TIADA L.L.C FZ

AI BOX
Video Analytics

TIADA
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AI video analytics BOXfor technical and creative professionals who demand high performance for the world's heaviest workloads

AI Bridge TS2-08-channel

Order Now

AI Bridge TE1-04-channel

Order Now

AI VIDEO ANALYTICS BOX

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Access Controller

MIC

Speaker
Alarm

Relay

CAN

IP PTZ

Varied interfaces
RS485, RS232, Wiegand, LAN

AI Event Agent

IP Camera

RTSP Video Stream

Event

Cloud Service

AI Bridge Pro

IP Camera

Event Meta Data

Recorder

IP Camera or Analog camera

NVR or DVR

Sensor

Event Meta data
Annotated Video

VMS

AI VIDEO ANALYTICS BOX

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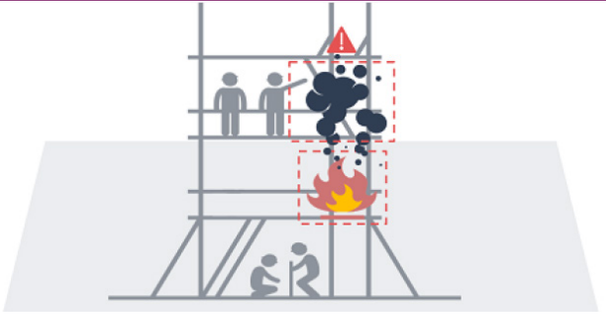
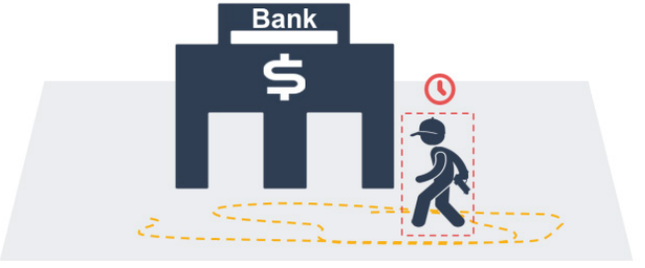
Fire & Smoke Detection



Loitering Detection

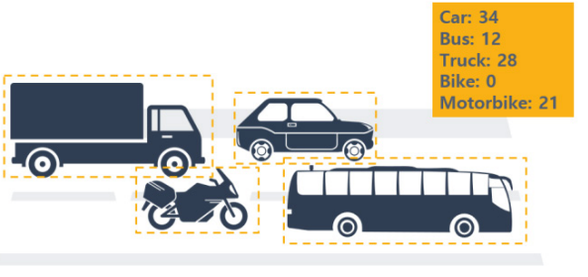


Virtual Fence

Stopping Detection

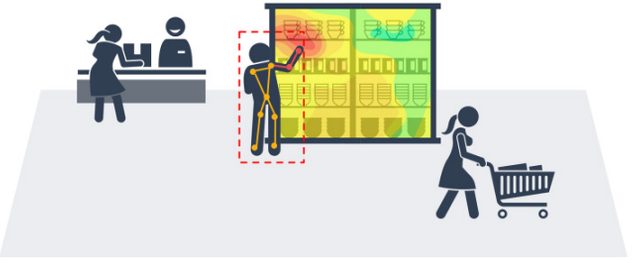
Covered Face Detection

Vehicle Type Detection

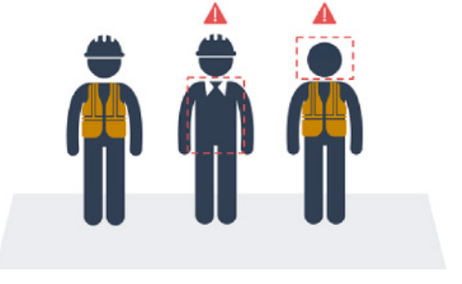


LP Masking

Advanced Heatmap



No PPE



AI VIDEO ANALYTICS BOX

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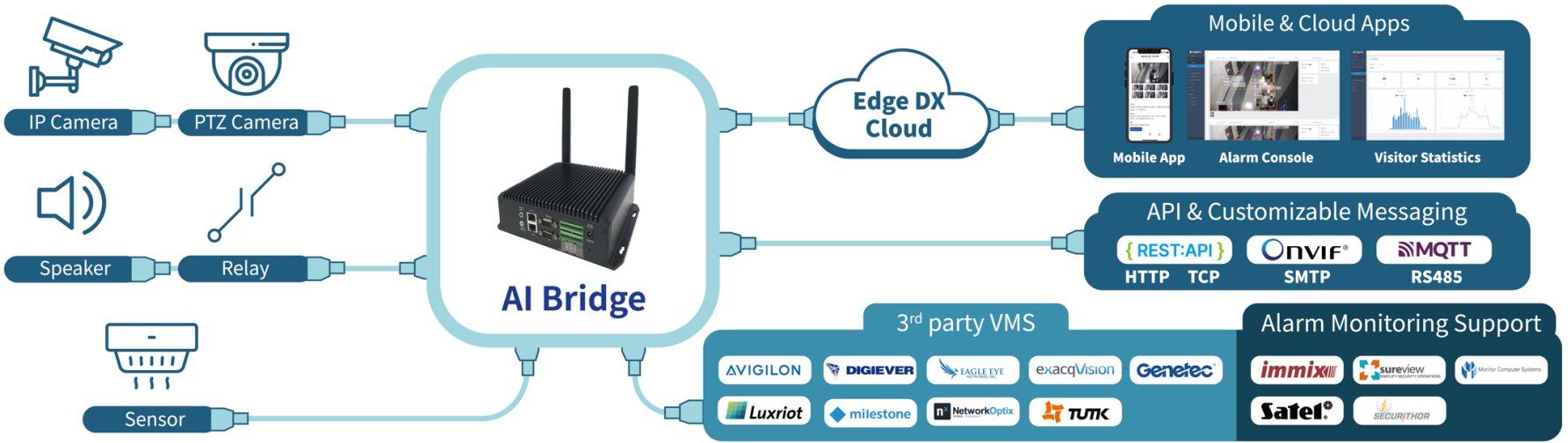
Intrusion Detection	Heatmap	Vehicle Type Detection	Object Location Tracking
Zone Counting	Bsic Attribute	Occupancy Counting	Phone-Walking Detection
Enter/Exit Detection	Advanced Attribute	Occupancy Car Counting	Unsafe Lifting
Stay & Go	Dynamic Privacy Masking	People Counting	Speed Anomaly Detection
Speed Anomaly Detection	Dynamic Face Masking	Vehicle Counting	Vehicle Queue Management
Multi Zone Counting	No Mask	Advanced Visitor Analysis	Forklift Non-Driver Detection
Covered Face Detection	Hand & Foot Intrusion	Vehicle Type Counting	Intentional Body Gaze Detector
Aggressive Detection	Fallen Person Detection	Queue Management	Work Vehicle Hazard Detection
Illegal Dumping	Imminent Threat	Forklift No Helmet	Staff Exclusion People Counting
Animal Detection	Bullying Detection	Crowd Detection	Reverse Movement Detection
Vehicle Counting	Forklift Detection	Human Prolonged Stay	Road Pedestrian Detection

Overall System Diagram & Topology

AI Bridge Intelligent Edge AIoT Gateway for Video Analysis



- ✓ Transform anything based on vision into a diverse range of AI applications (using IP CCTV)
- ✓ Expand into various IT services utilizing video analysis data through Cloud Interface

AI Bridge vs. Other AI Solutions

RoHS, REACH, NDAA Compliant

AI Bridge

VS

GPU AI Server

AI CCTV

1 Embedded On-premise AI analyzer

- AI chipset for autonomous vehicles (DSP Processor)
- AI-dedicated device with no waste of system resources
- Compatible with all types of network CCTV

2 GPU servers are costly and overpowered

- Unnecessary over-powered servers for CCTV analysis
- GPU servers underutilize performance, wasting resources.
- High cost, excessive power consumption.

3 AI CCTV has limited computing power

- Low-spec chipsets support only basic video processing
- Supports basic detection, intrusion, and counting
- Unsupported features (Behavior, complex multiple algorithms)

Cost Performance Comparison

RoHS, REACH, NDAA Compliant

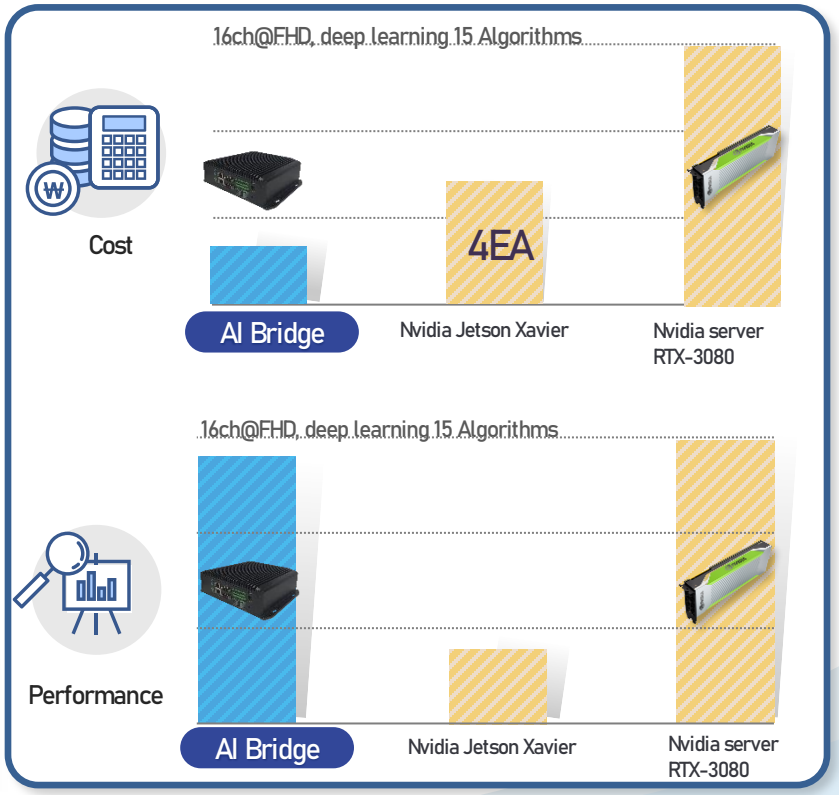
Cost-performance comparison

"AI bridge" vs

GPU base server

1/5

Similar performance as GPU Server (RTX-3080)



Features

RoHS, REACH, NDAA Compliant

- ✓ Over 50+ intuitive AI apps (On-premises)
- ✓ Multiple AI Algorithms run on single channel
- ✓ Advanced human behavior analysis
- ✓ Support up to 16 camera channels
- ✓ Wide temperature range without fan: -22°F(-30°C) ~ 158°F (70°C)
- ✓ Supports various protocols and VMS
- ✓ P2P-based mobile alarm viewer
- ✓ LTE & GPS support (option)
- ✓ Internal recording with M.2 NVME SSD (optional)
- ✓ Cloud-based dashboard (option)
- ✓ Hybrid AI Boost mode support

4CH (6Watts) / 16CH (16 Watts)

AI Bridge Series

TEXAS INSTRUMENTS

Various Applications

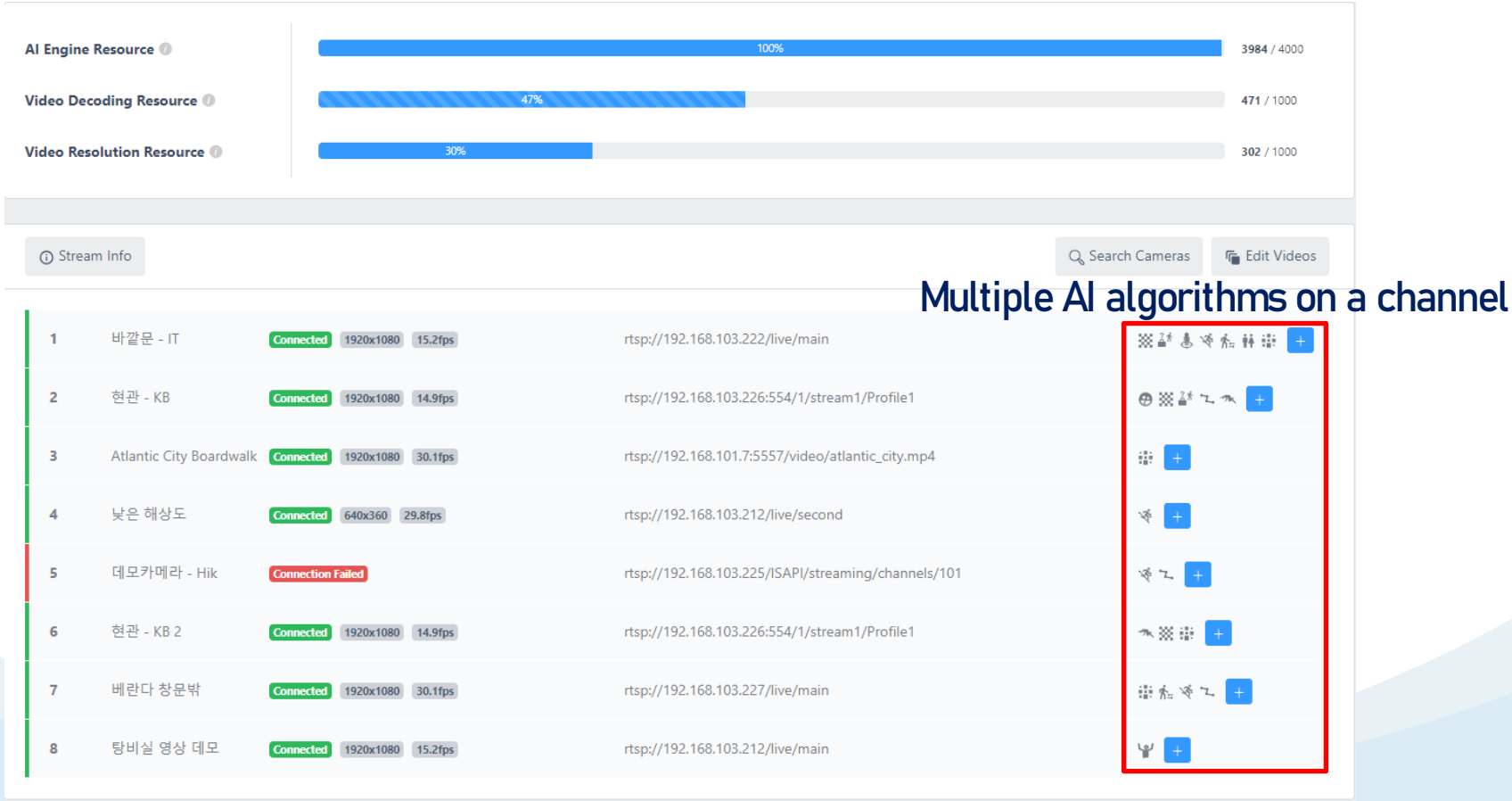
50+ AI Apps and More

RoHS, REACH, NDAA Compliant

On-premise 50+ Apps

And more Hybrid AI Boost AI Apps

Multi-Channel & Multi-AI Performance

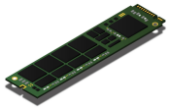


Multiple AI algorithms on a channel

Integration

ONVIF®

- Annotated video streaming
- Event metadata
- Interoperability with VMS



- M.2 SSD up to 4TB

REST API

- Various web
- Any legacy place
- Any device

Firefox

Google Chrome

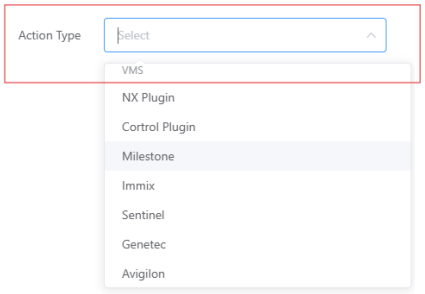
Safari

Opera

Microsoft Edge

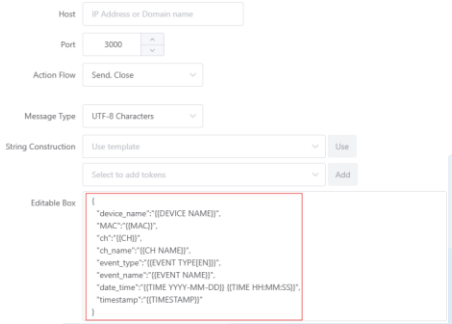
Proprietary integration

- ONVIF M not enough
- Full support though plug-ins for major VMS & Alarm Systems



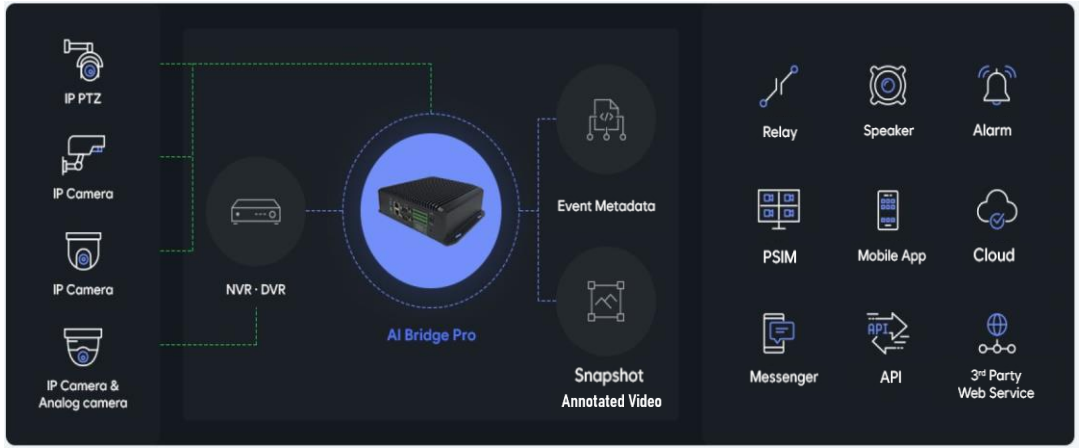
Customizable event transmission via network and serial

- Users can customize event messages without coding through an editable UI
- Supports HTTP, TCP, MQTT, SMTP, RS232/485



Integration Status

System configuration diagram & integration with VMS/PSIM



VMS

AVIGILON · EAGLE EYE NETWORKS · exacqVision · Genetec™ · milestone · NetworkOptix

Alarm monitoring

immix · sureview SIMPLIFY SECURITY OPERATIONS · Monitor Computer Systems · Satel Made to Protect · SECURITHOR

Comprehensive AI Modeling

Comprehensive analysis of detected objects and video on multiple levels

- ✓ Multi-level detailed analysis of detected objects
- ✓ Multiple AI algorithms can be executed concurrently on each channel

Object Detection	Object Tracking	Pose Estimation
Multi-Attribute Analysis	Scene Understanding	Dynamic Privacy Masking
Movement pattern analysis (Motion, Velocity, Stationary Object)	Understanding situation through historically stored data	Time series event data analysis

Intuitive AI Apps & Applications

A more powerful AI platform

AI Bridge

Creating a better and safer world through EdgeDX technology

All video clips are prohibited from being shared externally

AI application lists (50+)

Basic	Advanced	Extra
Dynamic Privacy Masking	Crowd Detection	LPR-US, Europe, JP, KR
Dynamic Face Masking	Advanced Visitor Analysis (Gender)	Advanced Heatmap
Basic Attribute (Color of Clothes)	Hand & Foot Intrusion	No PPE
Queue Management	Intentional Body Gaze Detector	Illegal Dumping
Heatmap	Imminent threat	Aggressive Detection
Combined Counter Trigger	Fallen Person Detection	PTZ Tracking
Intrusion Detection	Animal Detection	Forklift No Helmet
Loitering	Fire & Smoke Detection	Forklift Non-Driver Detection
People Counting	Vehicle Type Counting	Forklift Detection
Vehicle Counting	Vehicle Type Detection	Staff Exclusion People Counting
Zone Counting & Multi-Zone Counting	Thermal Intrusion Detection	Bullying Detection
Virtual Fence (Line Crossing)	Drone View (TBD)	Illegal Parking (TBD)
Stopping	Fisheye Video	Human Prolonged Stay (TBD)
Stay & Go (Enter & Exit)	Corridor Mode Support (TBD)	
Speed Anomaly Detection	Advanced Attributes	
Occupancy & Occupancy Car Counting		
(Number of people & cars in a multi-entry building)		

AI Apps

Over 16 basic apps

Dynamic Privacy Masking

Basic Attribute

Color of Clothes

Queue Management

Basic Heatmap

Intrusion Detection

Loitering Detection

Occupancy

People Counting

Vehicle Counting

Zone Counting

Virtual Fence

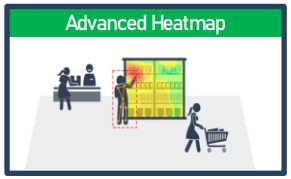
Stopping

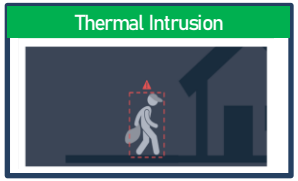
Stay & Go

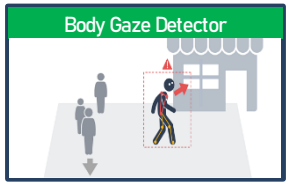
Applications

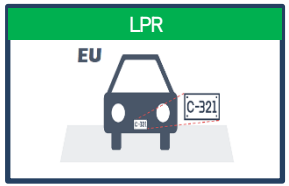
AI Apps

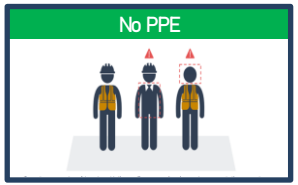
Over 28 Advanced & Extra apps

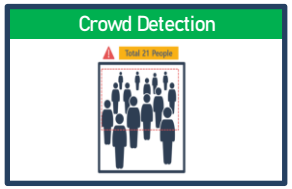






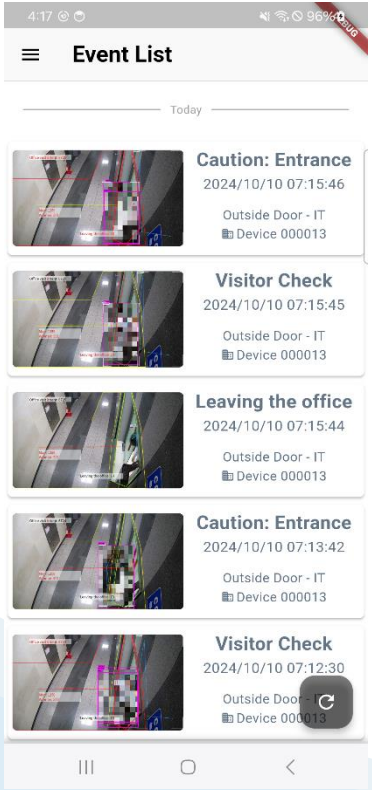




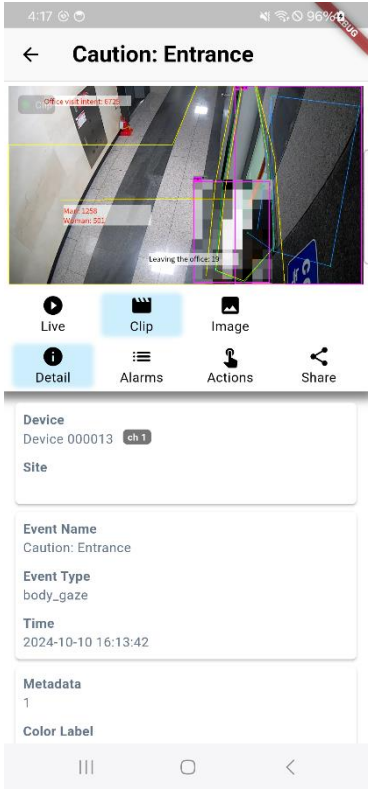


Mobile App

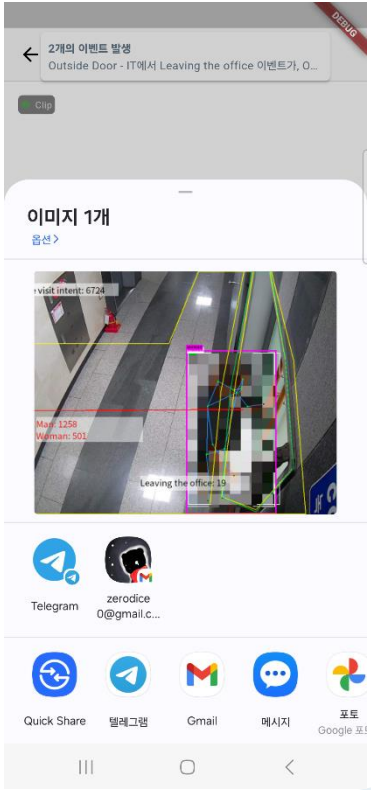
Event List



Live / Playback / Actions



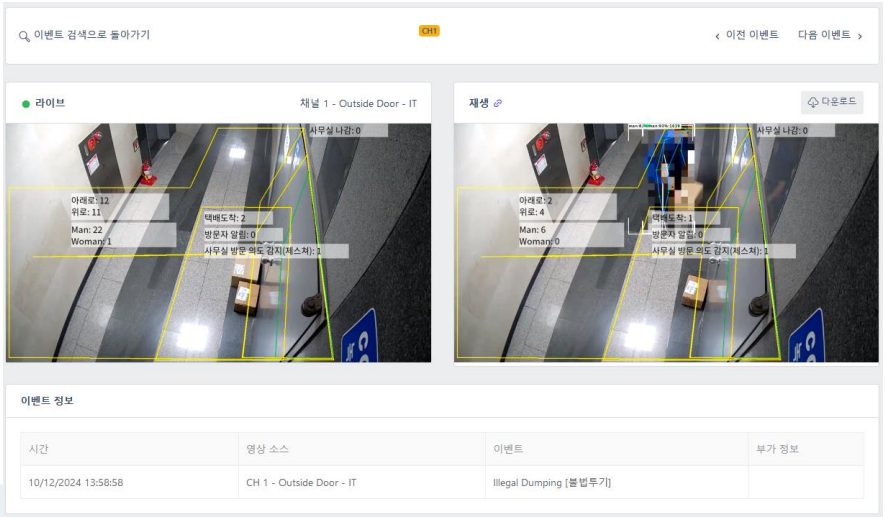
Sharing Snapshots



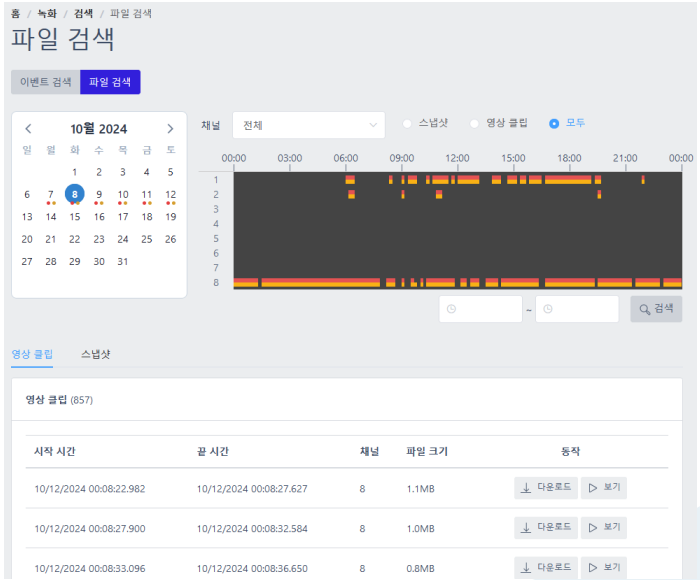
User accounts and event lists are managed by the cloud, while live, playback videos, and snapshots are directly sent to the mobile app via P2P.

SSD Functions – Built-in GUI

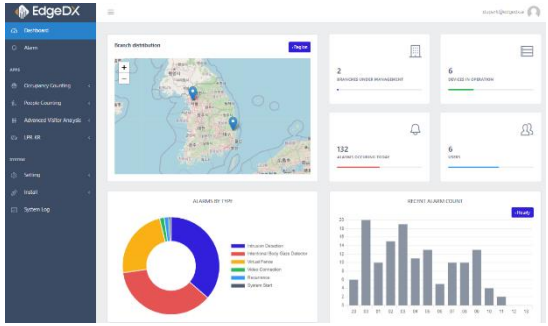
Live View & Playback



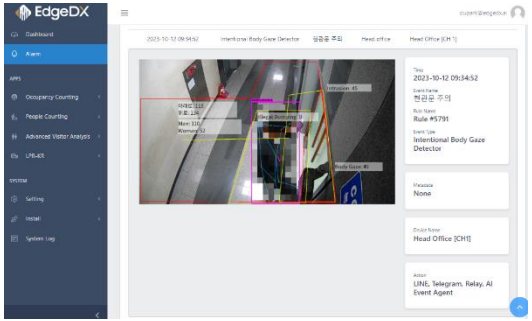
Timeline Search



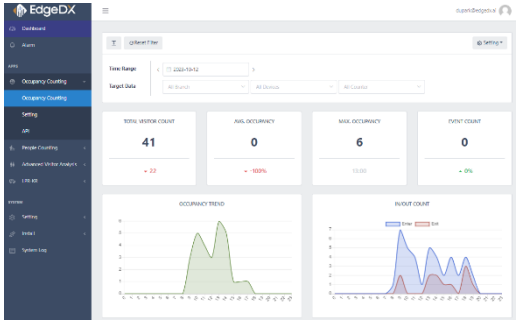
Cloud application software based on AI Bridge



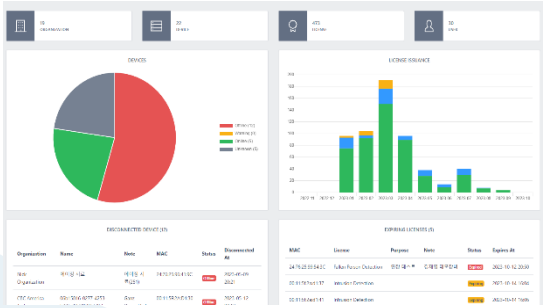
Dashboard



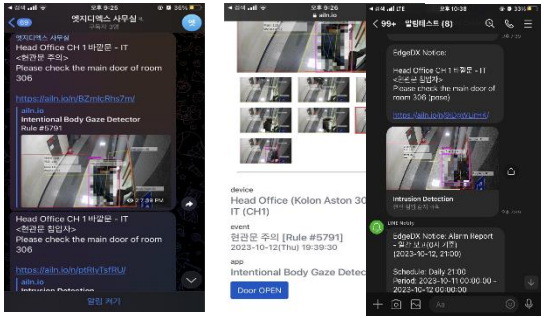
Alarm console



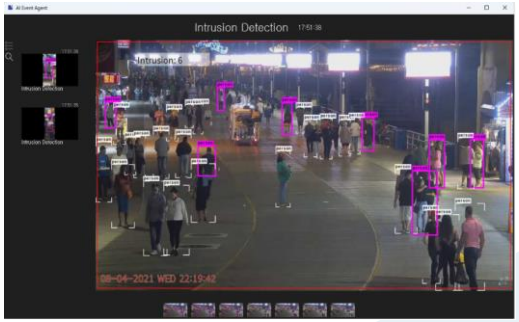
Data visualization
(Business intelligence)



Device management
Health check service

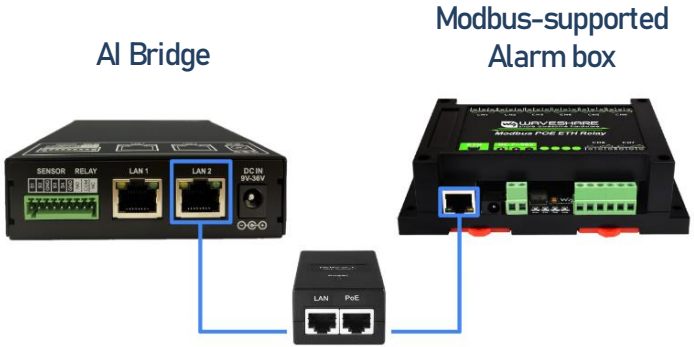


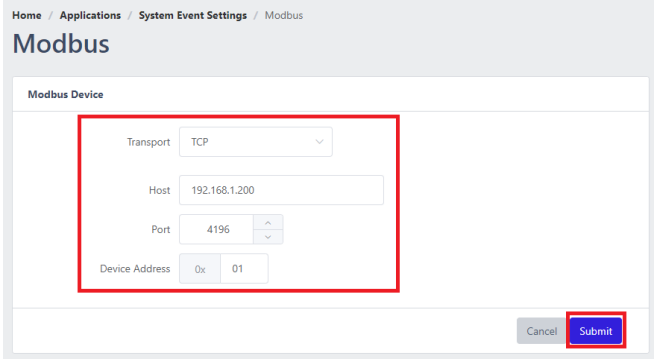
SNS messenger service
(Google Chat, Telegram, Line)

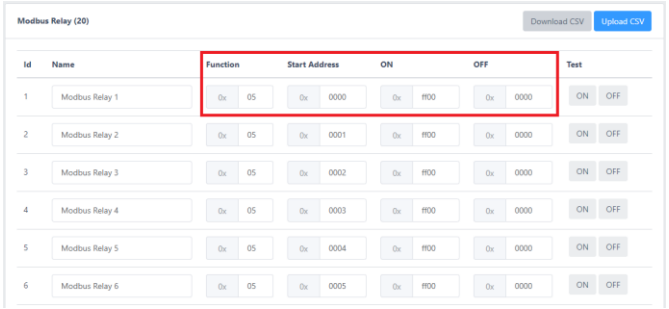


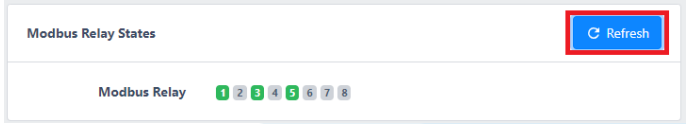
AI event agent
(For offline)

External Alarm Box support via Modbus protocol









Hybrid AI Boost

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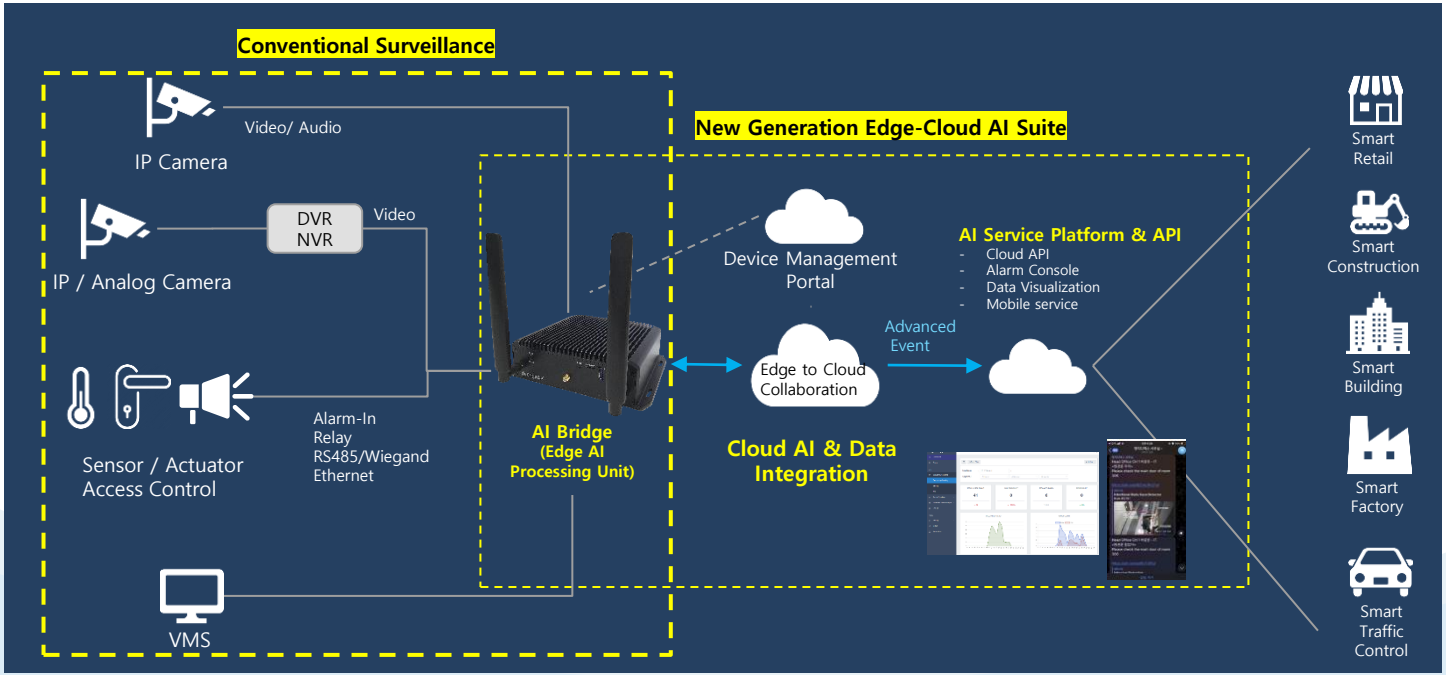
Roadmap: Hybrid AI Boost - Towards 99%+ Accuracy with Most Efficient Data Management!

- EdgeDX Hybrid AI Boost integrates edge processing and cloud intelligence for real-time surveillance and analytics, with human-level understanding capabilities
- The AI Bridge performs real-time video processing, while the Cloud AI provides advanced analysis with a comprehensive knowledge base

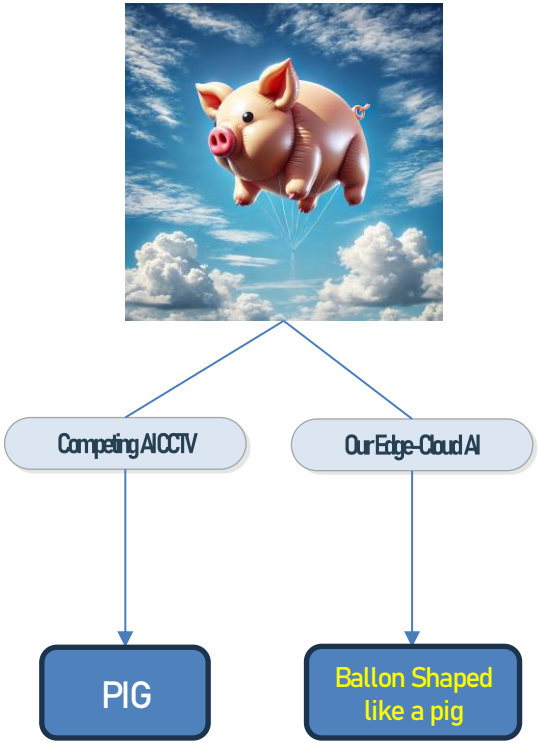


AI CCTV vs Hybrid AI Boost - The Knowledge Difference

- Competing AI CCTV: Current AI CCTV from other providers might see this pig balloon and classify it simply as an animal because it only knows pre-defined categories like animals, humans, cars, and bikes.

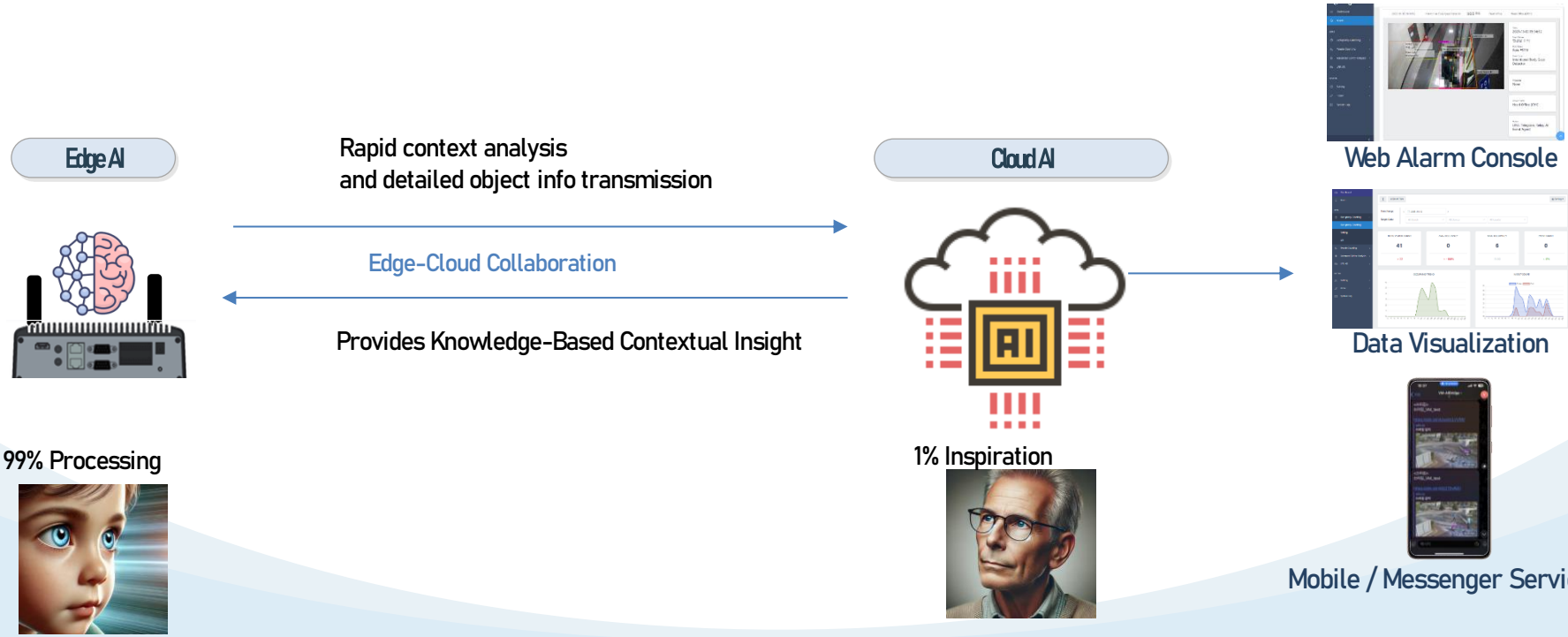
- Hybrid AI Boost: Our hybrid model recognizes that it's a balloon shaped like a pig. It understands context—pigs don't float in the sky with strings attached. It knows about balloons, strings, and the sky, allowing it to make a more accurate identification.

- Human Perception vs AI: Humans instantly recognize the balloon due to a broader knowledge of object interactions and contextual awareness. The next-gen AI aims to mimic this type of human-like reasoning.



How our Edge-Hybrid AI Boost works - Synergy between Edge AI and Cloud AI

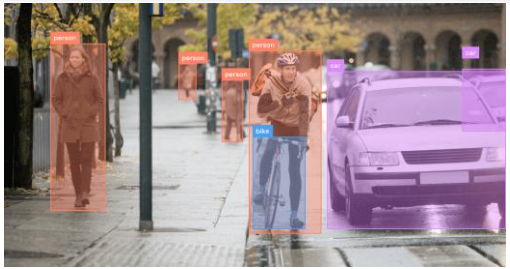
- AI Bridge-based Edge AI: Accurate detection of pre-defined objects and real-time processing
- Cloud-based Knowledge AI: Deep reasoning based on a wide knowledge base
- Hybrid AI Boost (Together): Cost-effective with human-like performance



How Hybrid AI Boost outperforms traditional AI CCTV in context awareness

Training Way of Current AI CCTV

Learning from pre-defined objects



Training Way of New Edge-Cloud AI

Learning from images with detailed descriptions

Two people on the mountain

Young woman cooking in kitchen with vegetables

Invisible Knowledge from websites, books

- Carbon monoxide is dangerous to humans
- Tools should be handled with care

Hybrid AI Boost sees context, making human-like decisions.

- ✓ Current AI: Person
- ✓ New AI: A man in a suit walking on a tightrope, indicating a risky scenario

- ✓ Current AI: Old Man
- ✓ New AI: Child aged 4-7 dressed as an elderly person

- ✓ Current AI: Kids
- ✓ New AI: Two young children are dangerously playing with power drills

- ✓ Current AI: Fallen Person
- ✓ New AI: Worker collapsed due to carbon monoxide poisoning (Using Multimodal input)

Edge-Cloud AI Suite - OCR capability for enhanced monitoring

Edge-Cloud AI Suite

- Container Number: L5QU 107737 9 JP 4300
- Maximum Gross Weight (MAX GW): 30480 kg (67200 lb)
- Tare Weight: 3860 kg (8510 lb)
- Maximum Cargo Weight (MAX CW): 26620 kg (58690 lb)
- Cargo Capacity (CL CAP): 67.70CBM (2389CBF)

AI-driven video analytics – Safety Management

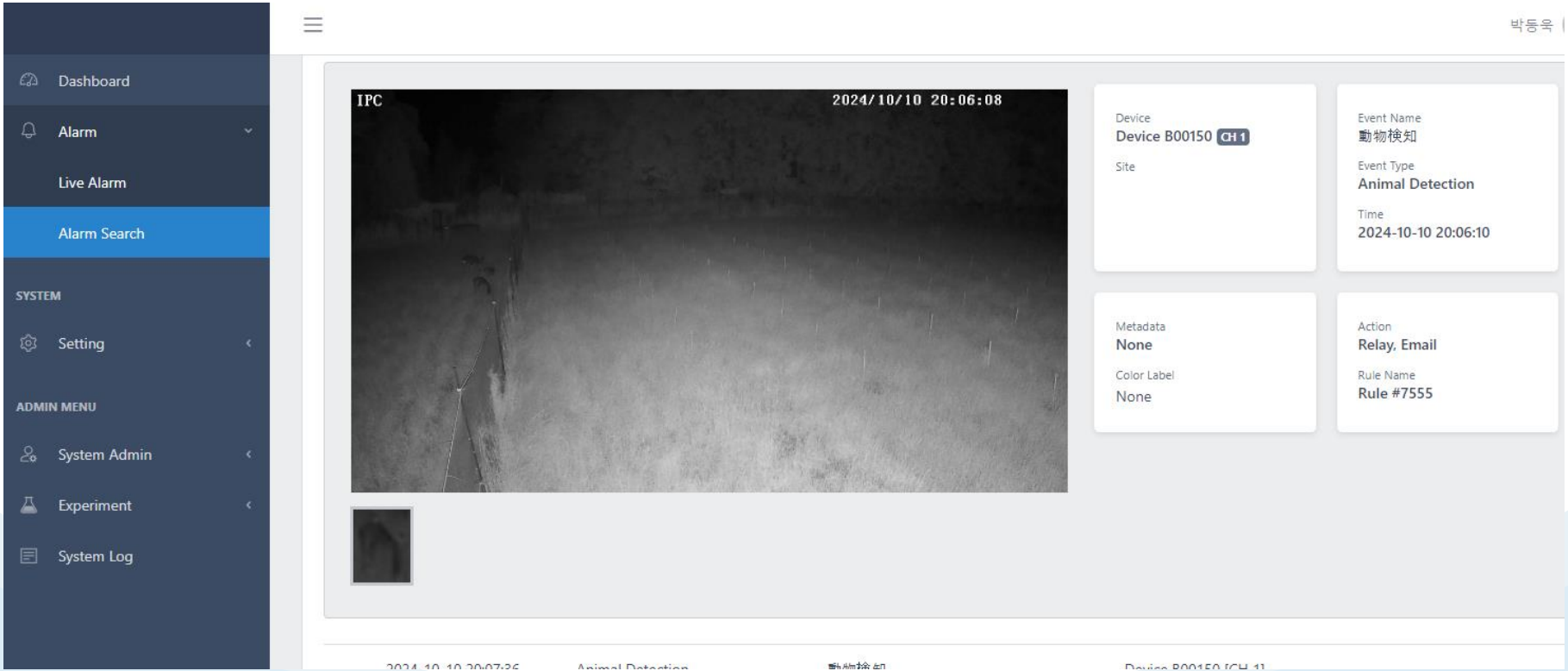
- Client: The biggest Korean agricultural company (Farm Hannong)
- Project Organizer: SK group (Shieldus), and ADT Korea
  - SK group: 139 BUSD revenue conglomerate company
  - ADT: 2nd largest security company in Korea
- Mission: Industrial accident prediction & prevention
- Applied AI algorithms: No Helmet, Fallen Person Detection
- Outstanding Result: Over 99.5% (Fallen: 99.97%)

Hybrid AI Boost at Farm Hannong

AI app	Aggregation period	Rate	
		Detection	False detection
No Helmet	2024.05.29~2024.06.02	99.51%	0.49%
Fallen Person	2024.05.29~2024.06.09	99.97%	0.03%

AI-driven video analytics – Wild Animal Detection

Hybrid AI Boost – Animal Detection (Deer) – Japan



AI-driven video analytics - Aggression Detection and Teacher Notification System

- Client: Dae-Gun Mid School, Korea
- Purpose of Installation: Detect students fighting in the hallway and notify teachers

Hybrid AI Boost Success at Korean School

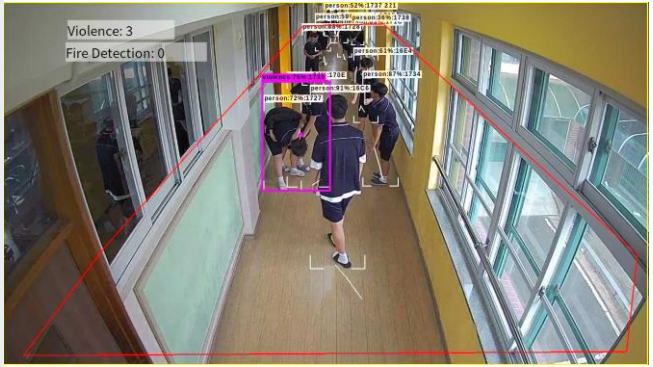
Device
Device B00042 CH 3
Site

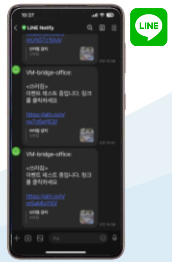
Event Name
폭력행위 감지
Event Type
Aggressive Detection
Time
2024-09-03 14:05:37

Metadata
None
Color Label
None

Action
NX, LINE
Rule Name
Rule #2730

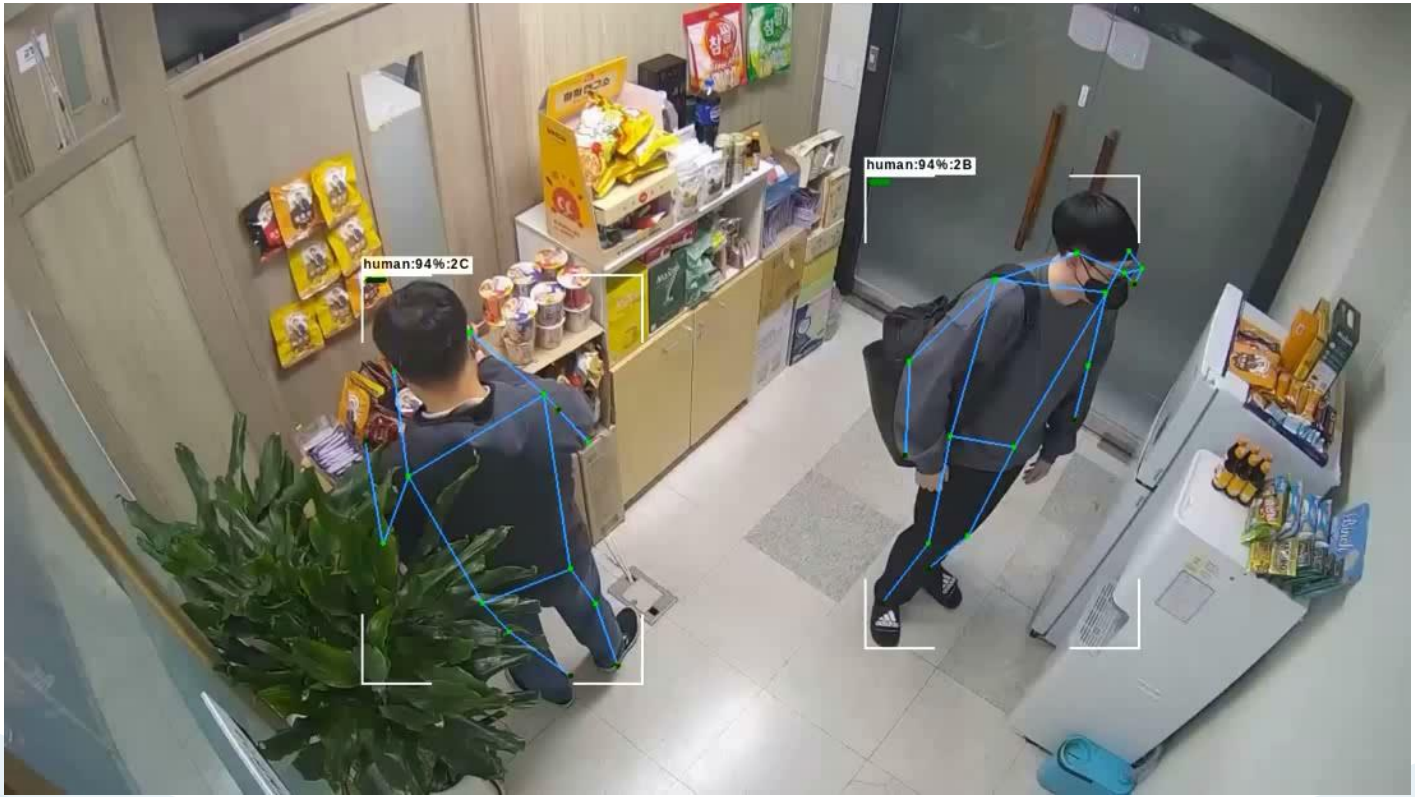
Advanced Analysis
TRUE



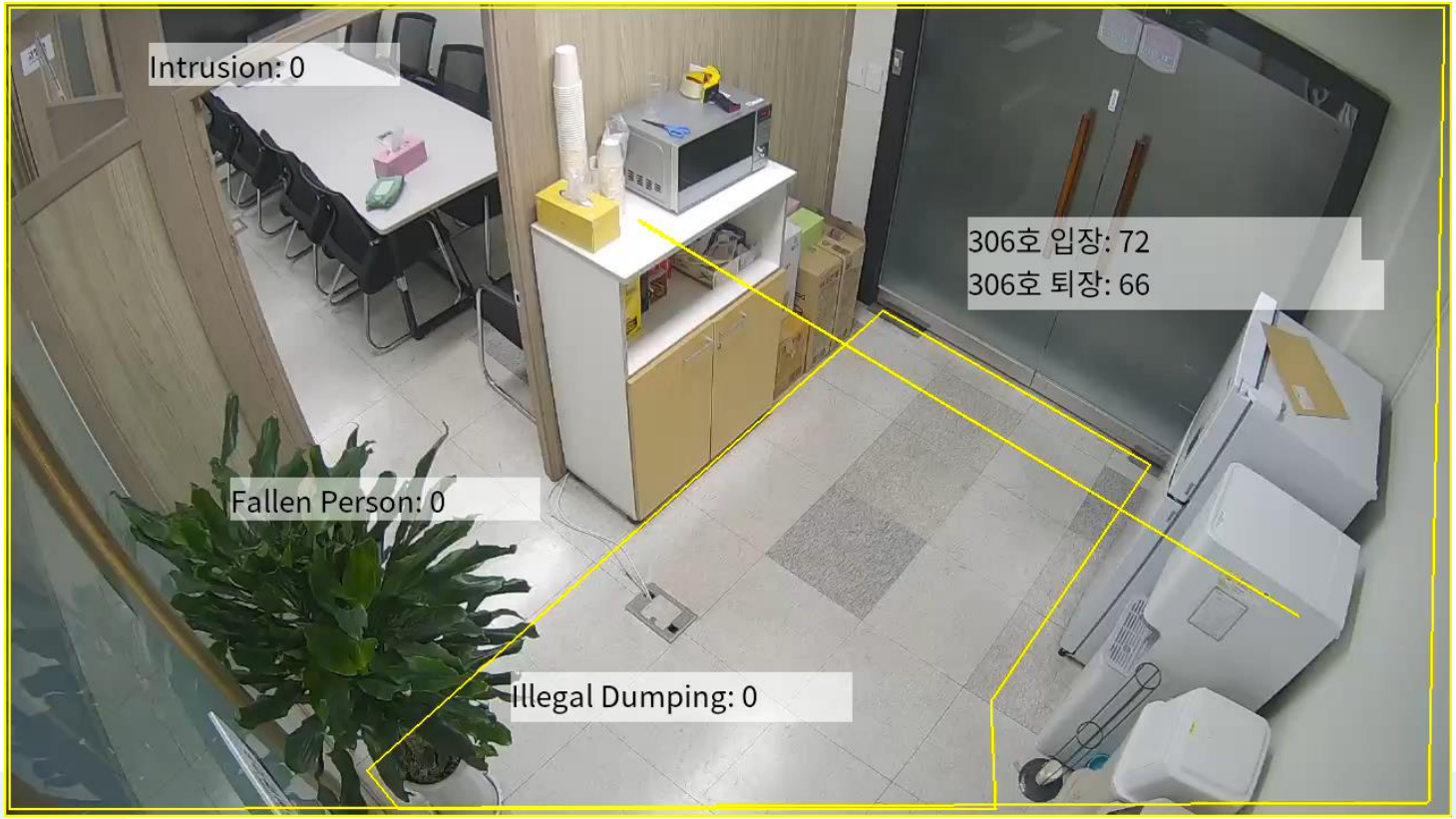


Hybrid AI Boost – Algorithm Test Videos for Application Potential

Hybrid AI Boost – Revolutionary Shoplifting Detection with Behavioral Analysis



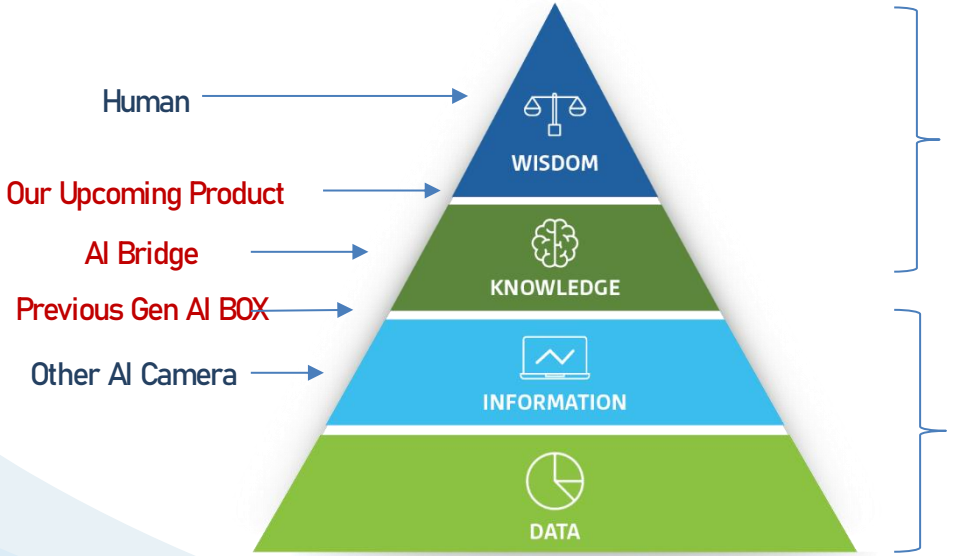
Intrusion with an umbrella-carrying person (on AI Bridge)



- Test result: An umbrella-carrying person is perfectly detected.

Our competitive Edge-AI algorithm

Our advanced AI enhances detection accuracy while reducing false alarms by understanding object relationships and context.



Our competitive edge: A hybrid approach

Top-Down Approach

- Combining methods to reflect human expertise
- Rule-based + statistics + machine learning + computer Vision + deep learning

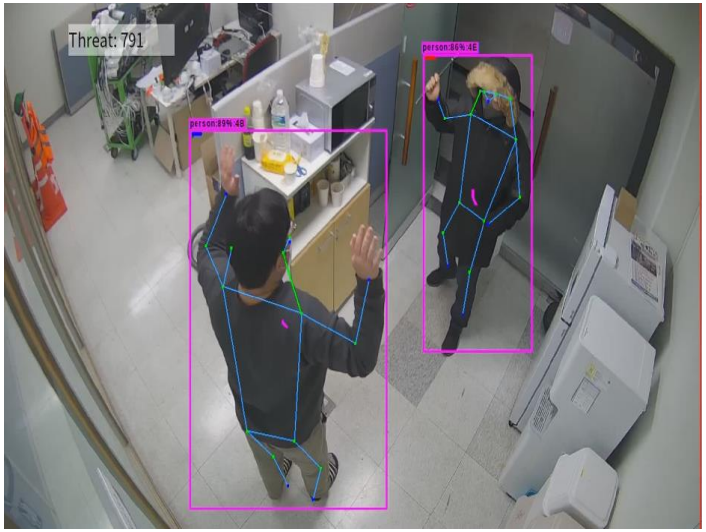
Bottom-Up Approach

- Deep learning

Bottom-up: Multi-level deep learning models / Top-down: Multi-level analysis algorithms

Knowledge-Based Object Analysis

Our AI Bridge is designed to understand relationships between objects based on human knowledge

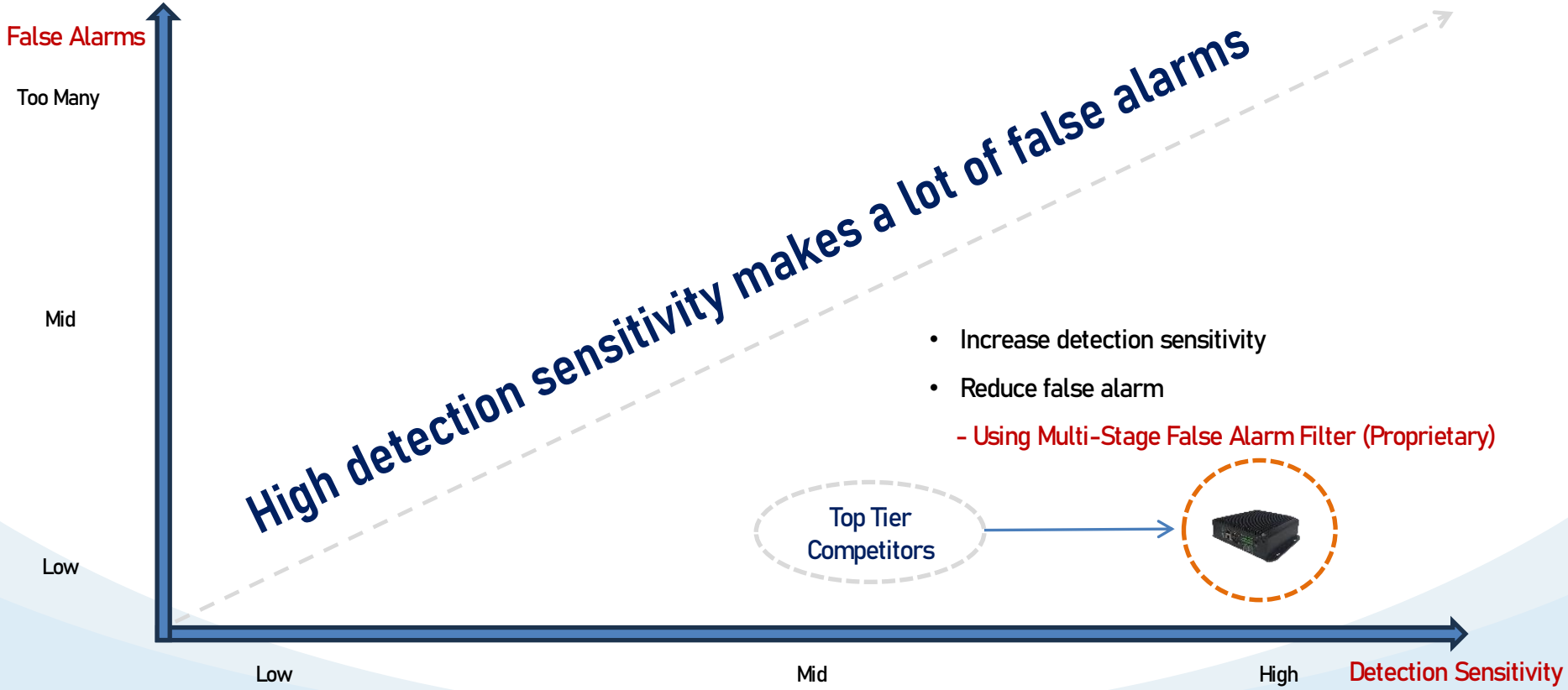


VS

Human's Knowledge level

Data / Information level

Optimized Detection Level

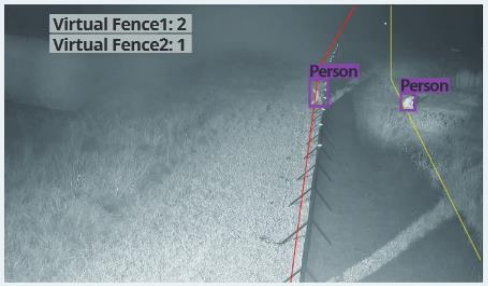


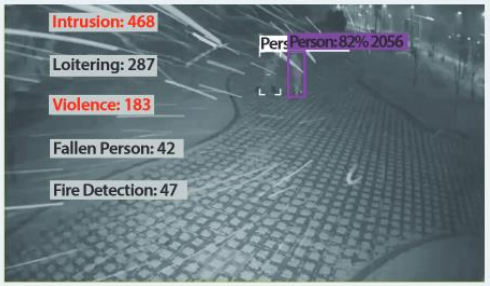
Precision Detection with Smart Filter

Outstanding detection performance

Superior detection

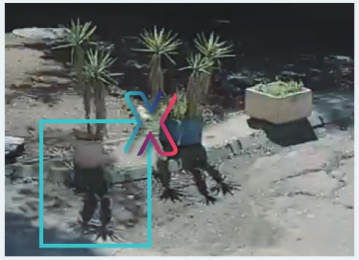
- Any environment; any extreme challenging scene





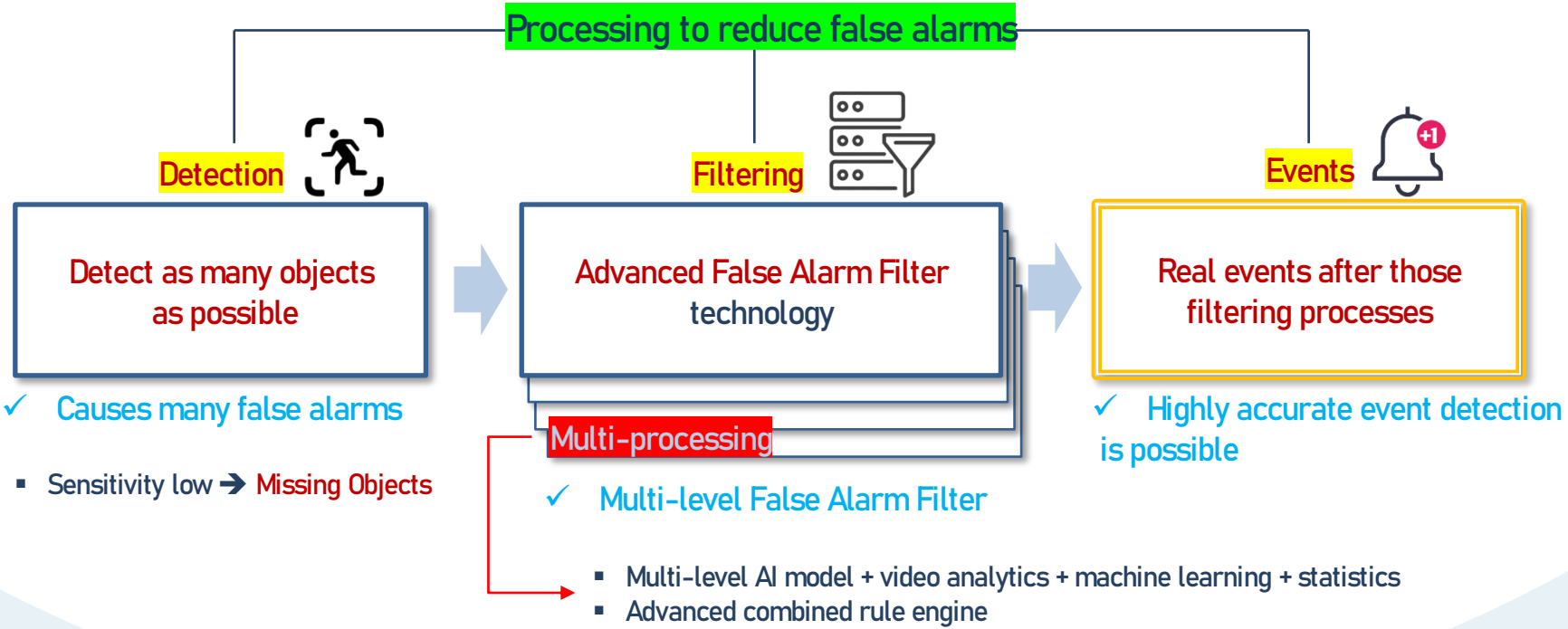
Multi-stage false alarm prevention filter

- No struggling with annoying notifications
- Real object notifications



Multi-level Filter Architecture

Overcome false alarm through multiple filters



Application 1 – Precision Detection

Comparison to old Gen. AI Box

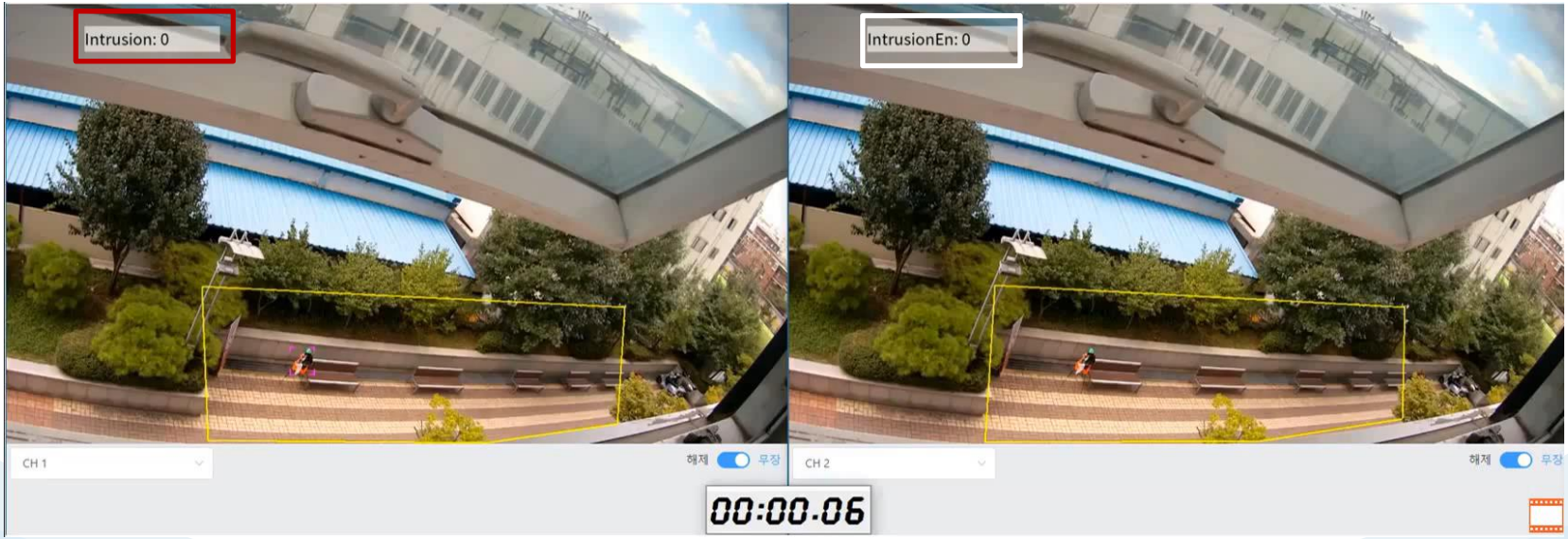
Demo video

- Overall '**Scene Understanding**' through anti-false alarm technology.

Old Gen.

(**Red boxes** are false alerts, whites are filtered false alerts)

AI Bridge



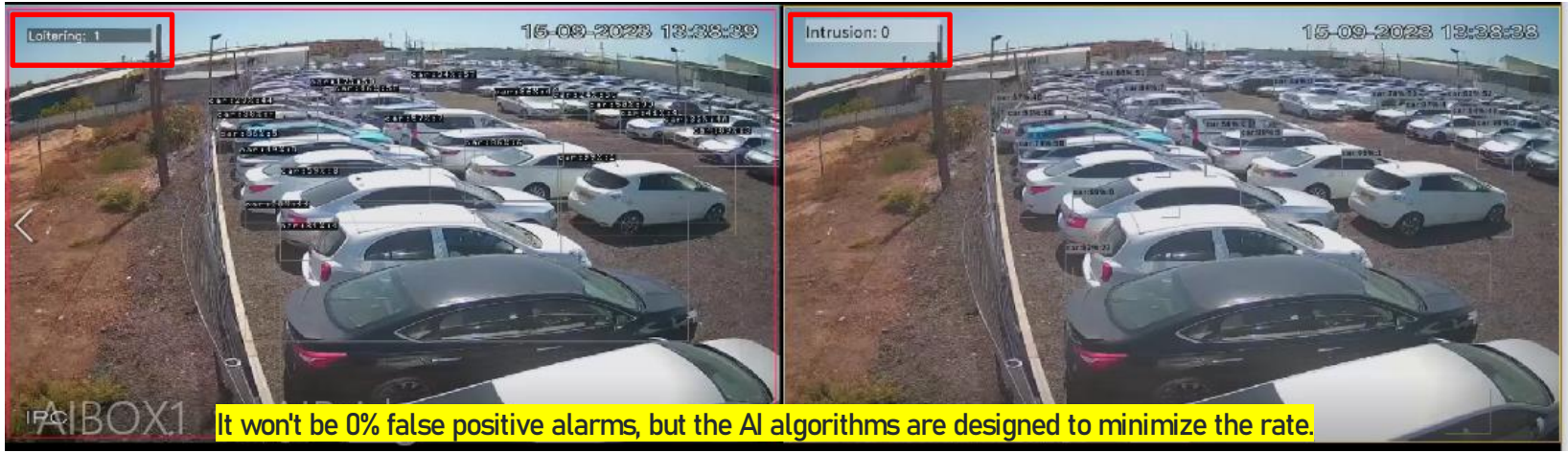
- Actual scenes may have a lot false alarm factors - wind, lights, object angles.

Application 2 – Precision Detection

Customer real use case - Parking lot

Old Gen. (9 false alerts in 16 min.)

AI Bridge (0 false alerts)



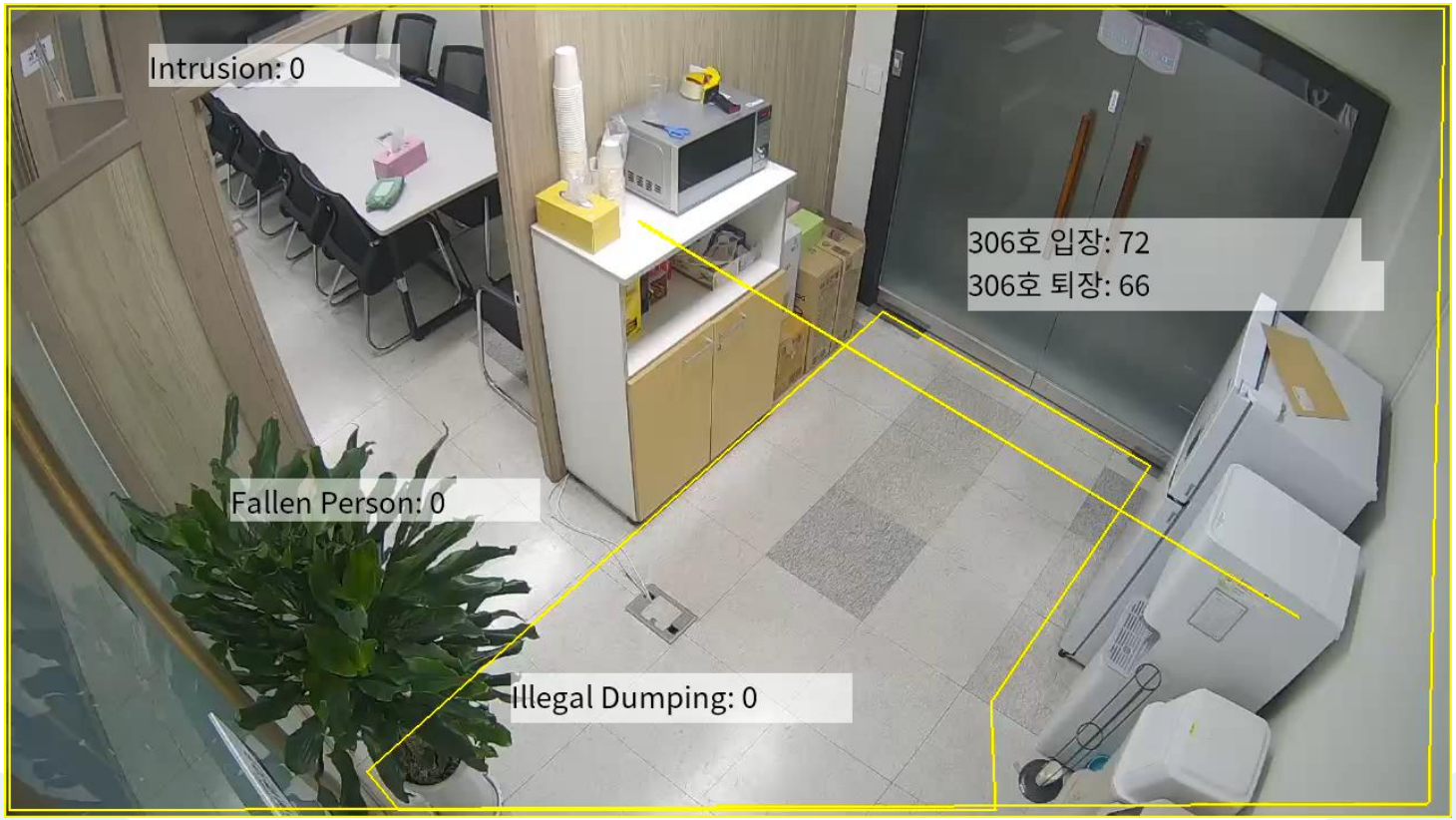
It won't be 0% false positive alarms, but the AI algorithms are designed to minimize the rate.

Item	False alarms per day	
	16 minutes	Calculated for a day
Old gen.	9	810
AI Bridge	0	Negligible level

Challenging Environment

Example: Multiple apps in extremely challenging environment

Intrusion by an umbrella-carrying person (AI Bridge)



- Test result: An umbrella-carrying person is perfectly detected.

Success Stories (Use Cases)

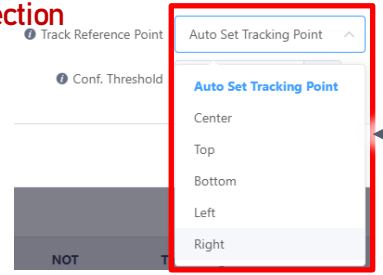
All video are clips prohibited from being shared externally.

AI-driven video analytics – Public Safety Management

People Counting (Line Crossing)

- Client: Seoul (Korea) subway line #9
- Project requirements: Crowd control (required by government)
  - Highly accurate people counting required
- Mission: Count exiting people
  - Make sure count fast-moving people
  - Duplicated people must be counted
  - All exiting people to be counted
- Applied AI algorithms: People Counting, Crowd Detection

Cloud BI Dashboard on cloud service



Date	Elevator	Escalator	Stairs
08/08	101.79%	99.43%	99.72%
08/09	102.81%	99.51%	99.39%
08/10	98.78%	99.83%	99.72%

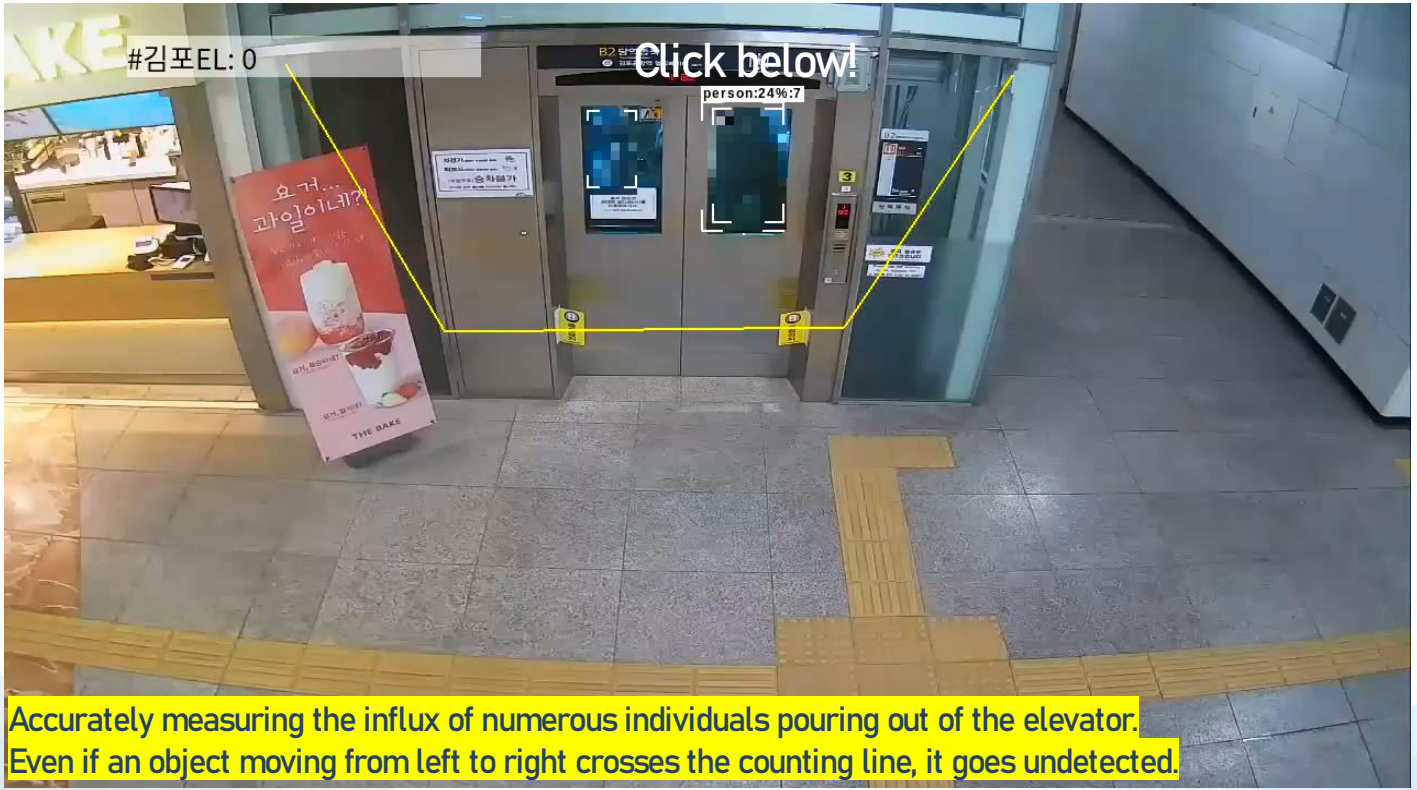
- Auto set tracking point through AIB basic setting
  - Any existing camera and any angle
  - The highest score among competitors

AI-driven video analytics - Public Safety Management

People Counting - Line Crossing

AI-driven video analytics - Public Safety Management

People Counting - Elevator



Accurately measuring the influx of numerous individuals pouring out of the elevator.
Even if an object moving from left to right crosses the counting line, it goes undetected.

AI-driven video analytics - Pedestrian detection excluding forklift operators

Forklift Non-Driver Detection

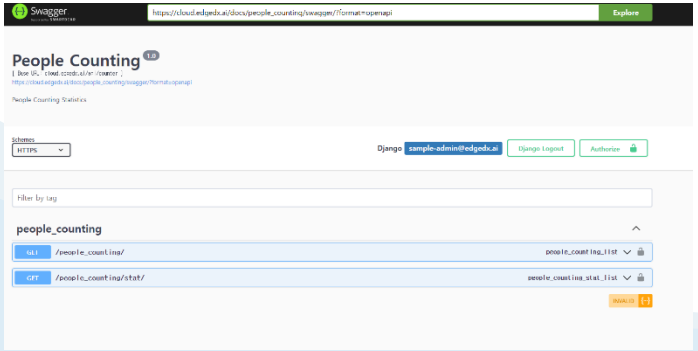
SERVEONE

SAMSUNG 에스원

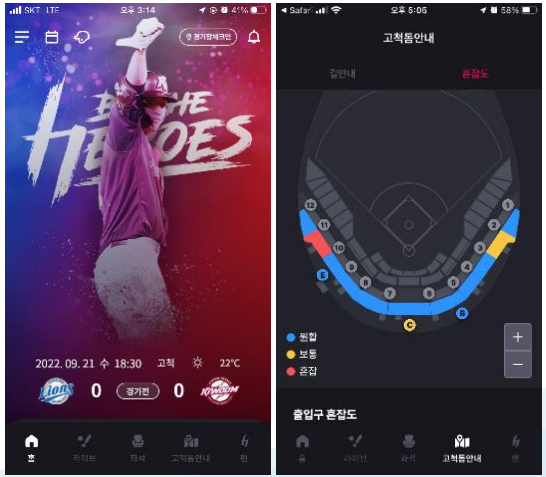
AI-driven video analytics - Baseball Team Stadium Management

Manage crowded venues

- Client: Korean pro-league baseball team HEROS stadium
- Project requirements: Service running on legacy app
  - Well-aggregated data as an easy API
  - API qualification: Swagger
- Mission: Value added on the legacy app (Convenience service)
  - Crowded points notifications for fans
  - Notification Points: Rest rooms, stores, exits, bleachers
- Applied AI algorithms: People counting, crowd detection



HEROS's Home - Seoul Gocheok Sky Dome stadium



HEROS mobile App (Ticketing, transportation, schedule) with value - crowd points service

AI-driven video analytics – Commercial Vehicle Management

- Client: The biggest Korean construction materials company
- Project requirements: Commercial trucks in/out bounding management
  - Materials management
  - Trucks in / out bounding management
- Mission: Advanced automatic truck management
  - Truck LPR, in & out time management
  - Construction materials loading & unloading management
- Applied AI algorithms & Service:
- AI Algorithms: Vehicle detection, LPR with time
- Service: EdgeDX cloud service (history management, reporting)

Customized Cloud Platform

License Plate Recognition, Line Crossing

TONGYANG 70 year old company

Platform deployments : 16 factories and their 105 partners

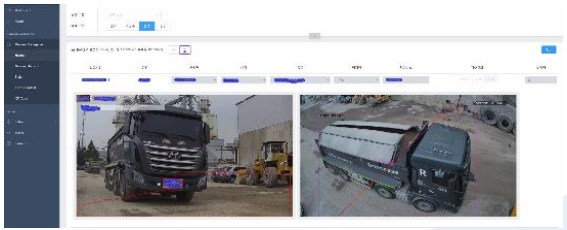
[Benefits]

Confirmation of aggregate import quantity

Generate/send reports in case of discrepancies

Cost-saving on manpower

Dashboard



History

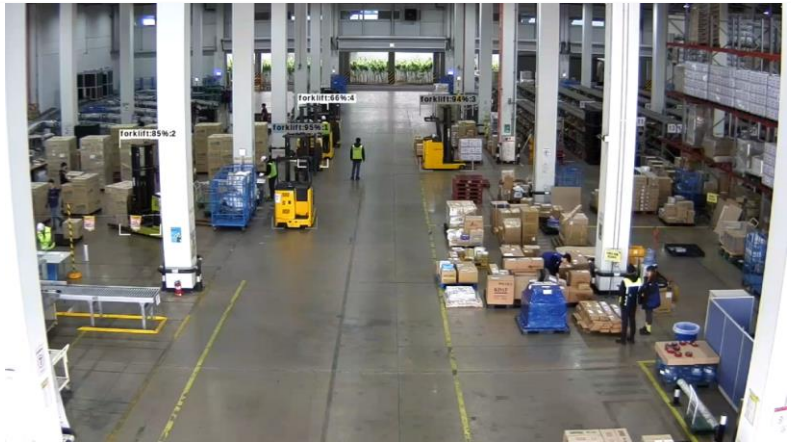
Discrepancy Report

AI-driven video analytics - Logistics Warehouse

- Client: Samsung S1 warehouse
- Organizer
  - Samsung S1: Korea's No.1 security vendor
- Mission: Overall PPE regulation check
  - Labourers in forklifts must have helmets
  - Forklifts, Human in the forklift, Helmet detection required
- Applied AI algorithms: Human detection, Forklift detection, Helmet detection

No. 1 cause of casualties through accidents at SMB manufacturers
- Forklifts (767 casualties in 5 years)
- Based on Korean Ministry of Employment and Labor

Forklift Operator Safety



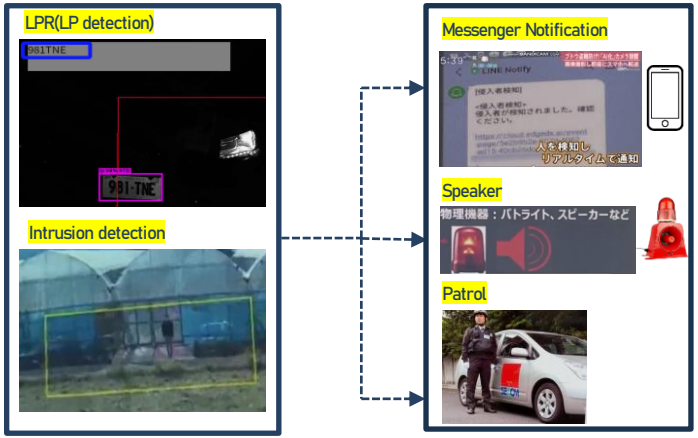
Forklift - No helmet

At the S1 warehouse

AI-driven video analytics - Anti-Theft Solutions)

Prevention of Agricultural Product Theft

- Target: Grape farm , Nagano, Japan
- Organizer
  - Secom in Japan: Japan & Asia's no. 1 security vendor
- Mission: Protection from 'Shine Muscat' theft
  - Multiple scenarios & algorithms required.
  - Japan No. 1 messenger support (Line: 96m. users)
- Applied AI algorithms: LPR, Animal/ Intrusion/ Loitering detection, Illegal parking



Prevention of total annual loss of $ 10,000 from each farm

- ✓ Not post-incident
- ✓ Immediate real-time response is possible

AI-driven video analytics – Traffic Accident Prevention

Roadside Sudden Event Detection: 0% False

- Client: Korean ITS system
- Organizer: Ministry of Land, Infrastructure & Traffic (Korea Government)
  - Purpose: Unpredictable circumstances management for ITS
- Mission: Over 300 ft. detection in low-light conditions
  - Less-visible people detection (black-wearing)
  - Over 300 ft. object detection (Vehicles & Persons)
  - Any time/ Anywhere/ Any environment
- Applied AI algorithms: Fine-tuned and optimized AI algorithms

③ 평가기준 : 자동차·도로교통분야 ITS 성능평가기준(국토교통부 고시 제2021-1056호, 2021.09.01.)
[별표 6] 돌발상황 검지시스템 성능평가 기준

④ 평가결과

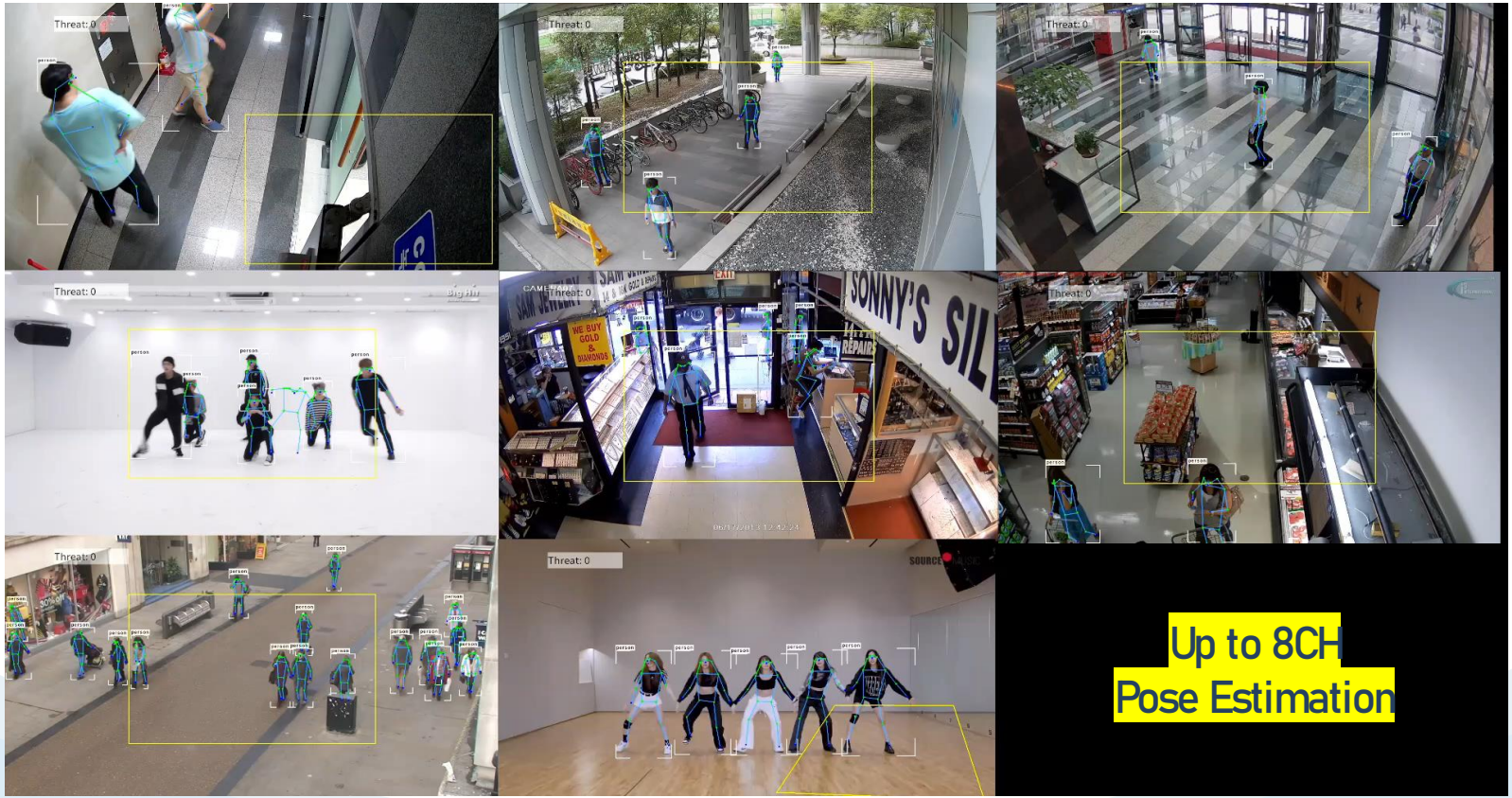
구분					
평가결과	정검지율(%)	100.0	최상급	100.0	최상급
	다른유형검지율(%)	0.0	최상급	0.0	최상급
	오경보(건/일)	0/1	최상급	0/1	최상급
평가환경	평가장소	[ ] 일반도로	[ ] 고량	[ ] 터널	[√] 기대(시험도로)
	날씨	[√] 맑음	[√] 흐림( )	[ ] 구름	[ ] 기타( )
	음영지역	평기대상장비 설치지점 ~ 30.0m			

· 평가기간 : 2021년 11월 22일(13:00) ~ 2021년 11월 25일(13:00)

- Unexpected situation detection within 328ft (100M) & 656ft (200M) distance
- Correct Detection Rate 100%, False Detection Rate 0%
- Cloudy/Clear, Day/Night, 4 days test
- 100% passed: Only one (EdgeDX) embedded type AI device

AI-driven pose estimation - overall performance

Demo video



AI-driven video analytics – Perimeter Security

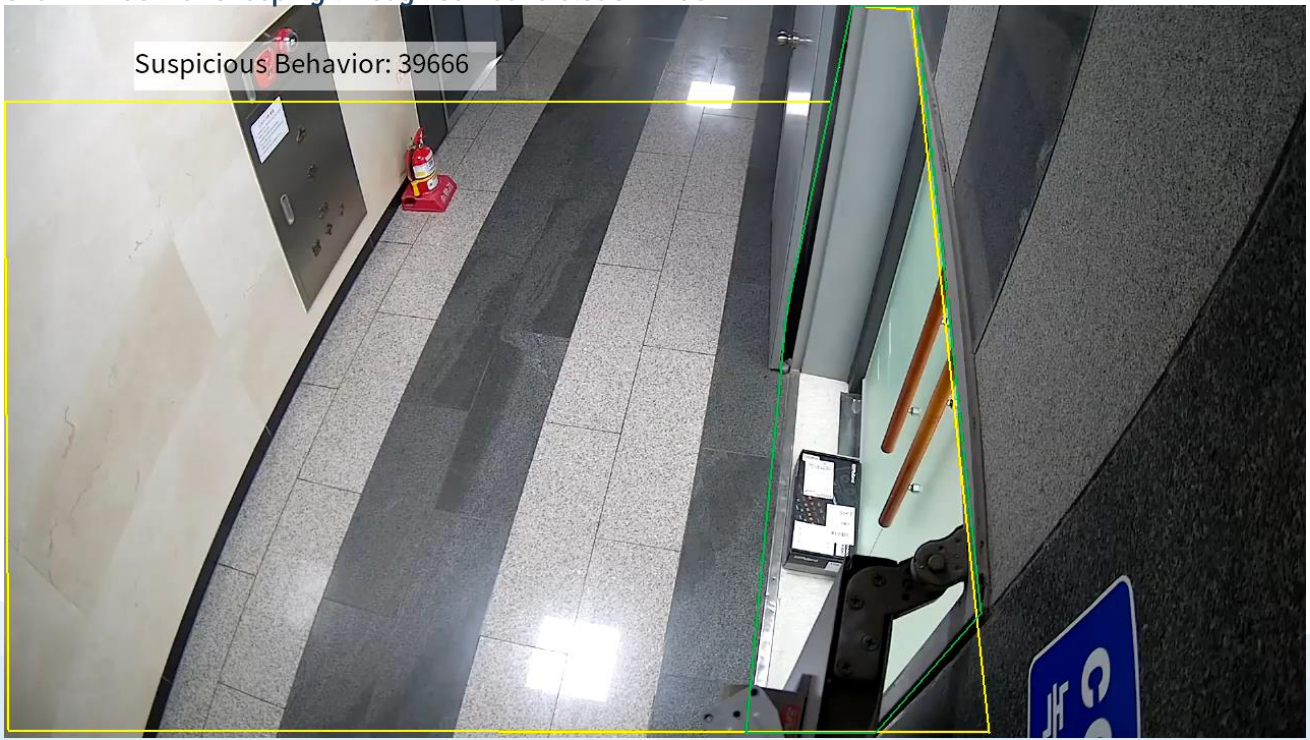
Intrusion Detection

Identify individuals in restricted areas, issue alerts, and trigger a range of responses.

AI-driven video analytics – Perimeter Security

Intentional Body Gaze Detector + Hand & Foot Intrusion

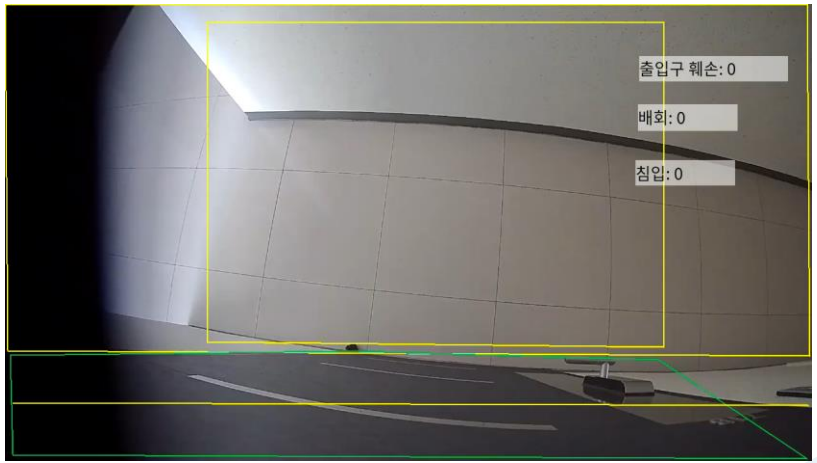
The direction of the body detects a person who is intentionally focusing their gaze in a specific direction. Detect someone who is interested in the exhibits in a show window or snooping through someone else's window.



AI-driven video analytics - Perimeter Security

Virtual Fence + Loitering, Hand & Foot Intrusion

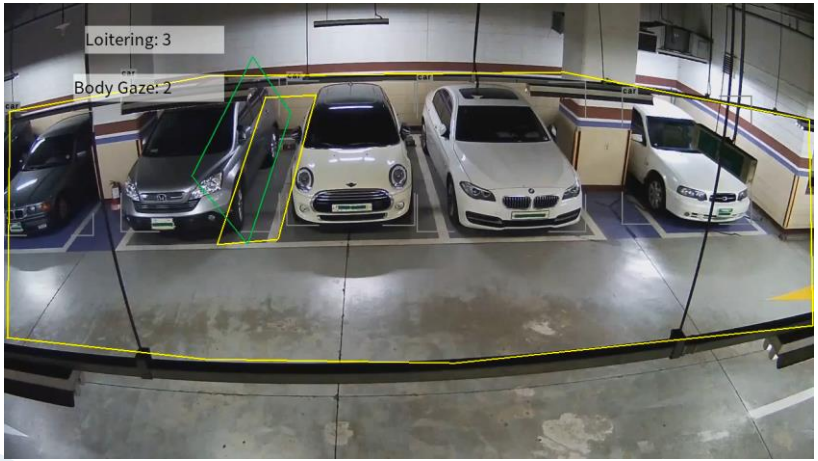
Set up virtual perimeters around critical assets or facilities to consistently monitor and actively detect any attempted breaches.



AI-driven video analytics - Perimeter Security

Loitering Detection + Body Gaze Detector

Detect people, cars, bikes loitering in certain areas. It can enhance security by detecting suspicious behaviour.



AI-driven video analytics – Public Safety (crowd)

Crowd Detection

Select a specific area within the camera's view to assess congestion levels and the frequency of incidents in that zone.

If the number of people within the designated area exceed the specified limit number, display - 1). the number of people and 2). trigger an event.

Upgrade Crowd Detection(Plan)

Aiming to detect smaller objects.

Through accurate counting even in moments of dense clusters of small objects, it is possible to regulate crowd density.

AI-driven video analytics – Public Safety (Building Management)

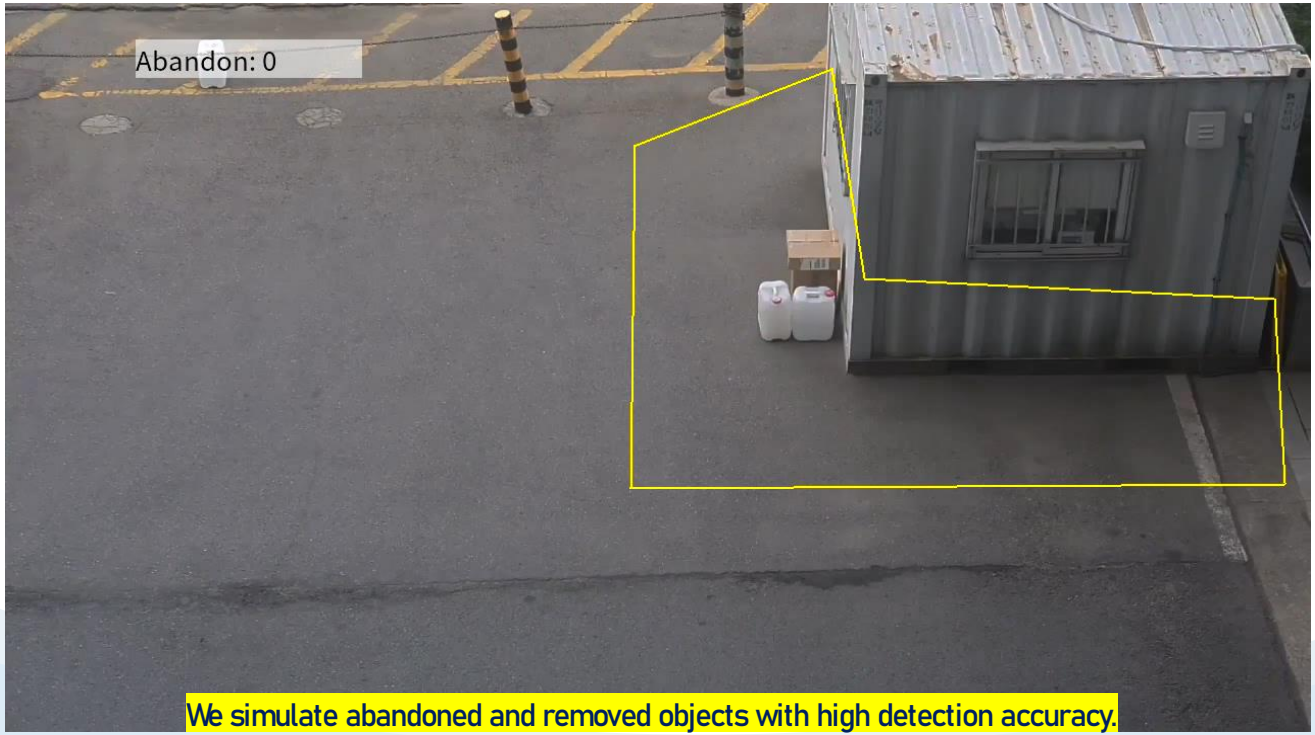
Occupancy Counting

Calculates the number of people in the building by adding up entry and exit counts.

AI-driven video analytics – Public Safety

Illegal Dumping

Identify abandoned items. This technology can be utilized to spot hazardous objects or the unlawful disposal of waste.



We simulate abandoned and removed objects with high detection accuracy.

AI-driven video analytics – Public Safety

Illegal Dumping (challenging environment)

Identify abandoned items. This technology can be utilized to detect hazardous objects or illegal waste disposal.

AI-driven video analytics – Public Safety

Fire & Smoke Detection (Case 1)

Detect flames and thick smoke in the surveillance area. A fire can spread quickly.

AI-driven video analytics – Public Safety

Fire & Smoke Detection (Case 2)

Detect flames and thick smoke in the surveillance area. A fire can spread quickly.

AI-driven video analytics – Public Safety

Fallen Person

Possible to detect fallen persons accurately even in complex obstacles or various scene conditions.

AI-driven video analytics - Public Safety

PTZ Tracking

In CCTV environments, PTZ cameras track objects and maintain their size on the screen.

Precisely tracking event-triggered objects without missing.

AI-driven video analytics – Advanced Public Safety

Blacklist Cars and Illegal Dumping

- Client: Any location requiring illegal dumping detection
- Pilot: US East-coast (New Jersey)
  - Through Alarmax distribution customer
- Mission: Blacklist vehicles with illegal dumping management
  - Figuring blacklist vehicles
  - Manage illegal dumping
  - Multiple combined events management
- Applied AI algorithms: LPR, Illegal dumping, Combined rules, SNS messenger notifications (via Telegram)

1st alarm with blacklist LP + 2nd alarm with illegal Dumping

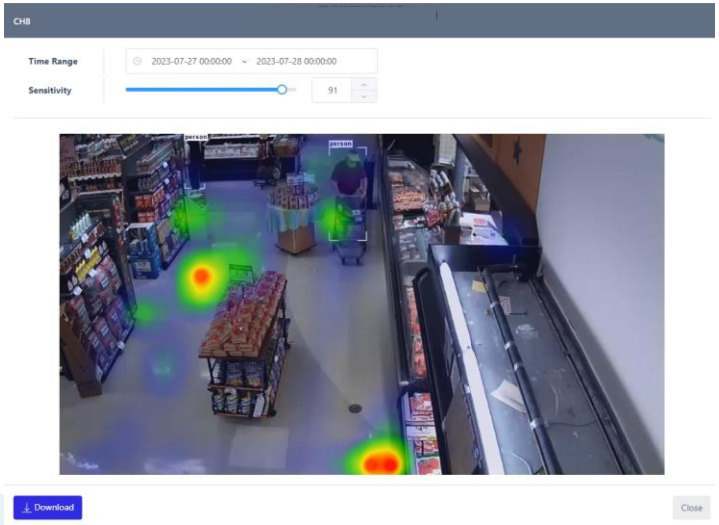
USA cases
- Non authorized vehicles coming into residential complex
- Disposing trash in the residential complex.

AI-driven video analytics – Retail Management

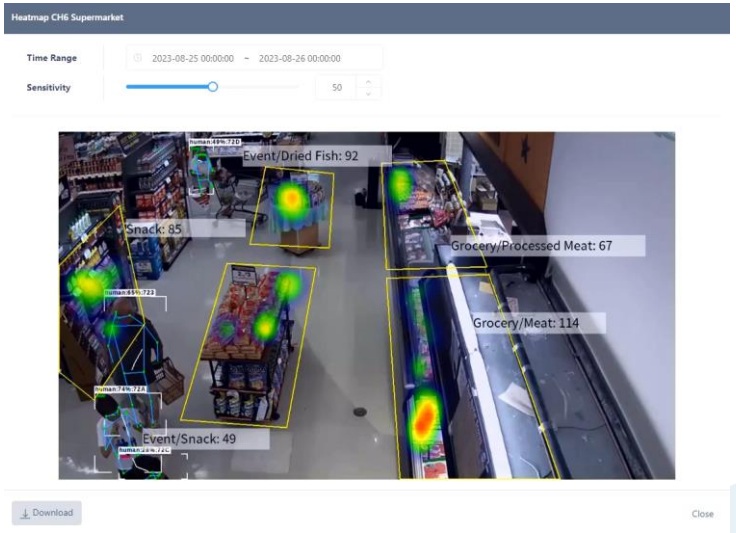
Heatmap

Advanced heatmap technology provides more valuable marketing insights by displaying heatmaps when individuals show interests in specific shelves, using human pose analysis.

Basic heatmap



Advanced heatmap



AI Video Analysis – Retail Management

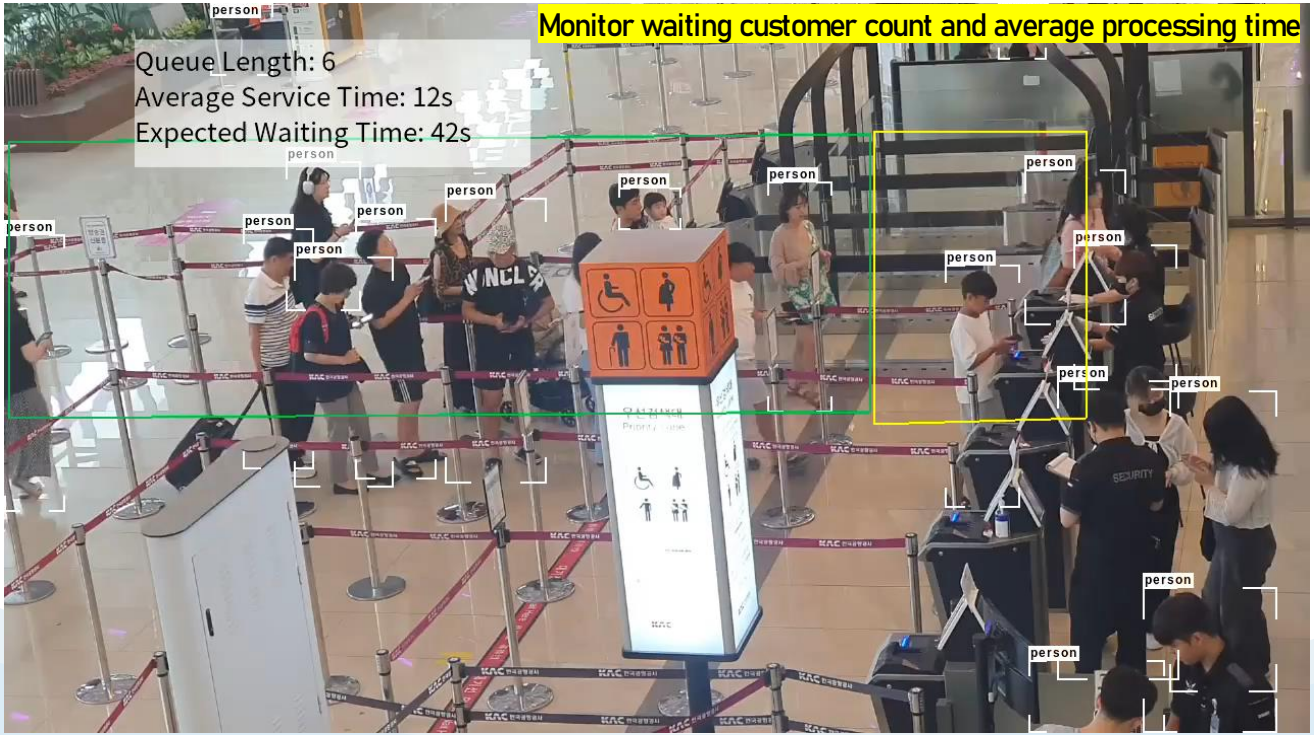
Staff Exclusion

It is possible to count the number of people, excluding staff who are wearing name tags or employee badges.

AI-driven video analytics – Retail Management

Queue Management

Queue analysis provides key marketing insights for retail, optimizing staffing and enhancing customer experience.



AI-driven video analytics – Retail Management (Advanced Attributes)

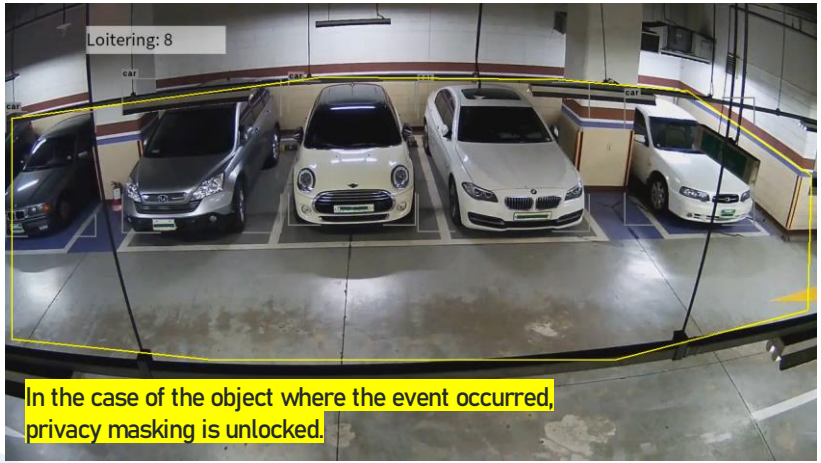
Advanced Attributes

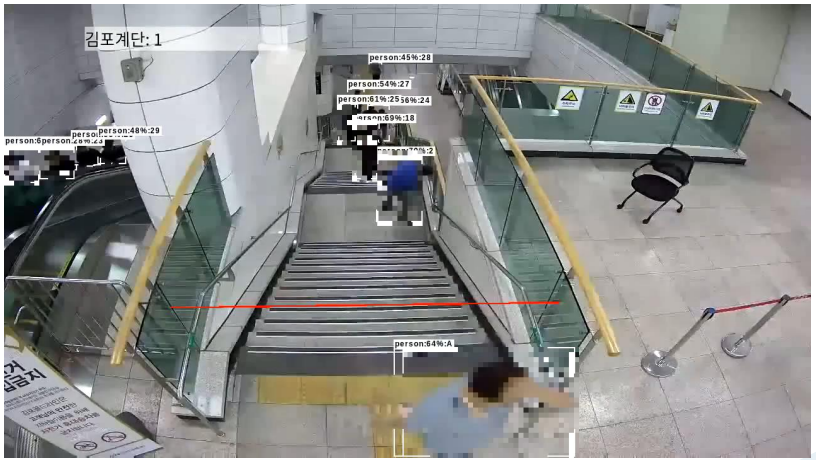
It Identifies detailed information about people, such as clothing color, type, gender, and age group

AI-driven video analytics – Public Safety (Data Protection)

Dynamic Privacy Masking

Masks all individuals, except for the individual linked to the identified event

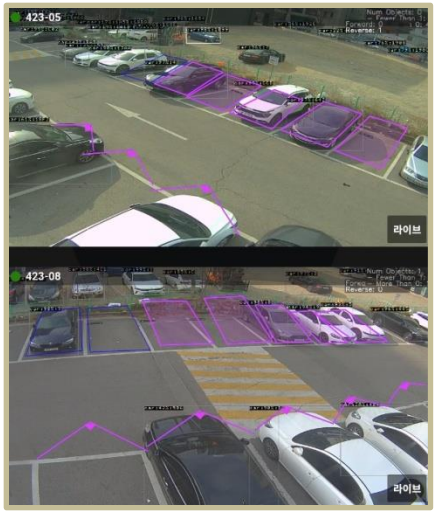




AI-driven video analytics – Retail & ITS (Parking Space Management)

Parking Lot Management

- Vehicle parking recognition
- Real-time analysis of vehicle occupancy in the parking spaces

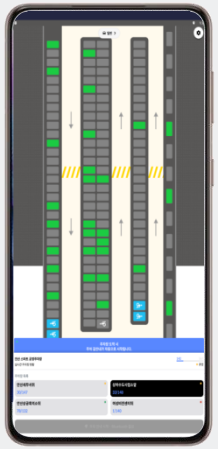


End User Application Solutions (Possibility)

Management of parking spaces

1. Real-time analytics by AI Bridge
2. Collecting data from cloud servers
3. Mobile app service – Available parking spaces
4. Eg.: Gyeonggi-do pilot service

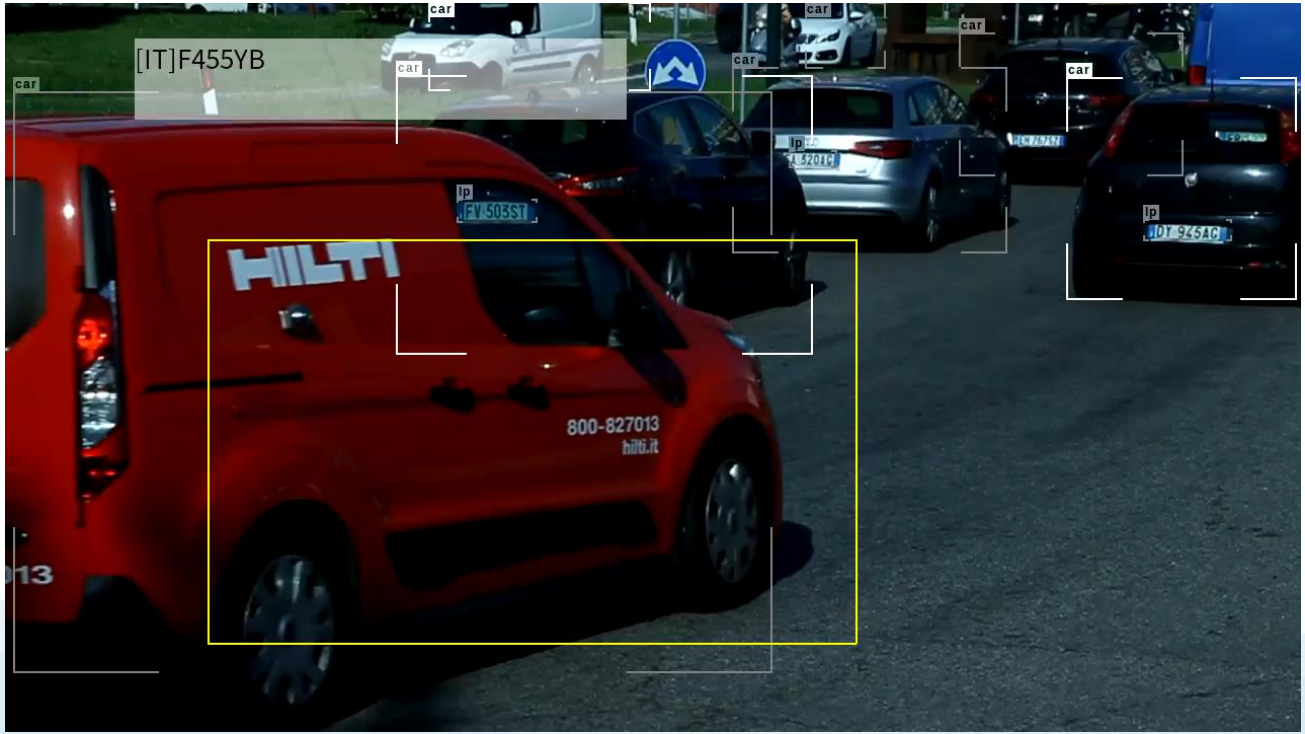
Mobile application



AI-driven video analytics – ITS (LPR)

LPR (License Plate Recognition)

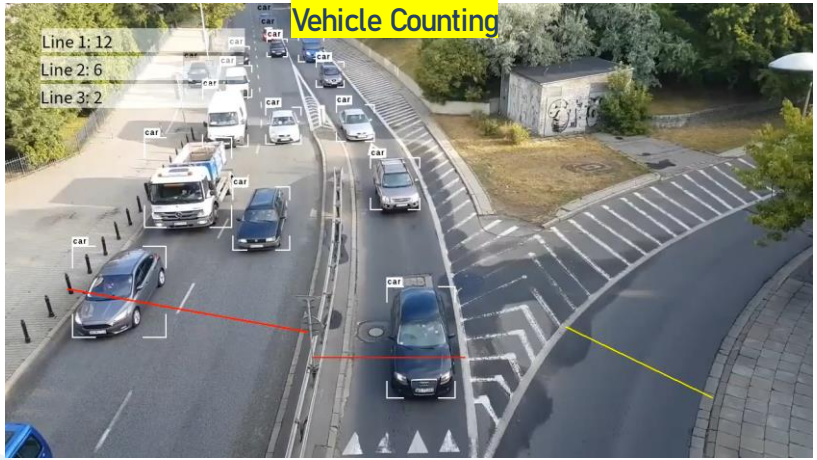
Recognizes license plates and compares them to pre-registered car numbers to generate events such as match/mismatch.



AI-driven video analytics – ITS (Vehicle & Type Counting)

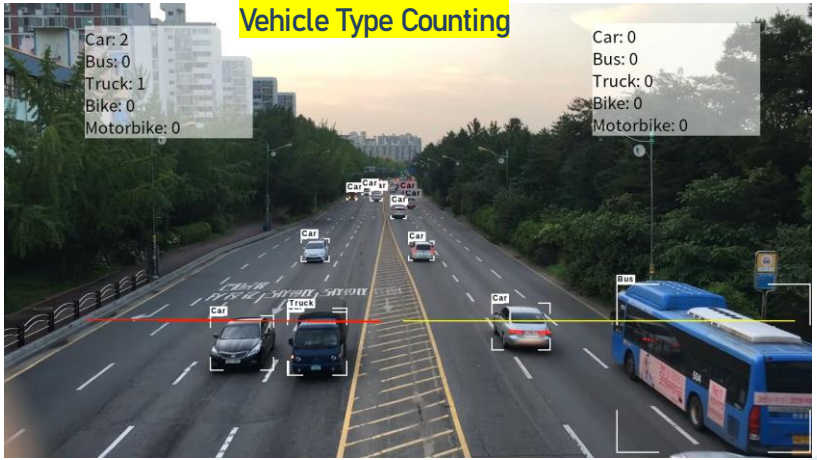
Vehicle Counting

The quantity of vehicles that pass by can be counted.



Vehicle Type Counting

Vehicles such as cars, trucks, buses, bicycles, and motor-cycl es can be categorized by type, allowing for an enumeration of each category through various channels.



AI-driven video analytics – ITS (Illegal Parking)

Stopping Detection

Detect individuals and vehicles that have stayed in a stationary position for a designated period.

AI-driven video analytics – ITS (Multiple Management)

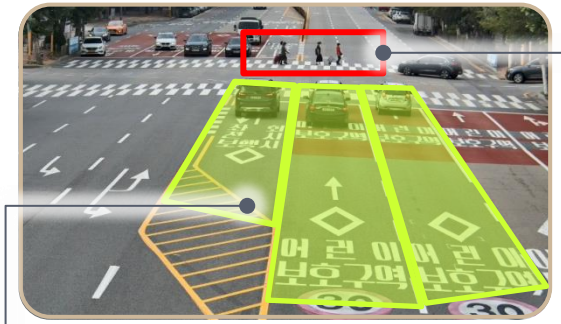
Various AI Apps

Using various AI apps at road intersections, it's possible to manage vehicle types, directions, and traffic counts.

AI-driven video analytics – ITS (Smart Traffic)

Smart Intersection

- Left-turn vehicle volumes
- Pedestrians on the crosswalk



Left-turn vehicle volumes control, lane-specific waiting vehicle control

Pedestrians control on the crosswalk

Smart Crosswalk Management

- Detection of pedestrians on the crosswalk
- Display warning alarm or audio broadcast through integration with signal or audio broadcast systems

Pedestrian, child detection by zone

Extending the signal while walking

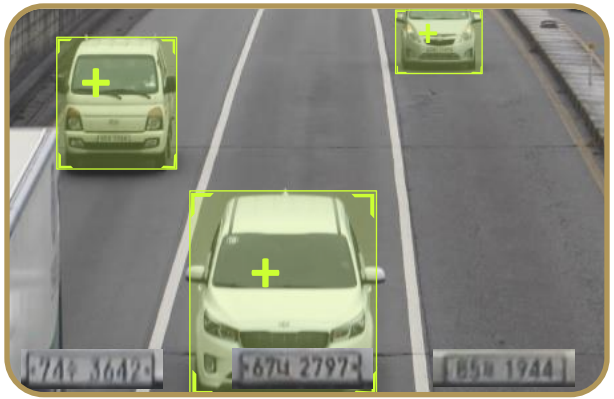
AI-driven video analytics – ITS (Smart City Management)

Road Safety

- Traffic and queue analytics
- Incident monitoring - stop, reverse, pedestrian
- Enable PTZ auto-tracking on event objects with separated PTZ

LPR (Independent Function)

- License plate recognition
- Simultaneous vehicle number plate recognition up to 3 lanes



AI-driven video analytics – Safety Management

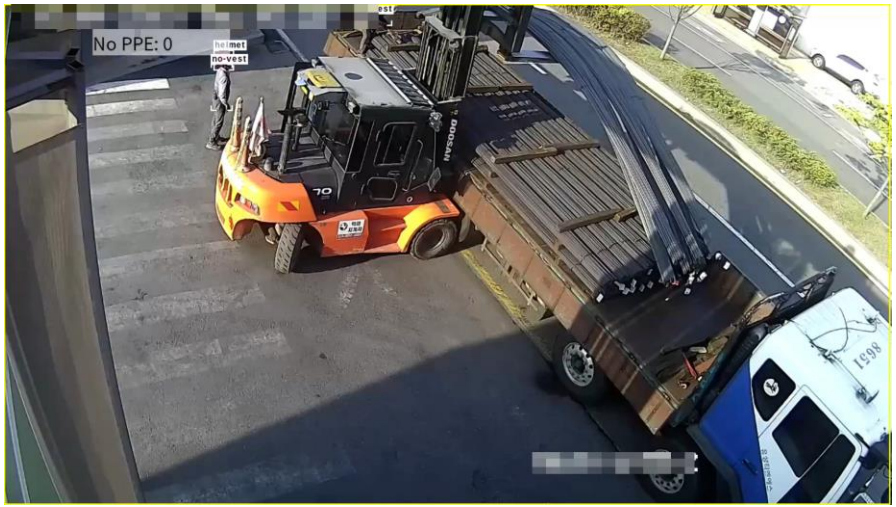
Remove

An app using object detection to find missing items in videos can help catch thieves in real time.

AI-driven video analytics – Safety Management (Construction)

No PPE (Personal Protective Equipment)

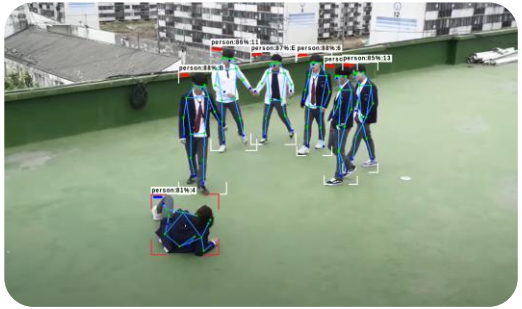
Recognizes non-PPE wearing in the surveillance area and sends a warning message to the non-wearing safety equipment or manager.



AI-driven video analytics – Safety Management (School)

Bullying Detection

AI analysis can detect videos of multiple students bullying one student.



Analyzing scenes where multiple people surround an individual before aggressive actions.

AI-driven video analytics – Safety Management (Warehouse)

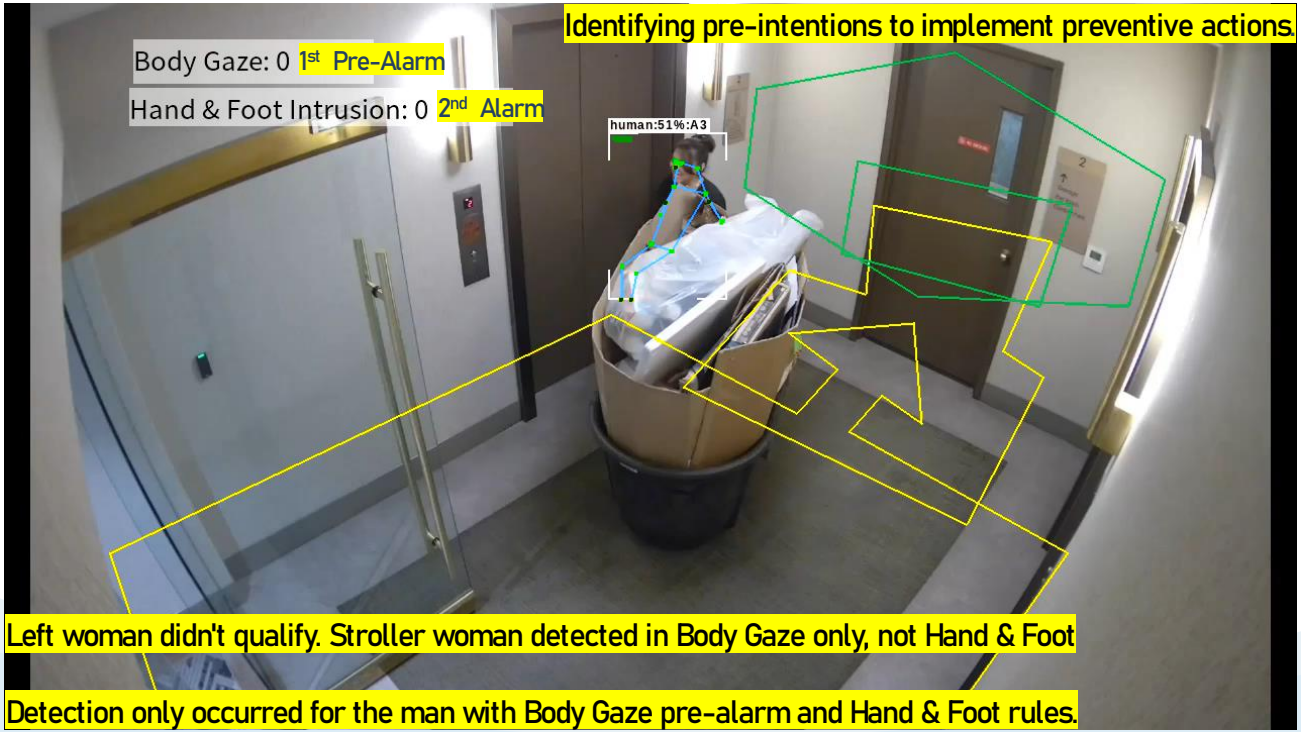
Forklift No Helmet

Detect if the forklift driver is not wearing a helmet.

AI-driven video analytics - Advanced Safety Management (School safety & security)

Multiple AI Apps Combined

This case involves creating composite rules from multiple AI apps to deliver the final event.



AI-driven video analytics – Special Application (Thermal Intrusion)

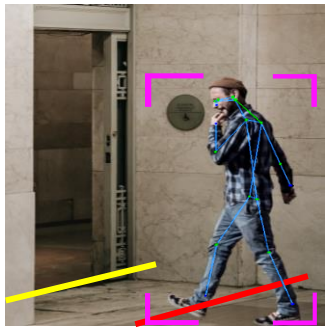
Thermal Intrusion Detection

Dedicated human detection using advanced thermal imaging.

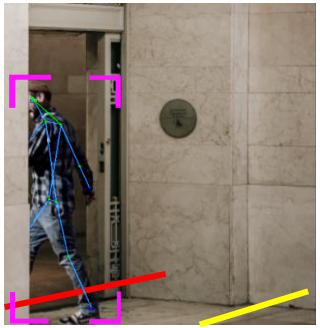
AI-driven video analytics – Advanced Public Safety (Detecting students leaving school and alerting teachers)

Vertical Application (more accurate)

- Target: Child care and special care needs
- Mission: Proactive event checking, Major event checking
  - Child care to prevent wrong activities
  - Enable advance measures by administrators
- Applied AI algorithms: Intentional body gaze detector, Hand & foot intrusion, Multiple combined event control, Messenger notification

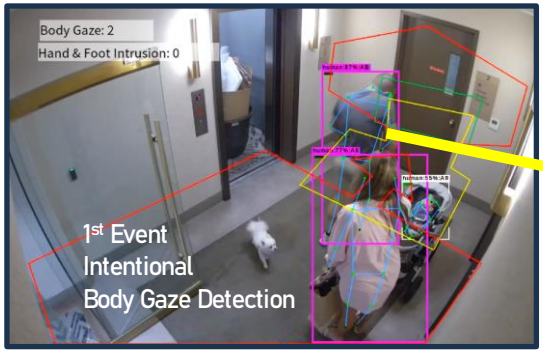


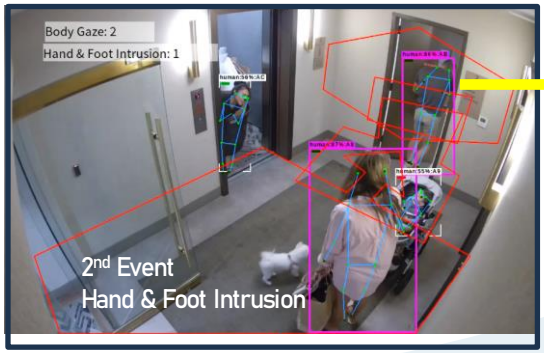
Intentional
Body Gaze Detector



Hand & Foot Intrusion

By sending alarms in advance during school activity hours to prevent students from going outside, administrators can take proactive measures.





Telegram alarm through the cloud service

Appendix: Product specifications

AI Bridge		AIB-TS2-08 Up to 16-channel	AIB-TE1-04 Up to 4 - CH
Event Action	System Events	Tamper Detection, Alarm In, Virtual Alarm In, Video Loss / Recovery, Disarm, Recurrence, Login, System Start	Tamper Detection, Alarm In, Virtual Alarm In, Video Loss / Recovery, Disarm, Recurrence, Login, System Start
	Action Handlers	HTTP, TCP, FTP, E-mail, S3, VMS, Onvif, Audio Back Channel (Camera speaker)	HTTP, TCP, FTP, E-mail, S3, VMS, Onvif, Audio Back Channel (Camera speaker)
	Combining Rules with Other Events	Yes	Yes
	Pre/Post snapshot	Yes	Yes
	Annotated Video Stream	Yes	Yes
Video	Max. Video Input resolution	4K @ 60 fps (2M @ 240 fps)	4K @ 30 fps (2M @ 120 fps)
	Video Input Method	RTSP, RTSP over HTTP/S, Onvif	RTSP, RTSP over HTTP/S, Onvif
	Supported Input Video Format	H.265 / H.264	H.265 / H.264
	Video Output Stream Method	RTSP over TCP/UDP, RTSP over Websocket, RTSP over HTTP/S	RTSP over TCP/UDP, RTSP over Websocket, RTSP over HTTP/S
	Recording(Video, Snapshot)	- 1 x M.2 M-Key Slot (for M.2 2280 NVMe SSD) - Recording license 8-ch(OPTION)	- 1 x M.2 M-Key Slot (for M.2 2280 NVMe SSD) - Recording license 4-ch(OPTION)
Audio	Audio Input	1 x Audio Line-In, (10KOhm, 1Vrms), (3.5mm audio phone jack)	1 x Audio Line-In, (10KOhm, 1Vrms), (3.5mm audio phone jack)
	Audio Output	1 x Audio Line-Out, (600Ohm, 1Vrms), (3.5mm audio phone jack)	1 x Audio Line-Out, (600Ohm, 1Vrms), (3.5mm audio phone jack)
Interface	USB	1 x USB3.0	1 x USB2.0
	RS-485	1 x RS-485 (Full-duplex 4line T/B)	-
	RS-232	1 x RS-232 (D-SUB9)	-
	Wiegand	1ch input / 1ch output	-
	LAN	2 x 10/100/1000 BASE-T Ethernet (ETH1/ETH2)	2 x RJ-45 10/100 BASE-T Ethernet (LAN1/LAN2)
	mini PCIe Slot (LTE, GPS Module)	1x Mini-PCIe (for LTE-cat4 / GPS(GNSS) Modem module)	-
	SIM Slot	1x micro SIM Slot	-
	Antenna	2x 50Ω SMA Female for Main Antennas (OPTION) 1x 50Ω SMA Female for GPS(GNSS) Antenna (OPTION)	-
Alarm I/O	Alarm Input	4CH, DI(0-30V Input), Pulled up to 5V via 10KOhm	4CH, DI(0-30V Input), Pulled up to 5V via 10KOhm
	Relay Output	4CH, Dry contact Relay(30VDC/250VAC), NO/COM/NC (Terminal Block)	1CH, Dry contact Relay(30VDC/250VAC), NO/COM/NC (Terminal Block)
ETC	Watchdog	Yes	Yes
	RTC	Yes	Yes
	Cooling Fan	-	-
	Factory Reset button	Yes	Yes
	LED Indicators	1 x PWR LED (3 Color) 1 x Status LED (3 Color) 1 x ALARM IN LED (3 Color) 1 x ALARM OUT (3 Color)	1 x PWR LED (3 Color) 1 x Status LED (3 Color)
Power	Power Supply	12V/3.3A adaptor DC +9V ~ +36V (DC Input Voltage)	12V/3.3A adaptor(TBD) DC +9 ~ +36V (DC Input Voltage)
	Power Consumption	16 Watts	6 Watts
Environment	Temperature/Humidity	-30°C ~ 70°C (-22°F~158°F) / 10 ~ 90% NC	-30°C ~ 70°C (-22°F~158°F) / 10 ~ 90% NC
Chassis	Dimension(WxDxH)	213.6 x 175.8 x 60 mm	94 x 153 x 28 mm
	Weight(Net/Gross,KG)	1.5/2.2	0.45/1.05
Mounting	-	Desk, Wall VESA(200mmx100mm)	Desk, Wall, DIN Pail(OPT)
Certification	-	CE, UKCA, FCC, KC	CE, UKCA, FCC, KC

Thank you

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