detects intruders attempting to infiltrate the facility by climbing the fence, etc.
- Links with cameras to identify the intruder
- After identifying, warns off intruder using voice messages, etc.

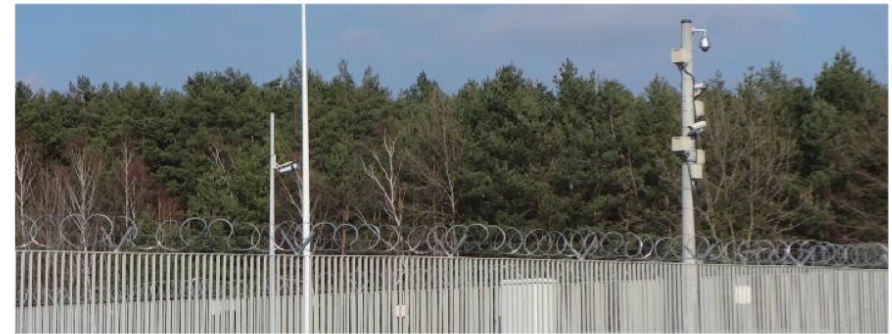
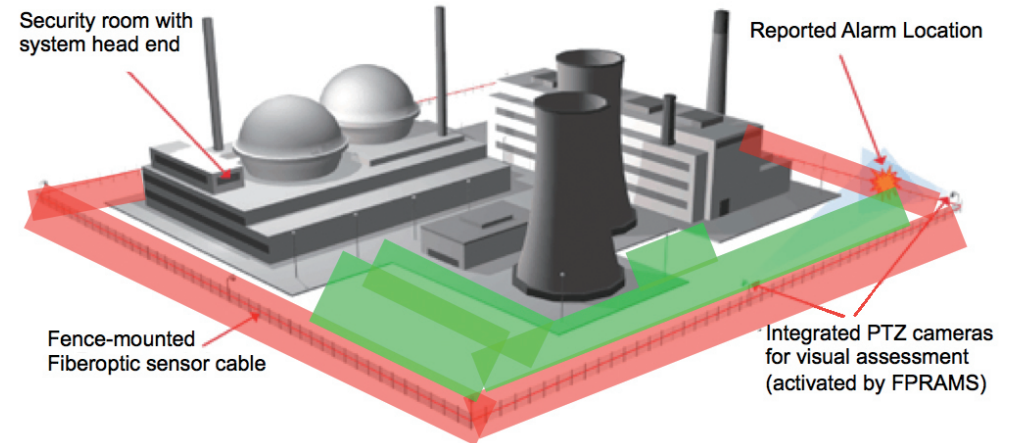
Features

- Able to monitor wide areas, which can be freely set by computer
- Able to cut back on false alarms
- Able to monitor zones and can be linked to cameras

Where it is being used

Atomic power stations in Japan (since 2013)

External perimeter monitoring components

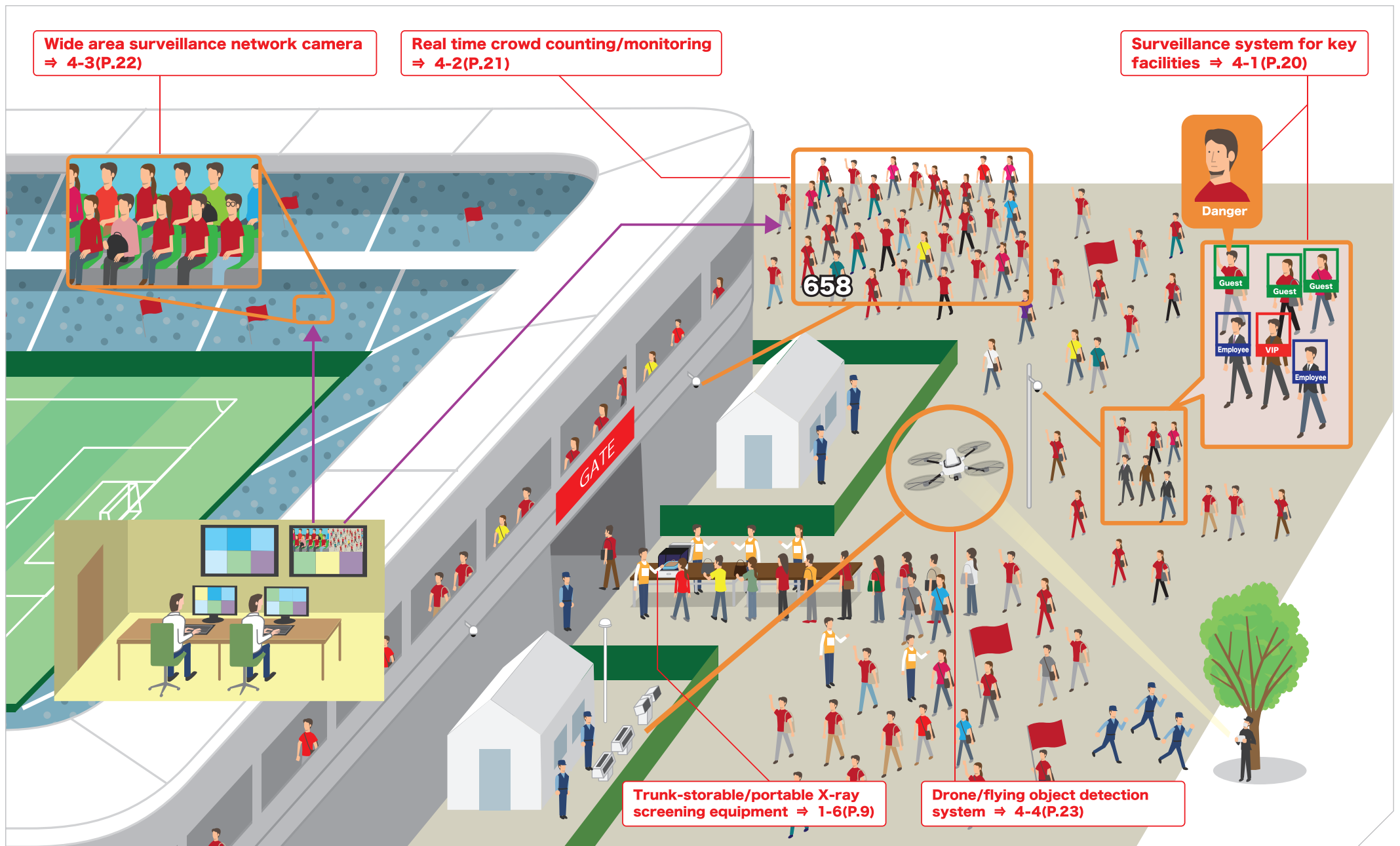


Laser sensors and security cameras are linked to quickly detect intruders at key facilities, enabling security guards to undertake rapid checks



category 4

Events (international conventions, exhibitions, sports tournaments, etc.)





4 - 1 Events

Theme a. Venue security

Solution

Surveillance system for key facilities

Potential applications

Stadiums, event venues, airports, and key facilities

Need for this solution

With the rise of terrorism and crime globally, there is a need for real-time surveillance systems using advanced facial recognition technologies in order to prevent them.

What this solution helps to achieve

● This system can prevent terrorism and crime by quickly checking images taken by surveillance cameras against the facial images of blacklisted individuals, etc. and providing an alert when one is identified and strengthening surveillance.

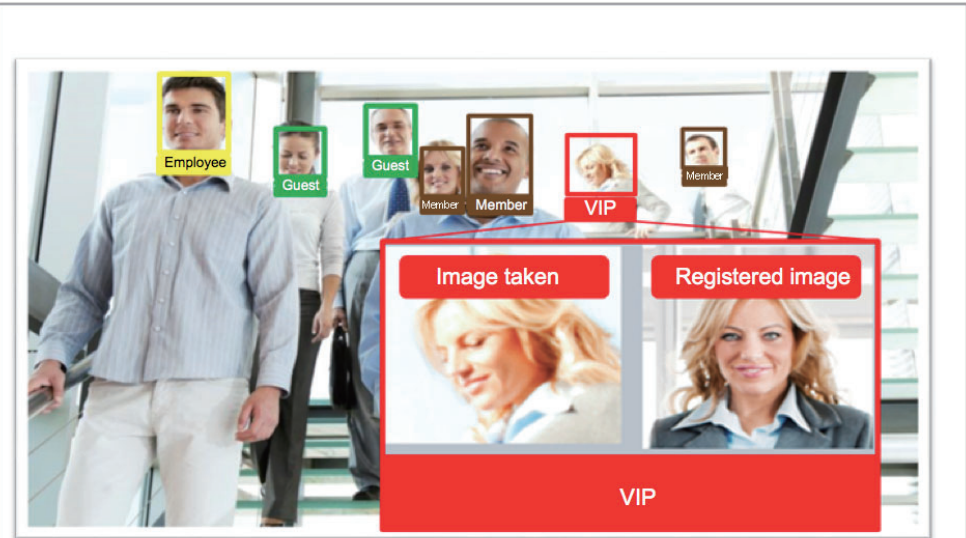
Features

- Real-time surveillance solution using the world's most accurate(*) facial recognition technology
- Drastic reduction in surveillance costs
- Compatible with a range of devices, including IP cameras & smartphones, etc.

*Received top rating over 4 consecutive facial recognition technology benchmark tests performed by the National Institute of Standards and Technology (NIST) in the US. http://jpn.nec.com/press/201703/20170316_01.html

Where it is being used

Used in Approx. 50 countries around the world



Person you want to find can be quickly and automatically detected using facial recognition technology

Potential applications in



Stadiums or Event venues



Airports



Key facilities



4 - 2 Events

Theme a. Venue security

Solution

Real-time crowd counting/monitoring

Potential applications

Events, airports/train stations, city areas, etc.

Need for this solution

There is a need to quickly understanding changes in crowd numbers and establish appropriate crowd control and security measures across wide areas (or specific zones) in order to avoid overcrowding and dangerous situations for event invitations and smooth management.

What this solution helps to achieve

- Estimate crowd numbers in real-time across wide areas (or specific zones)
- Support the establishment of appropriate crowd control and security measures based on estimated crowd numbers

Features

- Accurate estimation of crowd numbers across wide areas (or specific zones) using proprietary DeepLearning technology
- Real-time estimation/display of crowd numbers

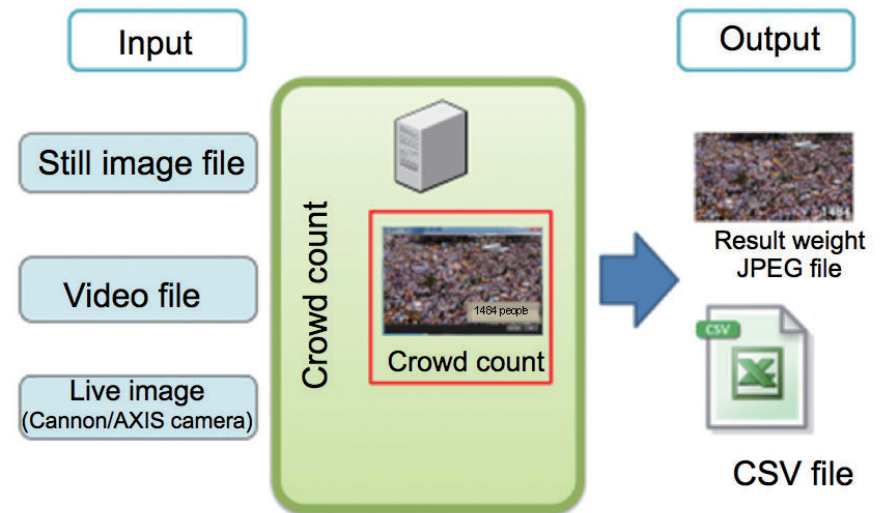
Where it is being used

Not commercialised. However, POC (Proof Of Concept) is underway. (as of October 2018)

Image of real-time crowd count



System configuration





4 - 3 Events

Theme a. Venue security

Solution

Wide area surveillance network camera

Potential applications

Areas that require high-definition surveillance/monitoring over wide areas and distances, such as stadiums, cities, airports and sea ports, etc.

Need for this solution

As a result of the frequency of terrorist acts in recent years, there is a need for surveillance in high definition images across wide areas, such as events, etc.

What this solution helps to achieve

- 4K high definition image surveillance enables management, including security, etc. across wide areas (or specific zones) and areas that require telescopic images.
- Faces and number plates can be cropped from 4K images for detailed checks.

Features

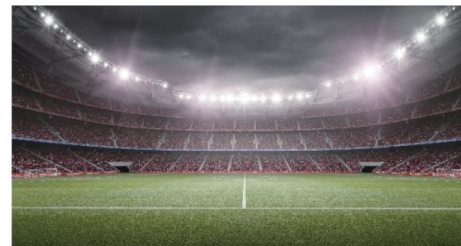
Network camera, Axis Q1659 enables:

- Ultra-high definition color images at 8FPS from 20 m (Enables 25FPS from 8 m (4K))
 - Installation* of 8 EF/EFS lenses enables wide-angle and telescopic images
- *Lens installation is estimated at \$4,999 or more (varies depending on type of lens)
- Proprietary technology reduces storage and bandwidth

Where it is being used

Installed at famous stadiums, etc. in North America and the UK.
Customer information cannot be disclosed (as of October 2018)

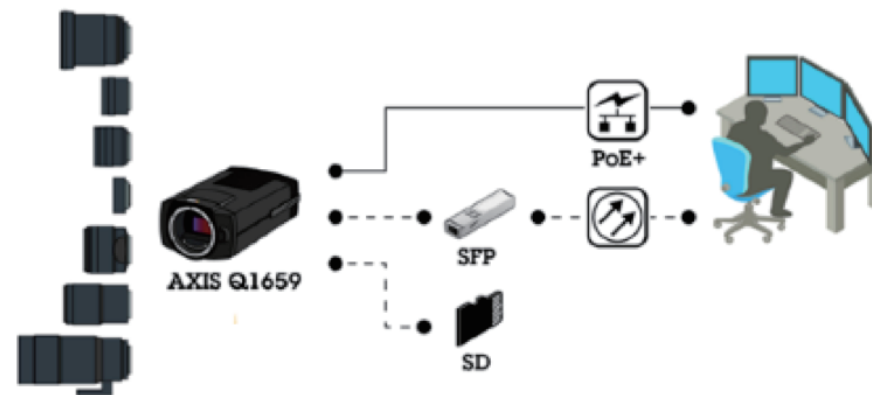
Stadium



Cropped, detailed image of a photo taken from 20m



System configuration /operation





4 - 4 Events

Theme b. Security outside event venues

Solution

Drone/flying object detection system

Potential applications

Ministerial and other meetings with key figures, large sporting events, etc.

Need for this solution

While security services work to control access and manage in and around venue sites at key events, in recent years there has been a rise in incidents and crime using flying objects, such as drones, etc. As a result, there is a need for unconventional security measures to control the airspace around venues.

What this solution helps to achieve

- Can detect all flying objects using radar
- Can detect multiple flying objects simultaneously as they enter the surrounding airspace

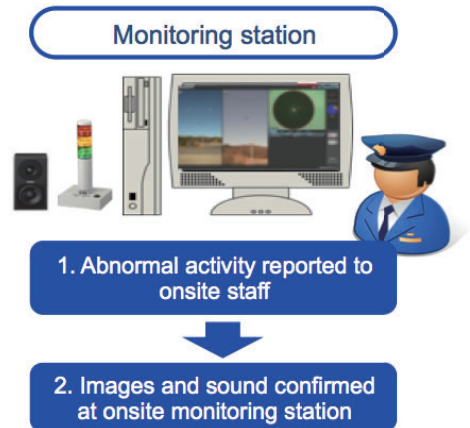
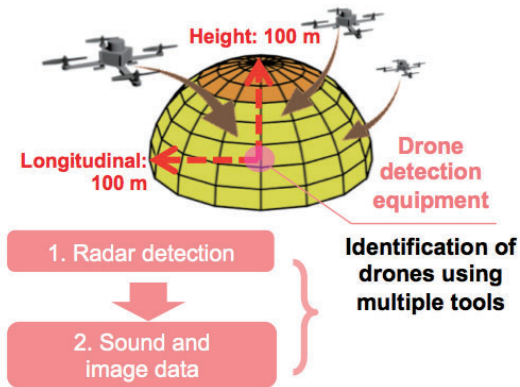
Features

- Identifies drones using multiple tools (radar, sound, images)
- 360 degree monitoring of a semi-spherical zone with a radius out to 100 m
- Shows flight trajectory as useful information to form initial response and identify threat levels

Where it is being used

Tokyo marathon, G7 ministerial meeting

System overview



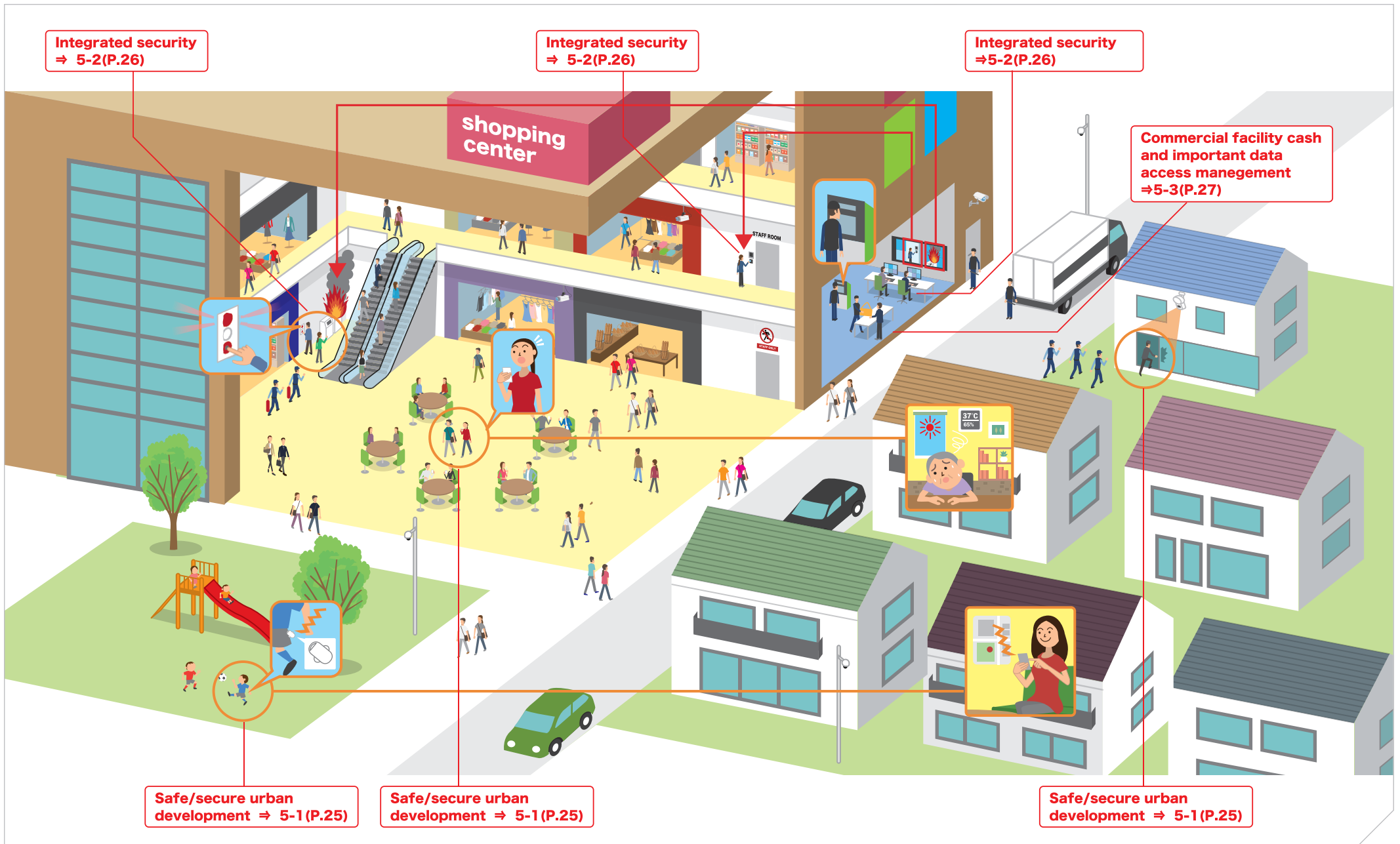
System configuration





category 5

Public areas (residential districts & commercial facilities, etc.)





5 - 1 Public areas

Theme a. Detection of abnormal activity and rapid response

Solution

Safe/secure urban development

Potential applications

Local government, developers

Need for this solution

There is a demand for solutions that provide safe/secure urban development to protect residents from crimes and natural disasters, while also protecting individual privacy.

What this solution helps to achieve

- Confirm the location of family members such as children and the elderly using GPS tags.
- Sensors detect abnormal activities and security guard can rush to the site.
- Family members can be notified when sensors detect life rhythm alarm or abnormal temperature/humidity levels.

Features

- Highly accurate monitoring, detection of abnormal activities and cost reduction using Japanese electronic security.
- Establishment of comfortable living environments using technologies developed in Japan, a country with an aging population, that ensure privacy and protect family members.

Where it is being used

These solutions are in use, but information cannot be disclosed.



5 - 2 Public areas

Theme b. Detection of abnormal activity and rapid response at commercial facilities

Solution

Integrated security

Potential applications

Large-scale facilities that require advanced, complex security, including commercial facilities, office buildings and factories, etc.

Need for this solution

Rather than using a variety of individual security devices and solutions, there is a need for a total management system that controls security systems, surveillance cameras, access control systems and security personnel from the perspective of providing high-level security and cost performance.

What this solution helps to achieve

●By combining machine and human security services and designing a comprehensive management system, this solution reduces costs, maintains a high level of security, and prevents crime and limits the extent of damage to facilities.

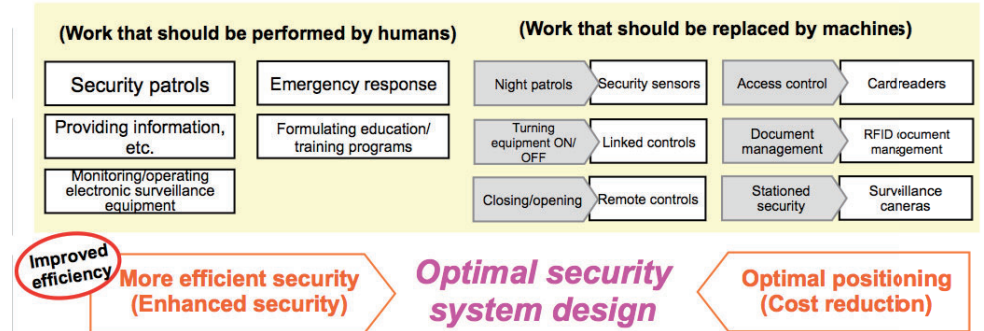
Features

- In addition to security systems and cameras, can also be linked to attendance and vehicle gate systems and facilities.
- Centralized management makes it easy to use while also enabling efficient operation.

Where it is being used

Shopping centers across Asia

System overview



System configuration





5 - 3

Public areas

Theme c. Visitor management/cash management

Solution

Cash and important data access management for commercial facilities.

Potential applications

Large & small-scale cash/data management services

Need for this solution

There is a need to provide rigid and convenient personal identification to manage the exchange of cash and other data at public facilities and large commercial facilities.

What this solution helps to achieve

- Quick, smooth personal identification using facial recognition.
- Can also help to prevent unauthorized activity by storing usage data.

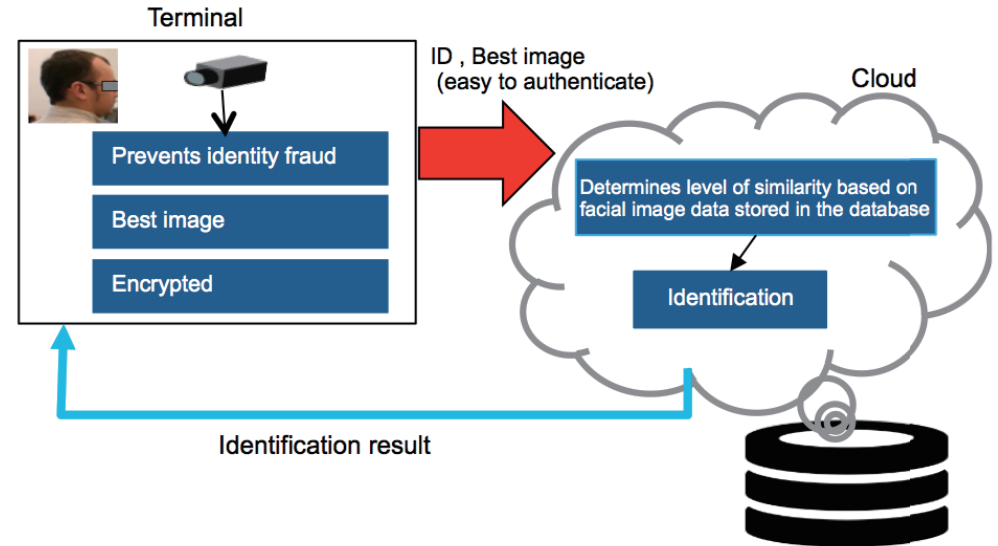
Features

- Smooth personal identification using terminals
- Preventing identity fraud which uses a photo.
Reducing network/computation load by best image selection.
- Verification process can also be linked to a private cloud in a secure environment
- Three months required for investigation and connection construction for linkage of biometric authentication and money management system

Where it is being used

Proven on cash exchange terminals in country R (installed 2017)

(System configuration)



(Example)

Initiates identification process



Identification complete



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