

# AI TECHNOLOGY ENSURES CAMPUS SAFETY

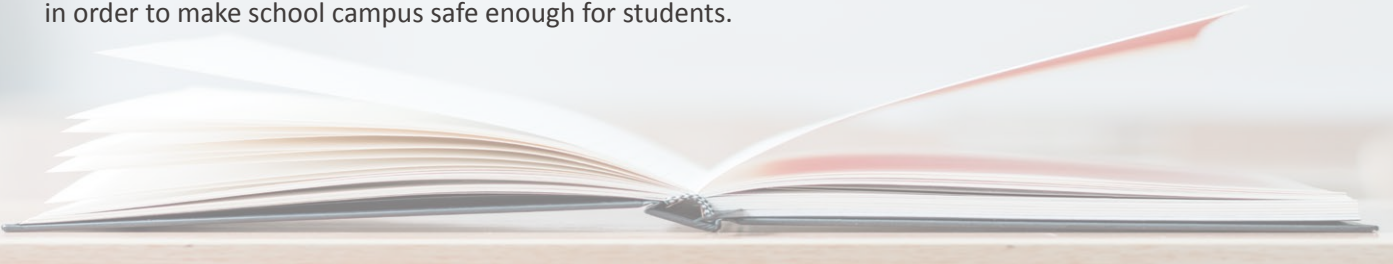
Dahua Campus Safety Management Solution

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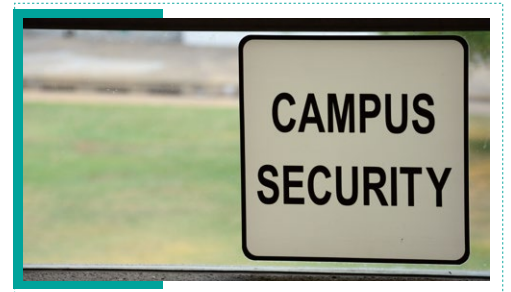
## BACKGROUND

According to a recently published poll of college students, 86% of parents believe that the safety of the campus is an important factor in choosing a college. Safety even ranks higher than academic quality for parents. All colleges do their best to keep campus housing a safe place, but there are still a lot of challenges to overcome in order to make school campus safe enough for students.

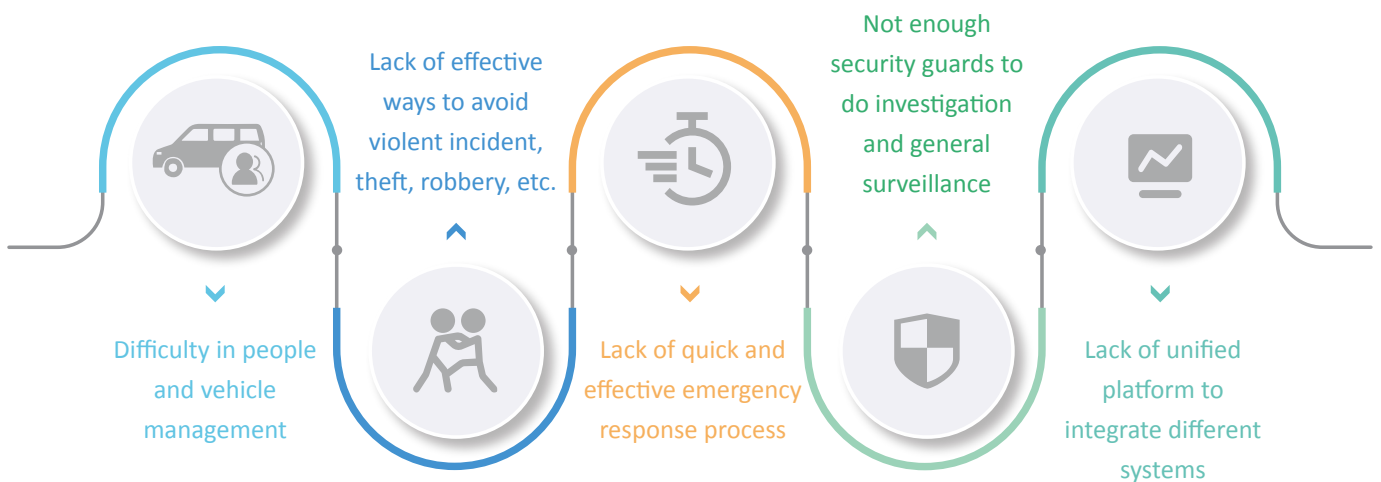


Colleges are required by the Higher Education Opportunity Act (HEOA) to keep campus crime statistics, which are compiled from campus security reports. These reports detail the types and number of crimes that occur on and around the campus as reported by campus police, resident advisors and other campus security officials.

In 2013, the Japanese National Assembly passed the Law on Promoting School Bullying Prevention Measures, which legalized the problem of school bullying for the first time. It clarified the definition of school bullying and established a complete system to deal with it.



### • Key Challenges



## SOLUTION OVERVIEW



People Management



Vehicle Management



Emergency Management



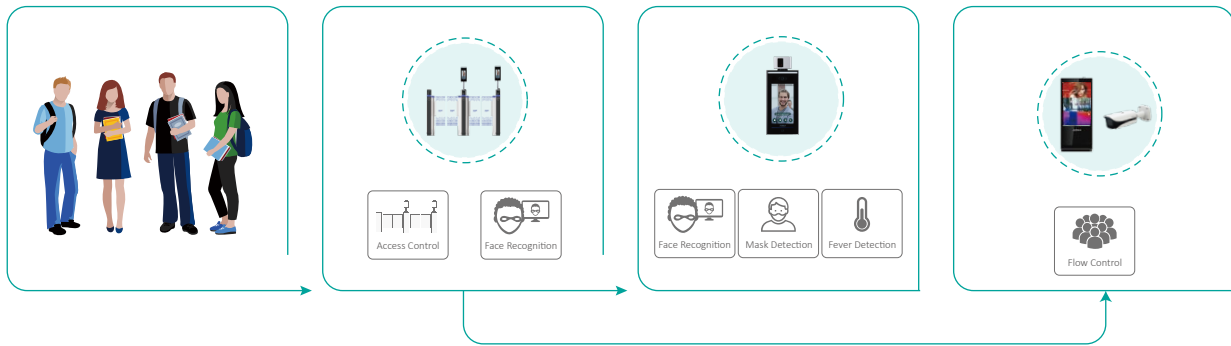
Canteen Management



Control Center Management

## SOLUTION DESIGN

### • People Management



### Application Scenarios

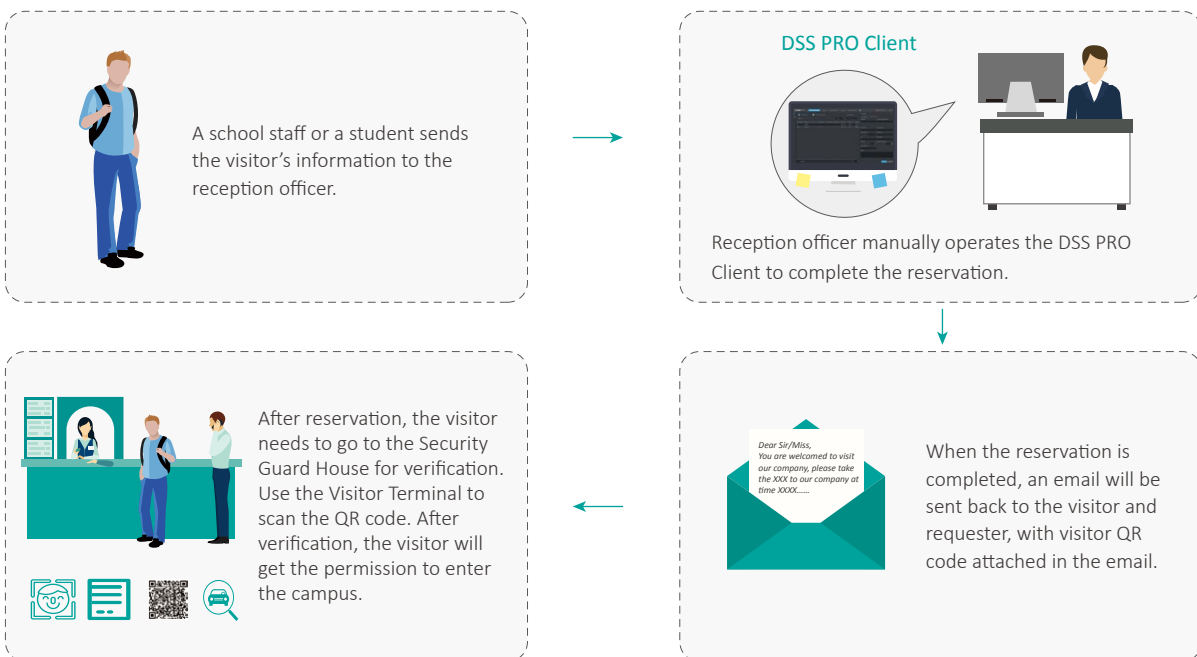
- Campus Entrance
- Apartment Entrance
- Library Entrance



### Solution Value

- Adopts FR and access control for people management at the entrance with higher efficiency and security.
- Reduces the risk of cross-infection through the detection of face mask and temperature, flow control, etc.
- Manages the visitors' records with a robust system to enhance security and enable backtracking.

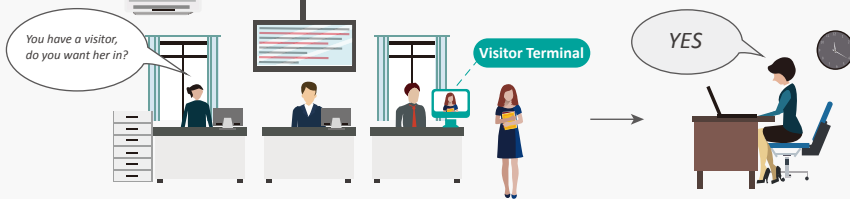
### 1 Reservation Visitor



## 2 Temporary Visitor

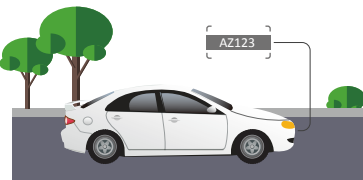


For temporary visitor without reservation, the visitor needs to register at the Security Guard House.



The security personnel will confirm the visitor's information with their contact person in the school. The visitor will need to fill-up the visitor information via the DSS PRO Client or Visitor Terminal. After confirmation, the visitor will get the permission to enter the campus.

## • Vehicle Management



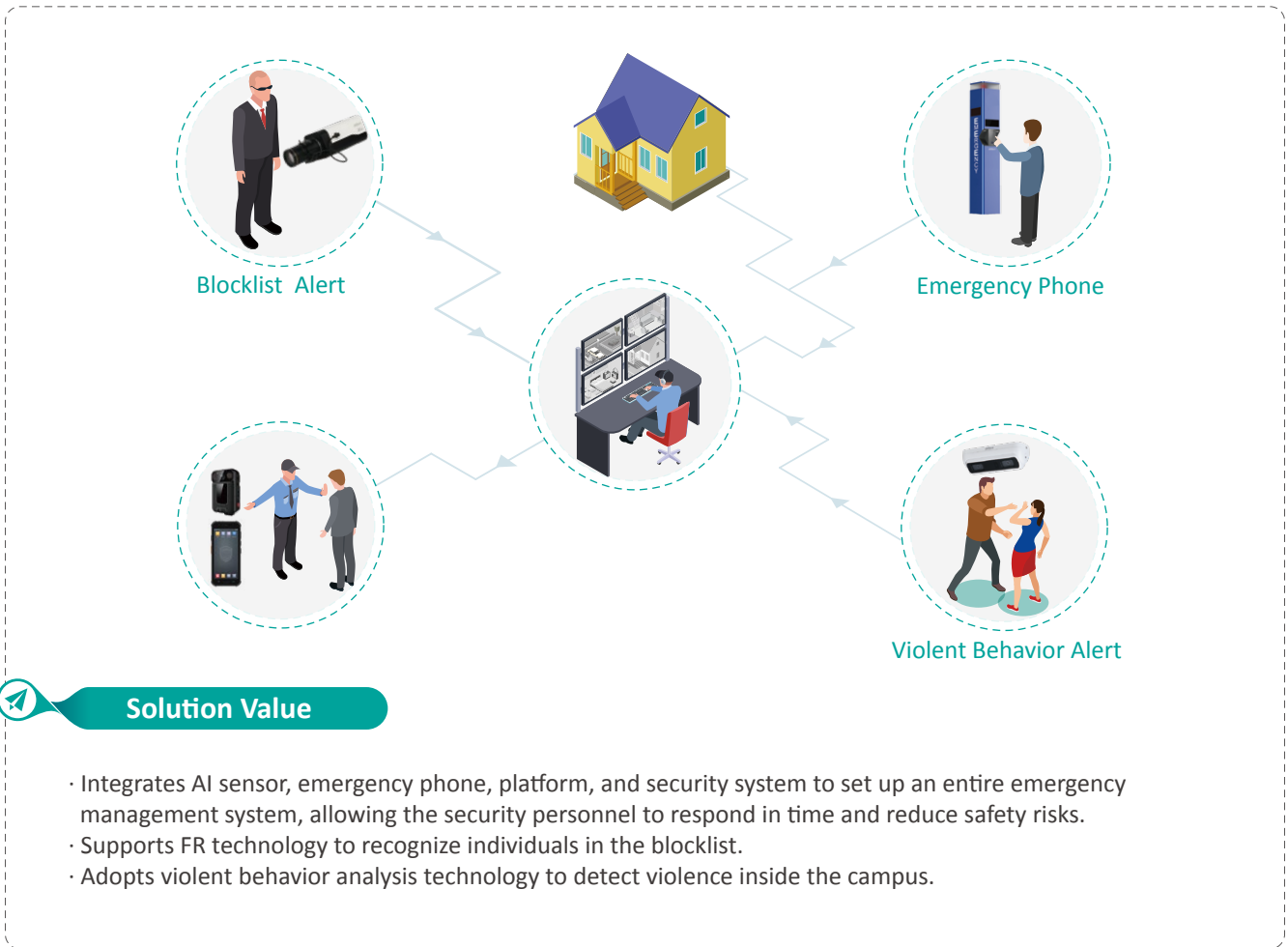
### Application Scenarios

- Campus Entrance
- Campus Road

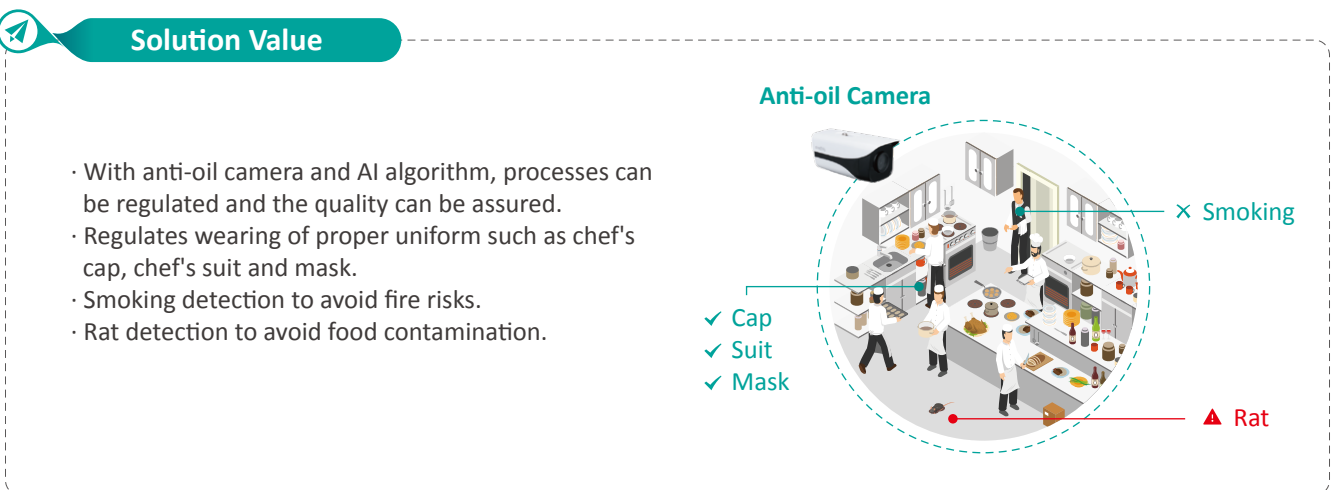
### Solution Value

- Adopts ANPR and barrier gate for vehicle management at the entrance gate with higher efficiency.
- Detects illegal parking and over speeding, improving safety and regulating driving inside the campus.
- Provides visual reports of vehicles in the campus.

• Emergency Management



• Canteen Management



• Center Management/Perimeter



Application Scenarios



· Campus Perimeter



· Campus Lake/River

**Video Perimeter**

- Visible at day and night.
- Easy deployment.
- Filters animal, leaf, light, and other irrelevant objects, reducing 95% of false alarms.
- Provides active deterrence, with all-in-one installation.
- Offers target types (human and vehicle) to easily search targets from video recordings.



**Thermal Perimeter**

- Ignores interference caused by zero light, smog, rain, snow, and so on.



**Radar Perimeter**

- Provides long distance perimeter protection.
- Offers moving track display and PTZ camera real-time monitoring.



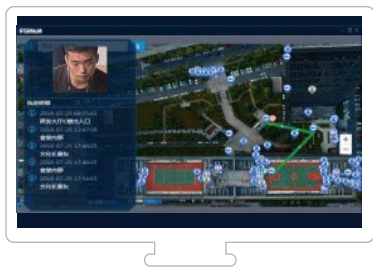
Center Management/AR Panorama

Solution Value

· AR panoramic technology generates wide field of view through merging and splicing of panoramic images. The software overlaps the cameras as tags in the image. The corresponding camera video is displayed by clicking these tags, making surveillance visual and convenient, and improving the center's efficiency.



Center Management/Metadata Analysis



20+ Attributes

- Face: 6
- Human: 8
- Non-motor Vehicle: 6
- Motor Vehicle: 7

**Human Face**

- Gender
- Age
- Glasses
- Mouth Mask
- Expression
- Beard

**Human Body**

- Gender
- Top Color
- Top Type
- Bottom Color
- Bottom Type
- Hat
- Bag
- Umbrella

**Non-motor Vehicle**

- Vehicle Type
- Vehicle Color
- Cycling Number
- Top Color
- Top Type
- Hat

**Vehicle**

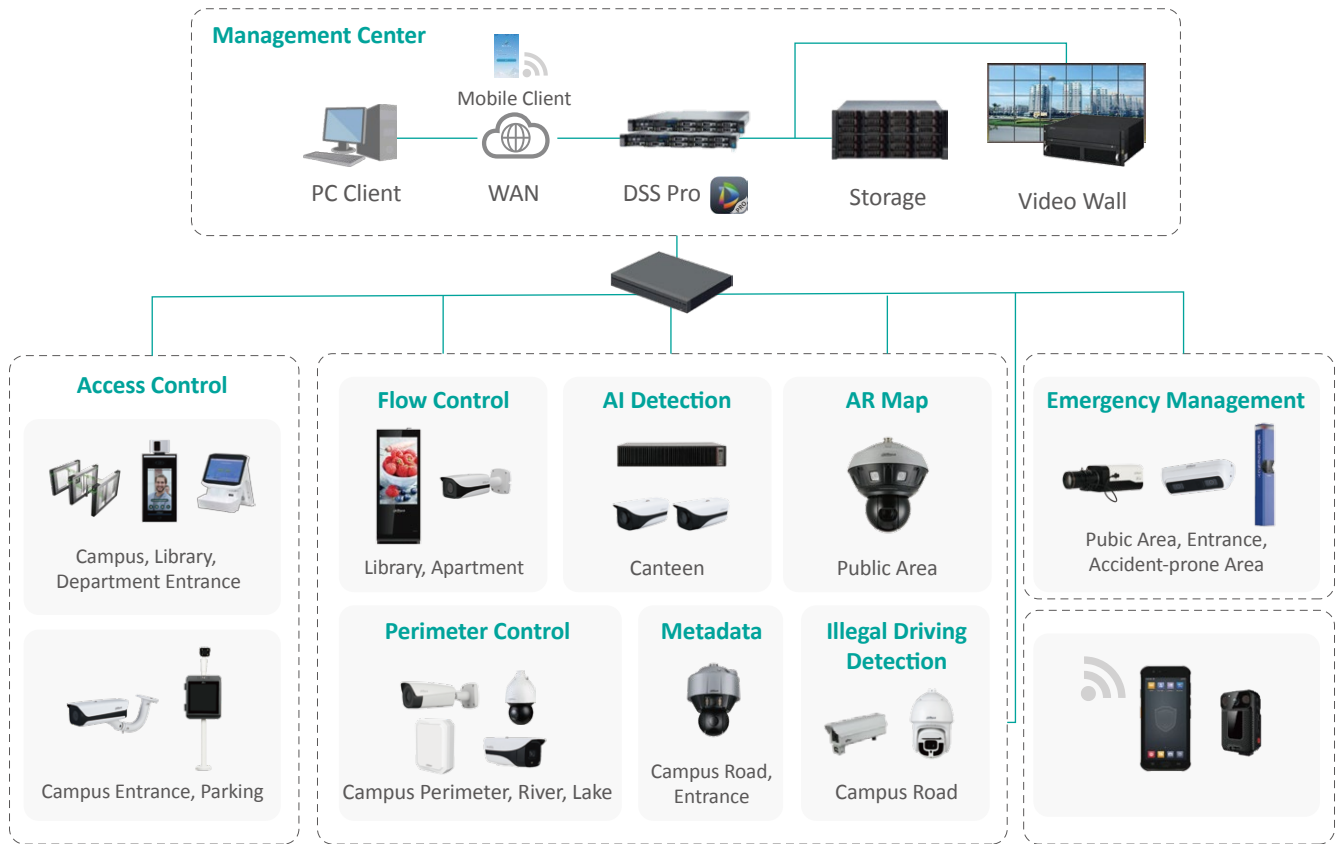
- Plate No.
- Plate Color
- Car Color
- Car Type
- Calling
- Seatbelt
- Smoke

Solution Value

- AI technology helps classify all objects, including person, motor vehicle, and non-motor vehicle.
- Allows tracking of human/vehicle targets if needed.
- Provides Big Data for further analysis.



## SOLUTION ARCHITECTURE



### Platform Highlight

#### Powerful

- Up to 2,000 channels, 1,000 doors and 200TB storage capacity per server, maximizing the hardware performance.

#### Scalable

- It can be easily expanded to up to 20,000 channels and 2PB storage capacity through the distributed system.
- You also can extend functions, traffic, and business intelligence via add-on modules.

#### High Availability

- Supports hot standby and N + M redundancy that enables the failover servers to serve as backup to primary recording and event servers.

#### Customizable

- Allows integration of other systems and devices via API, SDK and ONVIF.
- Meets customer's personalized needs and assists them in formulating their market competitive advantage.

-Software-





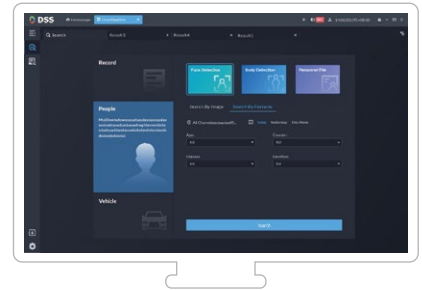
**High Availability**

DSS PRO provides real-time monitoring applications that integrate devices, maps, events and other multi-dimensional tools.



**Event Center**

DSS PRO offers alarm processing with panoramic application that integrates alarm, investigation, and other related processes.



**DeepXplore**

DSS PRO provides post-event videos and images that can be used as evidence for further investigation.

• **Key Products**

**ASI7213X-V1-T1**  
Face Recognition Access Controller



- 7-inch LCD display with 1024 × 600 resolution
- 2MP CMOS, WDR
- Can hold 100,000 users, 100,000 face images, 100,000 cards, 100,000 password, 50 administrators, and 300,000 records
- Face-camera distance: 0.3 m–2.0 m; human height: 0.9 m–2.4 m (lens-ground distance: 1.4 m)
- Face recognition speed: 0.2s/person

**DHI-ASV1001A**  
10 Inch Dual Screens  
Visitor Terminal



- Dual screen 10-inch display
- 2M CMOS camera, supports 0 to 180-degree adjustment
- USB port, dual Ethernet port supported

**IPC-HDW8341X-BV-3D**  
3MP WizMind Dual-Lens  
Network Camera



- 3MP, 1/2.8" CMOS image sensor, low illuminance, high image definition
- Outputs max. 3MP (2048 × 1536) @30fps
- ROI, SMART H.264+/H.265+, flexible coding, applicable to various bandwidth and storage environments
- Stereo analysis: Fall detection, people approaching detection, number of people error stay detection, and violence detection

**VTA8111A/AB**  
Emergency Phone Tower



- HD CMOS camera
- Night vision
- Video & audio talk
- Remote monitoring and broadcasting
- Alarm integration
- Vandal proof, IP65, IK10

**IPC-HFW5541T-AS-PV**

5MP WDR IR Bullet  
WizMind Network Camera



- 1/2.7" 5Megapixel progressive scan CMOS
- ROI, SMART H.264+/H.265+, flexible coding, applicable to various bandwidth and storage environments
- 20 fps @2592 × 1944, 50/60 fps @1080P (1920 × 1080)

**IPC-HFW3441M-AS-SFC-I2**

4MP Anti-oil IR Fixed-focal  
Bullet WizSense Network Camera



- 4MP, 1/3" CMOS image sensor, low illuminance, high image definition
- Outputs max. 4MP (2688 × 1520) @30fps
- H.265 codec, high compression rate, low bit rate
- Built-in IR LED, max. IR distance: 50 m
- Anti-oil feature on front glass allows quick detachment for washing

**PSDW81642ML-A360-D237**

8x2MP Multi-Sensor Panoramic +  
PTZ WizMind Network Camera



- Panoramic: Eight 1/1.8" 2 Megapixel progressive scan CMOS
- PTZ: One 1/1.8" 2 Megapixel progressive scan CMOS
- Supports 360-degree panoramic view
- Starlight+ technology, IR distance up to 220 m
- Smart tracking

**SDT5X405-4F-WA**

4MP Starlight+ IR WizMind  
Network Dual-PTZ Camera



- Dual-PTZ system
- 1/1.8" 4Megapixel CMOS
- Powerful 5x optical zoom
- Starlight+ technology
- Max. 25/30fps @4M
- Auto tracking and perimeter protection based on deep learning

**IPC-HF7442F-FR**

4MP BOX WizMind  
Network Camera



- 4MP, 1/1.8" CMOS image sensor, low illuminance, high image definition
- Max outputs 4MP (2688×1520) @50fps/60fps
- H.264&H.265 coding, high compression ration
- Wide dynamic, day/night, 3D NR, AWB, HLC, BLC
- ROI, SVC, SMART H.264+/H.265+, flexible coding, applicable to various bandwidth and storage environments
- With deep learning algorithm, it supports people counting, face recognition, perimeter protection, etc.

**MPT320**

Mobile Portable Terminal



- Android 9.0
- 8-core 1.8 GHz
- 4 GB RAM + 64 GB ROM
- Main camera: 16MP; Front camera: 8MP
- H.265 and H.264 video compression
- Supports TF card up to 256 GB
- Fingerprint recognition
- 2G/3G/4G, Wi-Fi, Bluetooth, NFC, GPS/GLONASS/BeiDou Positioning
- 2W speaker
- 4600mAh battery, 4.35V



## SUCCESS CASES

- An Education Bureau in the Philippines



### 👁 Project Background

Due to the pandemic, most students must attend remote online classes, with some permitted to attend in-person classes in their school. In order to ensure the safety of students in their school, the client deployed a centralized solution for 34 schools in the area under its jurisdiction, including school entrance and exit management, people management, human body temperature detection, etc.

### 🚀 Project Highlights

- **Centralized Management for Multiple Schools**

The Education Bureau conducts unified management of school personnel, temperature measurement, and time attendance through the platform, improving the management efficiency of several schools in its jurisdiction.

- **Face Recognition and Precise Temperature Detection**

Face recognition access control devices were deployed in key areas, allowing all teachers and students to enjoy touchless passage via FR.

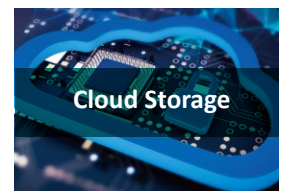
- A Conservatory School in Zhejiang, China



### 👁️ Project Background

The conservatory school is located in Hangzhou, covering an area of 2,428,114m<sup>2</sup>. In 2018, it deployed the Dahua Smart Campus Solution in its campus. The project consists of Dahua HD intelligent cameras, with panoramic tracking camera deployed at vantage point, and speed detection camera and emergency phone installed at the main road. It integrates face recognition, ANPR, cloud storage and 3D map to realize a unified management of people, vehicles and other objects in the campus. The LCD splicing screen is also installed in the monitoring center to realize image splicing, roaming, split screen, alarm notification, emergency response and other functions.

### 🚀 Project Highlights



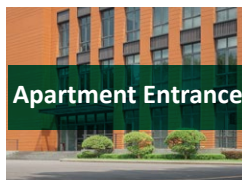
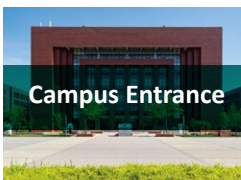
- A University in Nanjing, China



## 👁 Project Background

The client, a university in Nanjing, is a national-level university. This project is deployed in their new campus located in Tianmu Lake where the campus has a construction area of about 5,300,000 m<sup>2</sup>. The core aspects of the project is realizing the infrastructure of a smart campus, and collecting big data through face recognition, metadata, smart apartment, AI classroom, etc. The project gradually implements planning and construction of the campus big data platform, providing omni-directional service for campus management, teaching and living.

## 🚀 Project Highlights



# ENABLING A SAFER SOCIETY AND SMARTER LIVING

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\* Design and specifications are subject to change without notice.

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