

# AI-based Selective Monitoring System

The AI-based Selective Monitoring System is a technology that directly and indirectly supports control functions by identifying and recognizing objects, people, accidents, and disasters through CCTV video analysis.

By identifying objects such as facilities, people, and vehicles in CCTV images with artificial intelligence technology, it is possible to identify situations in real time when safety accidents and crimes occur, thereby maximizing monitoring efficiency.



▲ The AI-based Selective Monitoring System identifies and analyzes spaces, objects, and people in CCTV footage.

## Issues to Tackle

- ☑ Due to the limitations of increasing control personnel in response to the increasing number of CCTV cameras, response efficiency is reduced in the event of safety or security blind spots.
- ☑ During visual control, there is a delay in detecting and responding to incidents and accidents that occur between CCTV video rotations.

## Expected Benefits

- ☑ Even with the continuous increase in CCTV cameras, the system can expand the control range with the appropriate number of personnel by automatically monitoring only the videos displaying relevant situational information.
- ☑ By quickly monitoring incidents and accidents, the response time to protect citizens' property and lives is minimized.

## 💡 Key Services

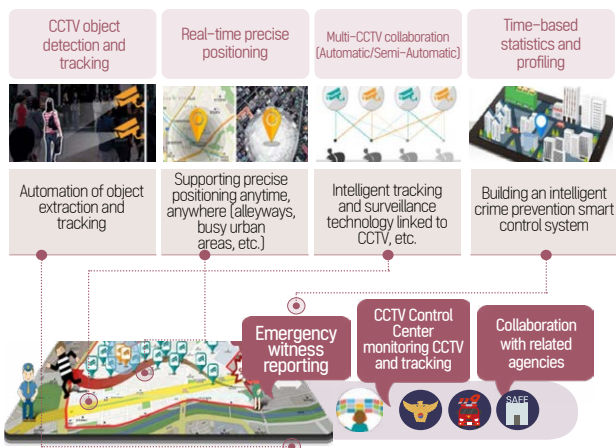
- Identifying areas, objects, and people to monitor in real-time and automatically detecting events that require a response.
  - General Field: Wandering, intrusion, fighting, arson, collapses, missing person searches, etc.
  - Safety Field: Traffic accidents, fire detection, crime, suicides, infectious diseases, etc.
- Identifying people and vehicles across multiple CCTV footage at once and tracking their movement paths.

## ⚙️ Use Cases

- The Seoul Metropolitan City announced that by 2026, approximately 160,000 CCTV cameras throughout the city, including parks and hiking trails, will be converted into AI-based intelligent CCTV cameras to strengthen citizens' safety from crimes and accidents.
- Incheon Metropolitan City plans to strengthen its disaster response system by mandating the installation of intelligent CCTVs starting in 2025 and aims to increase the distribution rate of intelligent CCTVs to 20% by 2028, gradually transitioning the system.
- The Ministry of Land, Infrastructure, and Transport(MOLIT) supported the global cooperation program (K-City Network), which implemented real-time object classification, traffic volume analysis, and hazard perception warning systems on major roads in An Duong District, Hai Phong City, Vietnam (2023).

## Key Components

## Configuration



## Technologies

## 1. Deep Learning–Based Object Detection

- Using artificial intelligence technology to detect objects such as vehicles, pedestrians, and motorcycles, as well as classify vehicle types and colors.

## 2. Event and Behavior Pattern Recognition

- Building learning data for pedestrians (event detection through behavior analysis such as intrusion, wandering, fighting, collapse, etc.) and vehicles (reverse driving, lane violations, and centerline violations).

## 3. Object Tracking

- Based on multiple search terms, trajectory tracking is possible for objects and event information, such as people and vehicles, as analyzed in the video.

## 4. De-identification of Personal Information

- De-identification of personal information such as faces, license plates, and specific areas, and control over video export.

## 5. High-Speed Search

- Quick detection and search of objects such as people in stored videos (approximately 10 minutes for 100 hours of video and 6 seconds for 1 hour of video).
- High algorithm accuracy (99.2% for people, 98.5% for license plates).

## (Key Services) Safety, Crime Prevention Analysis

Crime prevention by automatically detecting and reporting crime signs through security CCTV and intelligent screening control systems using AI technology.

## Wandering

1~3 people wander around a specific space



School/ Nearby area/ 09:00  
(Shooting location)/(Camera position)

## Intrusion

Situations involving the breach of fences, walls, or windows.



Local government facilities/  
Nearby area/ 18:00  
(Shooting location)/(Camera position)

## Arson

Situations involving the occurrence of flames or smoke



School/ Nearby area/ 12:00  
(Shooting location)/(Camera position)

## Collapse

A situation where a person suddenly falls down



Playground/ Nearby area/ 15:00  
(Shooting location)/(Camera position)/  
(Shooting time)

## Abandonment

A situation where trash, bags, etc. are abandoned (dumped)



School/ Nearby area/ 06:00  
(Shooting location)/(Camera position)/  
(Shooting time)

## Fight

A situation where two, three, or six people fight, including assault



School/ Nearby area/ 15:00  
(Shooting location)/(Camera position)/  
(Shooting time)

## (Application Services) Intelligent Smoke and Fire Analysis



- By complementing the shortcomings of existing fire detection sensors, emergency situations such as fires inside and outside buildings and gas leaks can be identified through intelligent CCTV video information to prevent and respond to disasters in advance.

- The intelligent control system that has learned forest fire-related data analyzes situational information such as flames and smoke collected by a high-resolution camera and uses a forest fire detection and location prediction model to support rapid forest fire response.

## Technology Companies

**CUDO COMMUNICATION**  
www.cudo.co.kr

**GAON PLATFORM**  
www.gaonpf.com

**HANWHA VISION**  
www.sphereax.com

**INNODEP**  
www.innodep.co.kr

**INTELLIVIX**  
www.intellivix.com

**ONE MORE SECURITY**  
www.omsecurity.kr

**PENTAGATE**  
www.pentagate.co.kr

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www.sphereax.com

