UK & IRELAND

Smart Campus Solutions

Education Digitalisation, Smart Teaching and Smart Security

Early Warning
Provides an early warning for the unauthorised entry of people or vehicles

24/7 Monitoring
24/7 real-time monitoring with active deterrence system

Deep Learning-based
False alarm rate **<2%**
Capture rate: **98%**
Supported attributes: **27+**

Smart Tracking
Offers both overview and detailed monitoring

Contactless Access
Facial recognition **0.2s**
Fast, efficient and safe

Solution Overview

Dahua Technology's door entry, CCTV and access control products harness state-of-the-art technologies to provide fast and convenient access and visitor management solutions for education and campus buildings.

Our expertise in video and associated technologies help us to deliver accurate, high speed and intuitive access control and visitor management systems. They can also be used to monitor classroom behaviour and are essential in helping safeguard students, teachers and visitors alike.

Requirements & Challenges

Challenges for Smart Safety	**Challenges for Smart Teaching**	**Challenges of One Platform Management**
Unauthorised People — The ability to recognise unauthorised people and restrict them from certain areas.	**Class Attendance** — Using technology to reduce rates of absenteeism.	**Global Information** — Overview of all campus buildings and estates on one platform.
Criminal Activity — Help prevent crime and other anti-social behaviour such as vandalism.	**High Quality Recording** — Realise high quality audio and video recordings within a classroom.	**Device Management** — Managing all devices on one centralised platform is quicker and easier.
Emergency Handling — Being able to manage a crisis situation from a centralised command and control platform.	**Multimedia** — Enable multi-media presentations.	**Export Reports** — Export student attendance reports to enhance safety and productivity.
Advanced Warnings — How to prevent a dangerous situauton with real-time alerts.	**Student Monitoring** — Monitor student behaviour such as mobile phone use in a classroom.	**Release Information** — The ability to message and control a crisis situation or emergency.

Solution Highlights

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Smart Campus Solution

Solution Overview

Halls of Residence

Facial Turnstile

Teaching

| White Board | 4K Dome | Face Attendance | Teaching Recorder | Behaviour Analysis |

- Halls of Residence
- Classroom
- Public Area
- Control Room
- Entrance
- Administration Office
- Perimeter

Security

Face Recognition · **Facial Turnstile** · **Access Control** · **Emergency Phone Tower** · **Panoramic Monitoring** · **Video Metadata**

Control Room

Wall Screen · **DSS Pro**

Entrance Solution

Student Entrance

Our contactless video-based systems and next generation access turnstiles prevent unauthorised people from entering a campus or campus building, helping safeguard students, staff and visitors. Using face recognition it is possible to eliminate false attendance by verifying a person's image after they have arrived.

Face Pass

Face attendance to prevent cheating
Facial recognition eliminates false attendance, supports verification with the person's image after they have arrived.

Online visitor management
The visitor management system enables online appointments to be booked optimising the overall visitor experience.

Efficient and safe face recognition
The use of face recognition prevents unauthorised people from entering.
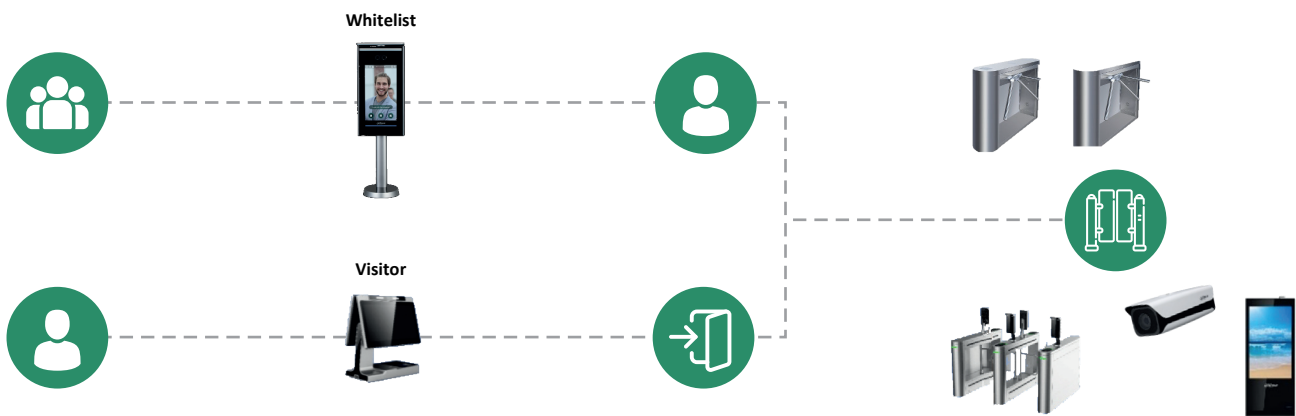
Whitelist

Visitor

Vehicle Entrance

Efficient hands free vehicle access is possible using ANPR cameras. Blacklist/whitelist function improves efficiency and safety making vehicle and staff/visitor management easier.
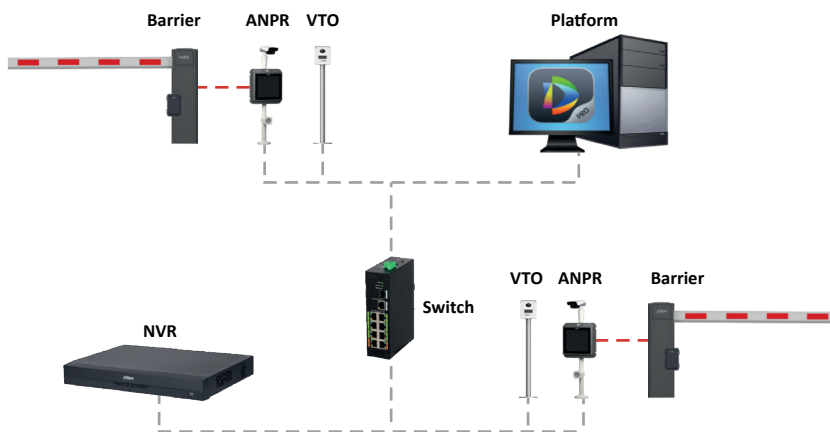

Contactless Pass

Contactless
No need for a paper ticket

Fast
Fast barrier operation 1.4s

Safe
High-precision radar detection avoids barrier hitting people/vehicles

Barrier   ANPR   VTO   Platform

NVR

VTO   ANPR   Barrier

Switch

Public Areas

Emergency Help Points

When an emergency happens, users can push the panic button and communicate with a control room. Security guards can then check the video to see what has happened. This provides a direct and immediate line of communication between students and the security control room.

Platform

System 1

System N
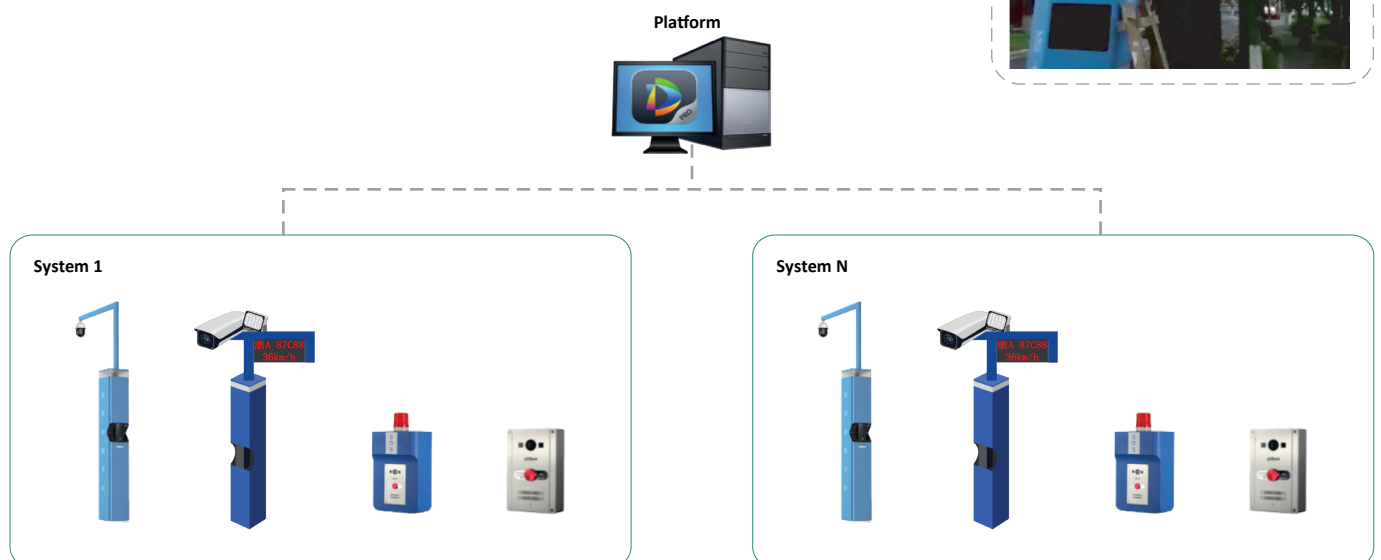
✓ **Multifunctional Emergency Alarm**
Situated at important locations, they help to see what really happened and enable security teams to respond to the alarm immediately.

✓ **Multi-angle Video Surveillance**
Additional cameras on the alarm tower enables real-time video monitoring of any incident from multiple angles.

AR Panoramic Cameras

Dahua's AR technology generates a wide field of view through panoramic merging and splicing. The software overlaps the cameras as tags in the image. Click the tag to display the corresponding camera video, which makes monitoring visual, convenient and helps the security team control a situation.
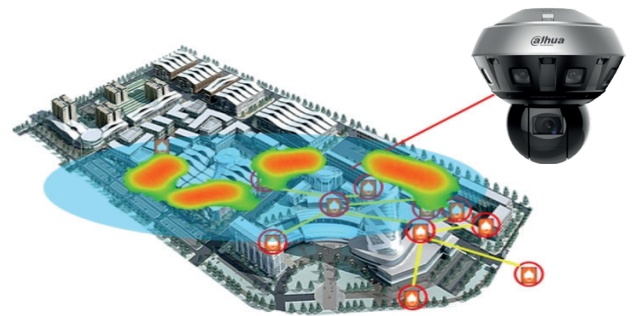
Visual Command
Advanced AR technology superimposes tags on the real video meaning user can freely switch between the corresponding video according to the actual scene.

Panoramic Control
Panoramic surveillance solves the issue of blind spots in video surveillance, providing high levels of safety and security on campus.

Face Trajectory

When a person triggers a rule (tripwire or intrusion) in the panoramic camera, the target's route is tracked automatcially by the PTZ, whilst providing a clear image of them.

Efficient Event Tracking
In the event of an incident, it is possible to search for images of people and vehicles to quickly locate the target.

Snapshot Video Association
System automatically associates the video within a time frame and records a snapshot. The associated video can be integrated and displayed on software.

Automatic Display Trajectory
According to the location and time of the search target, an automatic trajectory path (route), speed and direction is formed to track the target.
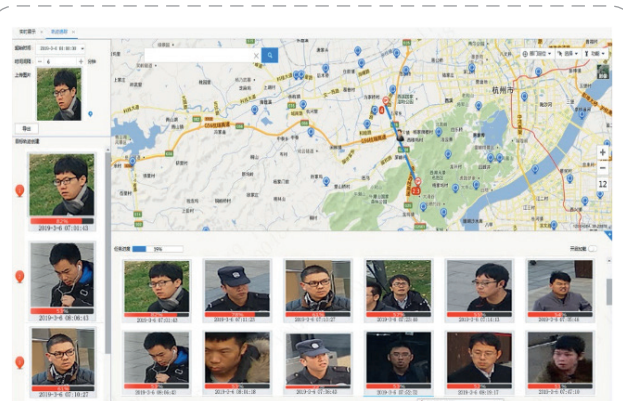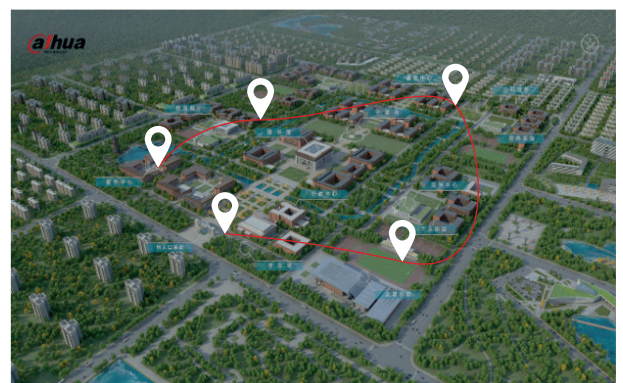
Road

Vehicle Management

When using ANPR cameras it is possible to track the entry and exit of vehicles on a campus estate and also prevent/allow vehicles from entering using blacklist/whitelist function. Other traffic violations such as speeding and unauthorised parking can also be monitored.

Barrier

Entrance & Exit ANPR

Illegal Capture

Speed Camera

Speed Detection

Unauthorised Parking
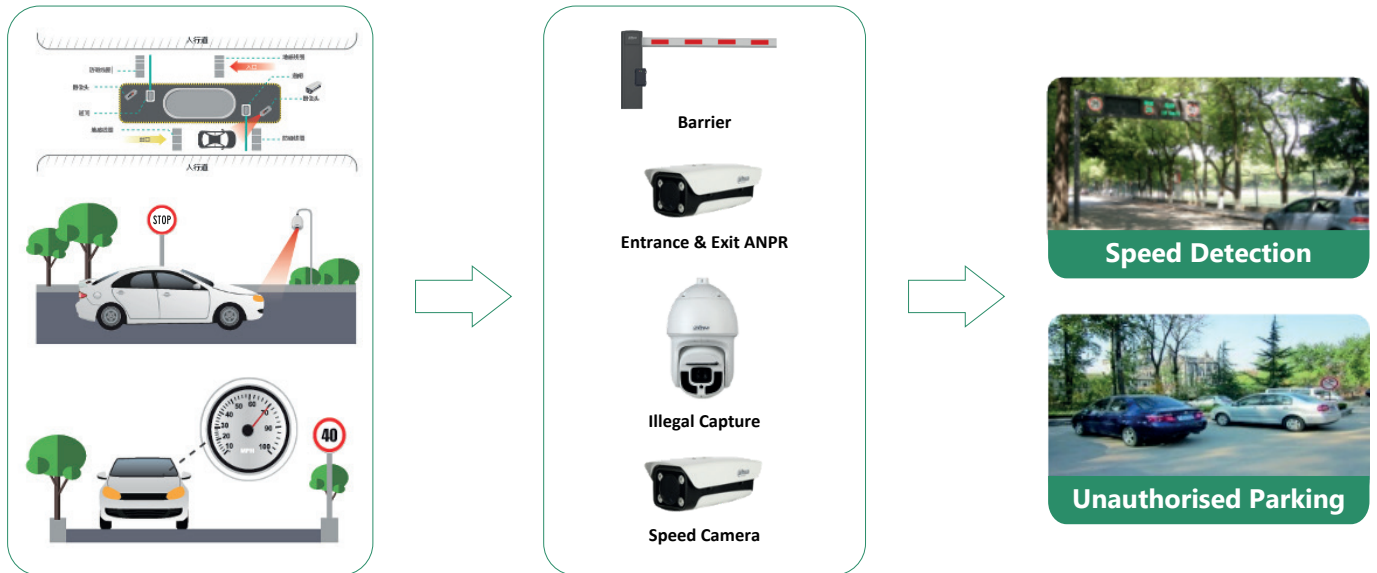
✓ Closed-loop processing: link entry and exit control of vehicles forming an effective closed-loop.

✓ Traffic violation management: speeding, unauthorised parking/stopping with on-site snapshots as evidence.

Campus Grounds

Surrounding Control

Campus grounds tend to be large expansive areas with lots of people. This makes it difficult to monitor and prevent criminal activity, such as anti-social behaviour or vandalism.
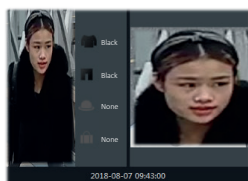

Panoramic
Large scene
Multi-target detection

Video Structure
Human features
Face image

Tracking
Target tracking
Capture details

Smart Search
Feature query
Search by image

✓ **Multiple Use**
Large-scale scene monitoring and detailed tracking simultaneously.

✓ **Smart Search**
Feature retrieval and face search is supported using back-end intelligent server.

✓ **Video Structured**
Realise the structured detection of human body characteristics, supports the type and colour of clothes and the detection of hoods or bags.

Public Areas

Perimeter Protection

Dahua's Perimeter Protection solutions are designed to provide a highly efficient, reliable, cost-effective and visual security system powered by Artificial Intelligence technology. High-definition and AI-enabled security products can offer precise and predictive intrusion alerts and record detailed visual information in real-time.

✓ **Highly Accurate**
Perimeter protection offers 98% accuracy and greatly improves the level of protection on a campus.

✓ **Smart, Safe & Efficient**
People and vehicle classification based on AI intelligence avoids false alarms.

Halls of Residence

Face Management

Dahua's video-based face recognition access control systems are particularly suitable for halls of residences. They offer fast recognition speeds, highly accurate recognition rates, and they are convenient to use with additonal trusted privacy protection.

✓ **Enhanced Security**
Face recognition significantly enhances the safety and security of students.

✓ **Automatic Warning**
If a person does not return to their halls, automatic warning alerts will be sent to staff/teachers.

✓ **Accurate Data**
Face recognition terminal accurately records people coming in and out, with the ability to export full reports for analysis.

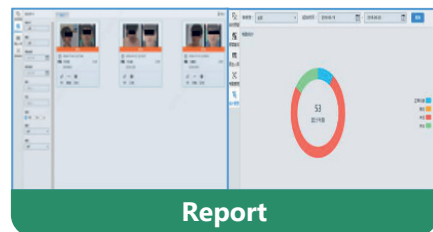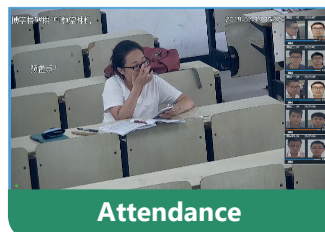**FR Terminal**

Turnstile

Classroom

Face Attendance

Absenteeism is a major problem for schools and universities and can be monitored more closely by using a face attendance system.
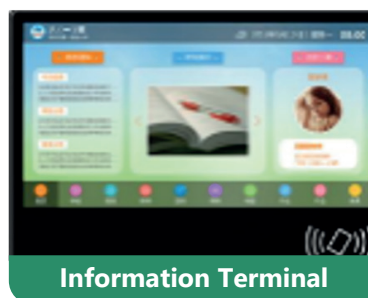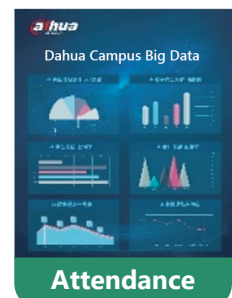

Face Attendance System

Attendance

Report

**Timetable System**

Information Terminal

Attendance

✓ **Attendance Statistics**
Supports statistics, attendance data and graphical reports.

✓ **Automatic Roll Call**
Automatic facial recognition enables an accurate comparison of students to make certain they are present in the event of a roll call.

Behaviour Analysis

Dahua's deep learning algorithm can recognise people's behaviour, such as using a mobile phone during a lesson or fighting, and then generates an alarm.
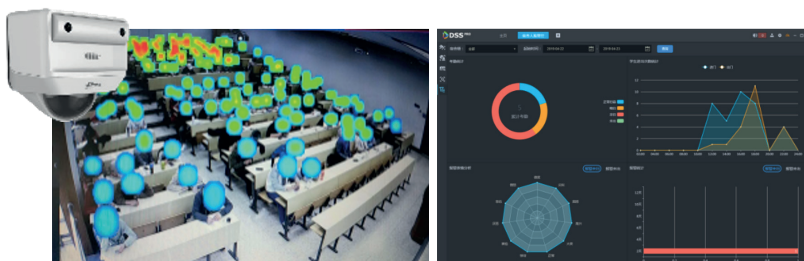
Student Behaviour Analysis
Listening, writing, playing with mobile phones, lying on the table and standing up.

Teacher Behaviour Analysis
Standing, sitting and being present.

Statistics
Attendance rates, expressions and behavioural trends.

Writing

Reading

Raise Hand

Sleeping

Standing

Phone

Listening

Recording Lessons

Dahua offers a range of audio and video solutions that can be used within an educational environment such as a lecture theatre or auditorium.

These include Hi-fidelity pickup microphones, recorders and HD cameras that are all integrated onto one software platform.
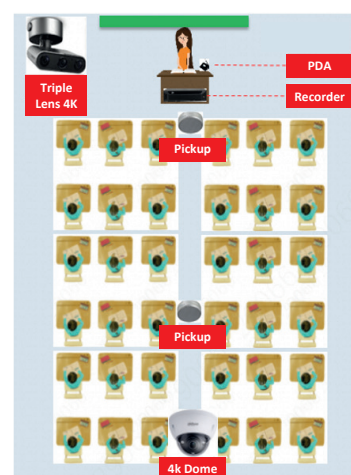
4K Recording

Essence Recording

4K Recording

Integration and Scalability
Product solutions are highly integrated and scalable.

Diversity
A variety of teaching, recording and broadcasting programmes for different applications.

Resource Sharing
Enables high-quality video sharing on the platform.

Classroom Monitoring

HD cameras within an education environment are not just used for security and safety, but for monitoring classroom behaviour. This can be achieved in an unobtrusive manner without any disruption or interference.

✓ **Strong Reuse**
Existing cameras in a classroom can be used for online classes, making sure that there are no behavioural issues.

✓ **Efficient**
Classroom monitoring using cameras is efficient and a good way to get an overview of the current situation.

✓ **Records**
Each time a camera patrol is conducted it keeps a detailed record which can be used by school management.

✓ **No Interference**
Remote online class tours offer no interference to teaching.

Teaching Multimedia

Smart Interactive Whiteboards can display rich multi-media material flexibly and in high-definition to improve classroom environment and teaching efficiency.

Thanks to unique wireless screen sharing technology, Smart Interactive Whiteboards can share PC, smartphone and tablet screens wirelessly. Meanwhile, changes made on the whiteboard can be transmitted to other users' devices automatically.


Smart Interactive Whiteboard
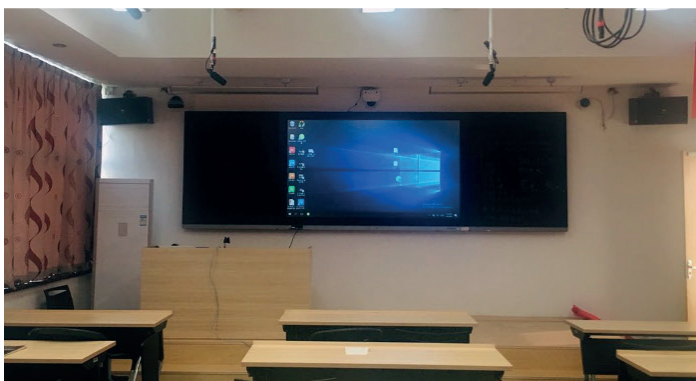
✓ **86" 4K UHD with wide viewing angle**

✓ **Switchable dual system: Android/Windows (optional)**

✓ **Wireless projection and interaction**

✓ **Information synchronisation and sharing**

✓ **Multi-screen display**

Control Room

## Central Management & Video Wall

A campus security control room has many functions including managing parking violations, the ability to restrict people from certain areas, protection of assets and people etc. Large-scale overview video walls that showcase a number of incoming data points and alarms enables real-time monitoring and centralised command.
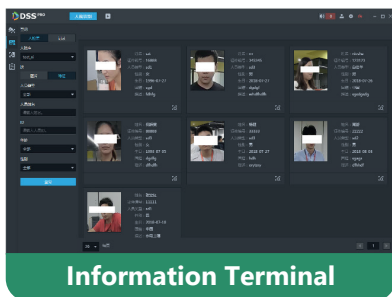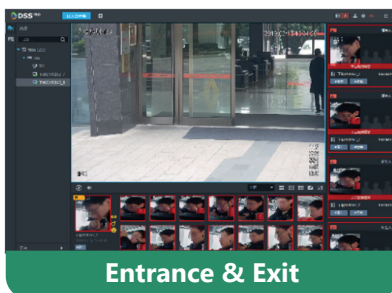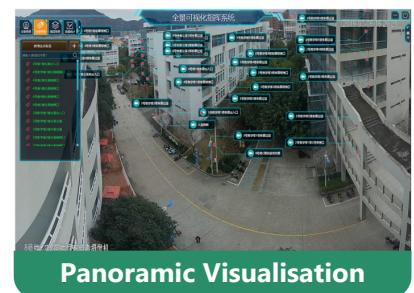

Information Terminal
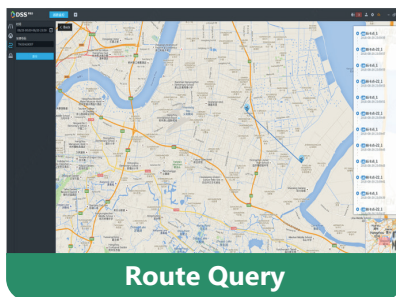
Route Query
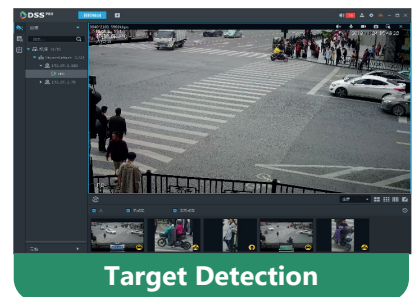
Target Detection

Entrance & Exit

Vehicle Control

Panoramic Visualisation

✓ Picture-in-Picture (PiP) allows you to watch videos in a floating window (always on top of other windows) so you can keep an eye on what is happening at several locations simultaneously.

✓ Large-screen control can be achieved through tablet computers, mobile phones and other handheld devices as control terminals.

✓ Screen can be enlarged and reduced according to any size, to see more detail.

Key Products

TRS1xxx Series
AI Recorder

IPC-HFW7xxxX Series
4K Tri-lens Camera

SDT-4A1xxx Series
Face Attendance System

PSDW81642M-A180-D440
Multi-sensor Panoramic + PTZ WizMind Network Camera
· Panoramic network camera: Four 1/1.8"4-megapixel progressive CMOS
· Support 180-degree panoramic view
· Starlight+ technology
· IR distance up to 400 m

ASGB8xxX-L/R/D
Swing Barrier Turnstile
· Quick: 0.5 second pass, the fastest in the industry
· Durable: Low noise, more than 5,000,000 times of use
· Safe: 12 pairs of IR detectors
· Elegant: Diamond polishing process, high-end elegant and beautiful design

Hiboard-A86H
86 "UHD Smart Interactive Whiteboard
· Intelligent whiteboard offers smooth writing surface
· 4K Ultra HD display
· Scanning code generates meeting notes
· Supports multi-media presentation

SDT5X405-4F-WA
4MP Starlight+ IR WizMind Network Dual-PTZ Camera
· Dual-PTZ system
· 1/1.8" 4-megapixel CMOS
· Powerful 5x optical zoom
· Starlight+ technology

Barrier Gate
IPMECD-301x
· Speed: 3 seconds
· Manual button: "up", "down" & "stop"
· Unlocks automatically – barrier can be raised manually in the event of a power outage
· Optional digital vehicle detector with "automatic drop"

DSS Pro
Comprehensive and Expandable VMS

Case Study

Zhejiang Conservatory of Music

BACKGROUND

Zhejiang Conservatory of Music is located in Xihu District, Hangzhou, and covers an area of 602 acres. In 2018, the new campus security system was supplied by Dahua.

SOLUTION

The overall system uses Dahua's HD intelligent front-end. PTZ cameras offering panoramic coverage and target tracking have been installed at vantage points throughout the campus. Along the main roads Dahua speed alarm posts combined with face recognition have been installed. Elsewhere mobile CCTV deployment, cloud storage and 3D maps have all been implemented to create an intelligent and unified management of people, vehicles and objects.

VALUE

The system uses 3D maps enabling the effective and reliable monitoring of both the internal and external areas of the campus, enhancing levels of safety and security for students. The system also includes Emergency Help Points around the campus to improve emergency response times and safety. Real-time speed monitoring and warnings are also a feature of the system and further enhance the personal safety of teachers and students.

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Driving Innovation to an AIoT Future

*AIoT is the convergence of Artificial Intelligence (AI) and the Internet of Things (IoT) where connected devices meet human interface. This is enabling unlimited possibilities through the integration of connected devices and security solutions.

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