

# Smart School Solution

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Empowering Your Businesses Through Innovative IT Solutions

UNI-X

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# Construction Background

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# I

## Isolated Information

- Application system construction standards are not uniform
- Different application systems with independent content
- Multiple client terminals are inconvenient to use

# R

## Lack of educational resources

- Lack of lesson plans or courseware for online learning
- No high-quality educational resources in remote areas
- Lack of high-quality materials for teaching activities

# M

## Complicated management

- Teaching affairs take up a lot of time for teachers
- Difficult for managers to obtain information data
- Difficult to integrate and manage application systems

# C

## Lack of information channels

- Lack of information-based learning channels and teaching tools
- Low application rate of information-based teaching software
- Insufficient integration of information technology and curriculum



# Construction Goal

5G empowers educational environmental informatization

Promote education equity and improve education quality

Improve construction benefits of regional education informatization

Build a smart campus benchmark and lead smart education

Integration of information technology and education

Realize educational innovation in the information age



Centralized management and control of systems

Provide real-time updates to serve the entire domain

Secure isolation of internal and external networks

Big data collection, centralized analysis, and scientific research

Real-time collection and intelligent analysis of school information status

Create a benchmark for industry solutions



# Overall Vision



## Student

- High-quality learning environment
- Enhance learning interest
- Improve learning ability
- Comprehensive development



## School

- Science schedule
- Sufficient resources
- Cut costs
- Improve management efficiency



## Education Bureau

- Unified public service system
- Promote balanced development of education
- Information sharing
- Sufficient high-quality resources



## Teacher

- Improve lesson preparation efficiency
- Diversified teaching methods
- Convenient interaction with students
- Multi-channel teaching experience



## Parents

- Realize home-school co-education
- Learn about education trends
- Master the situation of students in school
- Receive school notifications on time



# Construction Solution

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## Educational informatization" relies on the construction of "cloud, network and terminal

1

### Education cloud platform

- Used to host educational resources
- Easy access of resources for teachers and students
- Meet the daily needs of learning
- Upload and share educational resources
- Create a high-quality public learning environment

2

### Education Network

- Basis for the underlying device to obtain resources
- Open up the network of schools and education bureau
- Efficiently transmit teaching information
- Realize education informatization
- Weaken the status quo of "isolated information"

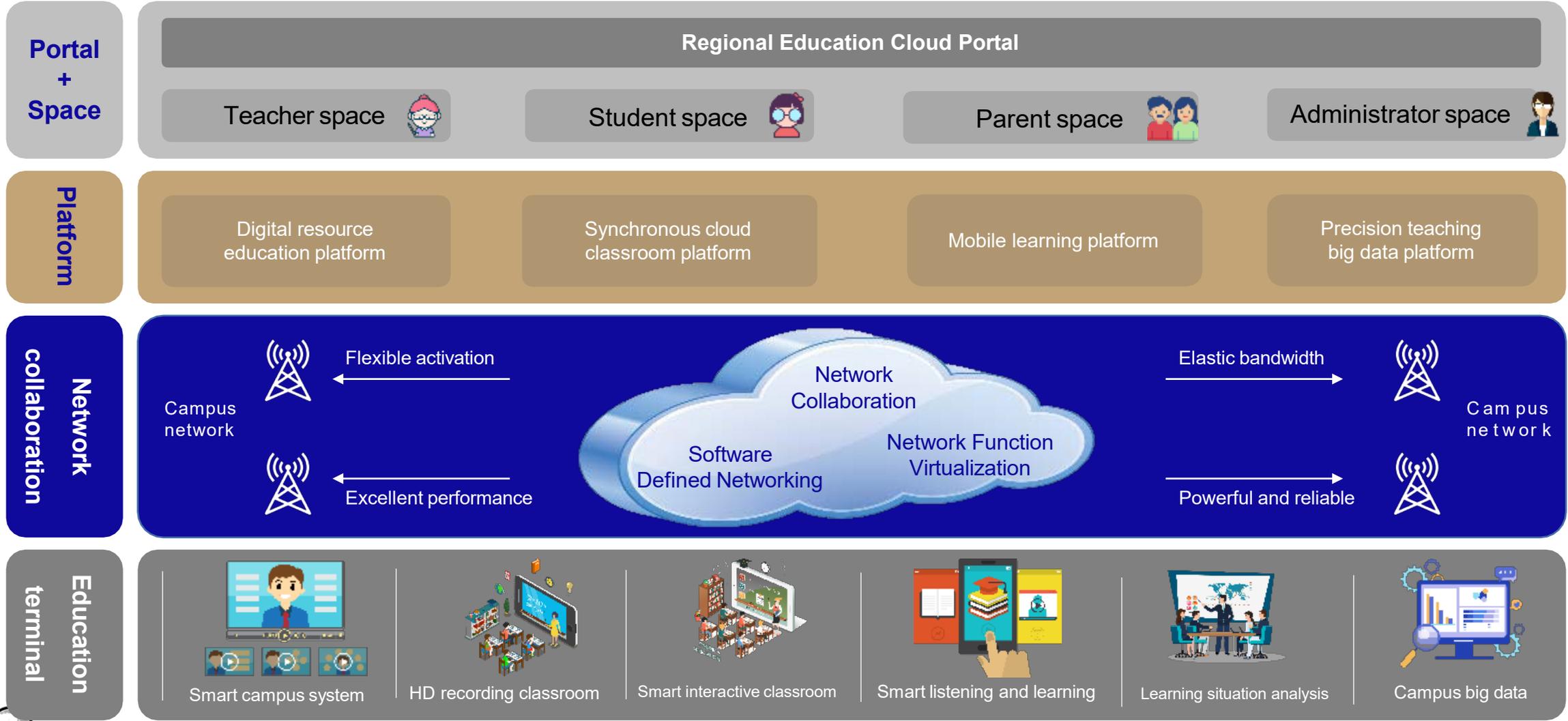
3

### Smart education terminal

- Direct contact with teachers, students and parents
- Enjoy information education based on software and hardware
- Convenient use of educational equipment
- End-to-end intelligent connection and interaction
- Implement after-school services



# Solution Architecture





## Regular Teaching

- Regular classroom
- Recording classroom
- Sound reinforcement classroom

## Smart Classroom

- Recording classroom
- Online class
- Famous teacher class

## Cultural and Sports Venues

- Campus lecture hall
- Campus stadium
- Playground



- Campus security
- Campus broadcast
- Information management

## Public Area

- Handling of emergencies
- Implementation of measures

## Smart Management

- Staff meeting
- Teaching Seminar

## Smart meeting

# Scene Design

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# PART 01

# Smart Classroom

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# General Classroom

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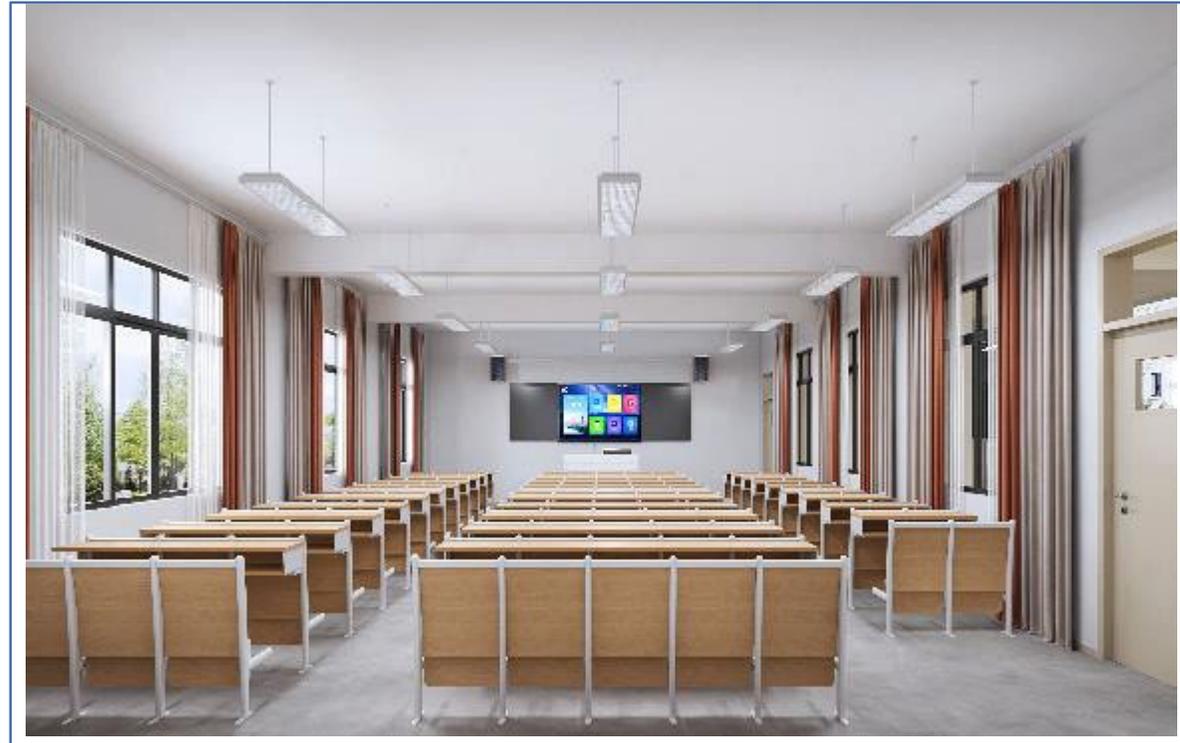


Shaping the world-class brand

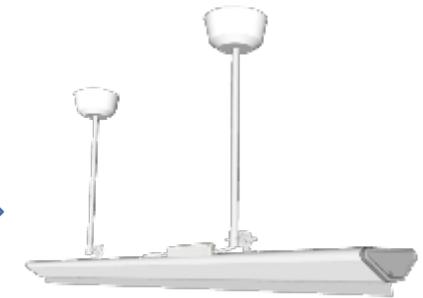
## General classroom



Smart Class  
Information Board



Smart Blackboard



Classroom Lighting



Classroom Multimedia Terminal



# Interactive Recording Classroom

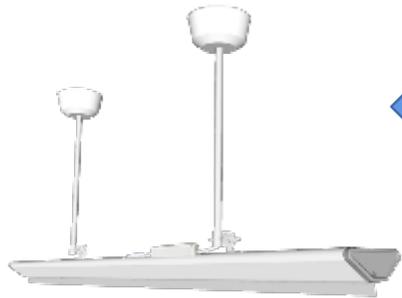


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## Interactive Recording Classroom



Smart Class Information Board



Classroom Lighting System

Smart Blackboard



Professional Sound System



Classroom Multimedia Terminal



Interactive Recording and Broadcasting System

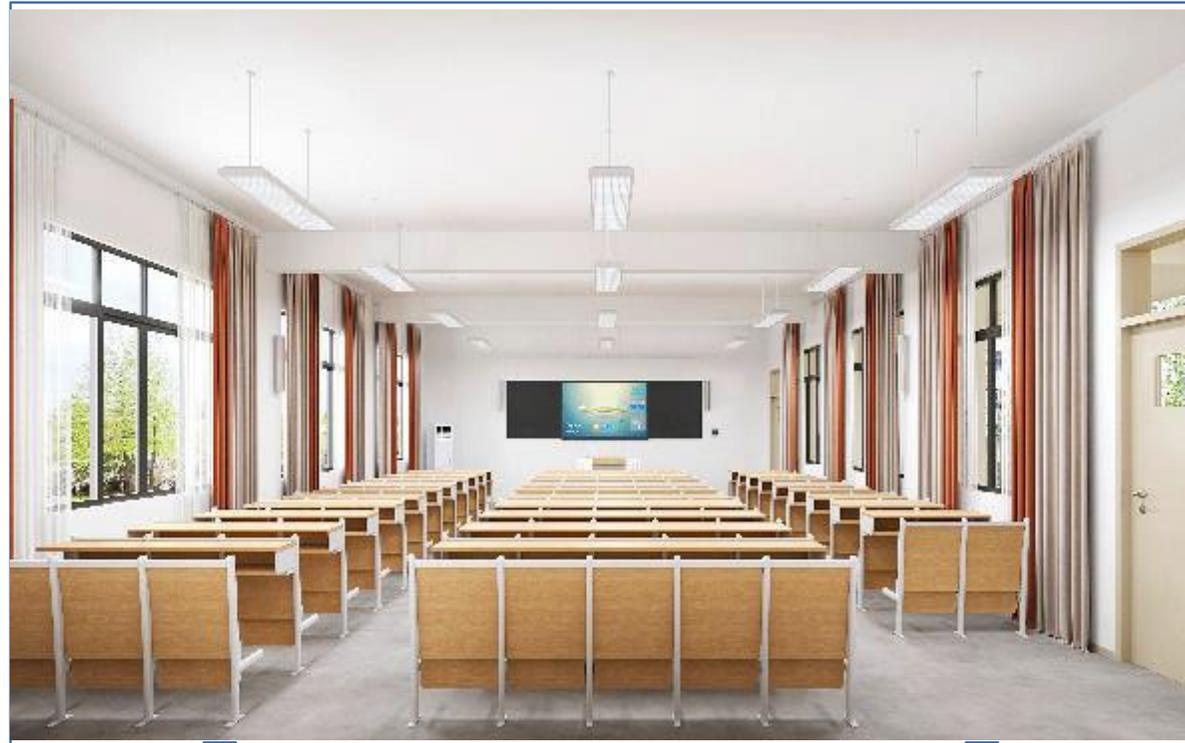


# Excellent Recording Classroom

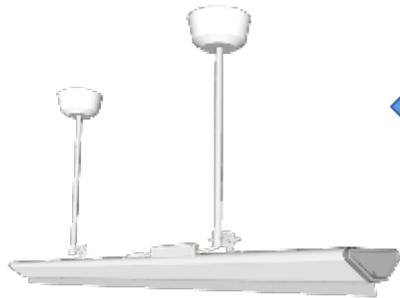


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## Excellent Recording Classroom



Smart Class Information Board



Classroom Lighting System

Smart Blackboard



Professional Sound System



Classroom Multimedia Terminal

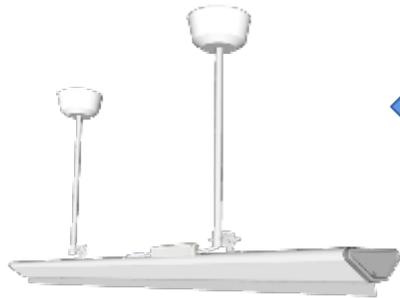


Excellent Recording and Broadcasting System

### Lecture Theater



Smart Class Information Board



Classroom Lighting System

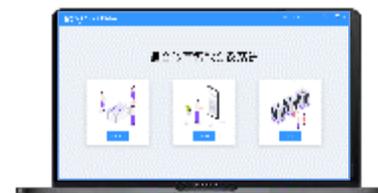
Display System



Professional Sound System



Classroom Multimedia Terminal



Voice Transcription System





**Education Integrated Flat Panel**

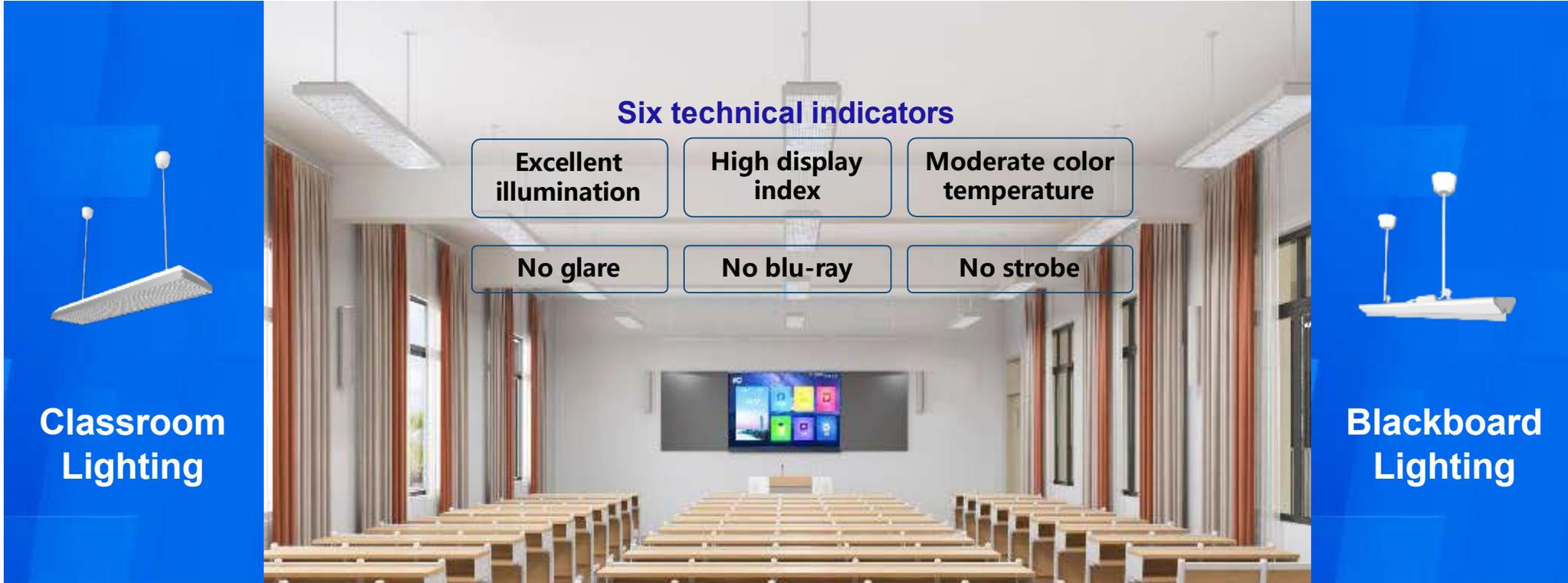


**Smart Blackboard**

## Teaching Display System

Provide a variety of teaching display systems according to different scenarios. **Smart blackboard** for general classroom to provide unlimited blackboard writing for teachers. **Smart education integrated flat panel** for multi-screen interactive group discussion teaching activities. Large-scale teaching places such as lecture theaters are equipped with **high-definition LED screens**.

- Ultra low blue light
- Ultra-wide viewing angle
- NTSC high color gamut
- 4K UHD display
- Anti-collision
- Anti-glare glass
- Surface light imaging
- Arbitrary annotation
- Gesture recognition



Classroom Lighting

Blackboard Lighting

### Classroom Lighting System

In the student area, lights should be arranged vertically to reduce the glare area of the classroom and the reflection area.

In the podium area, special lights for blackboards should be used to avoid glare to teachers and students.

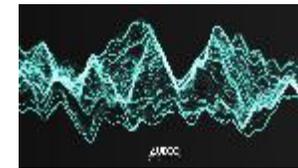
- Anti-glare
- Ra ≥95
- Back light
- Emergency lighting
- Angle adjustment
- Fall arrest structure
- Ultra high uniformity
- Environmental friendly material



## Classroom Professional Sound System

Intelligent control · Clear sound

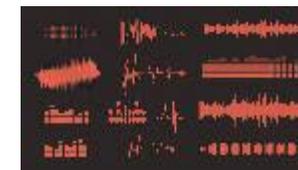
Equipped with a comprehensive solution for large classrooms/lecture theaters to meet the sound reinforcement needs for both walking lectures or fixed lectures, providing clearer sound.



Automatic Sound Field Test



Automatic Gain Control



Environmental Noise Cancellation



Adaptive Feedback Control



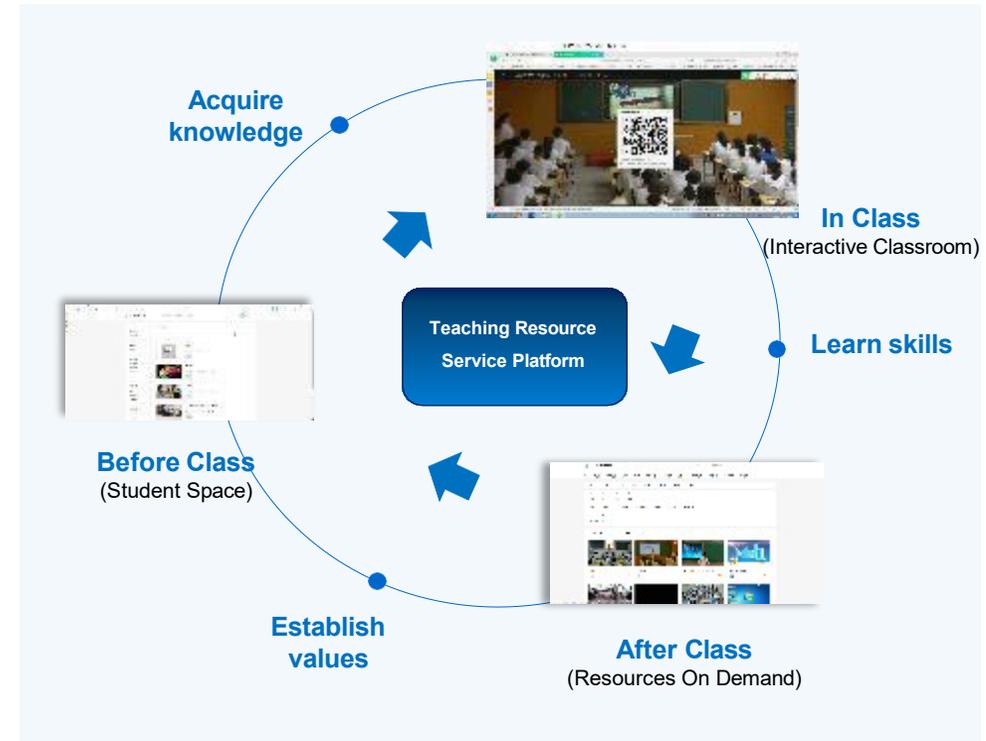
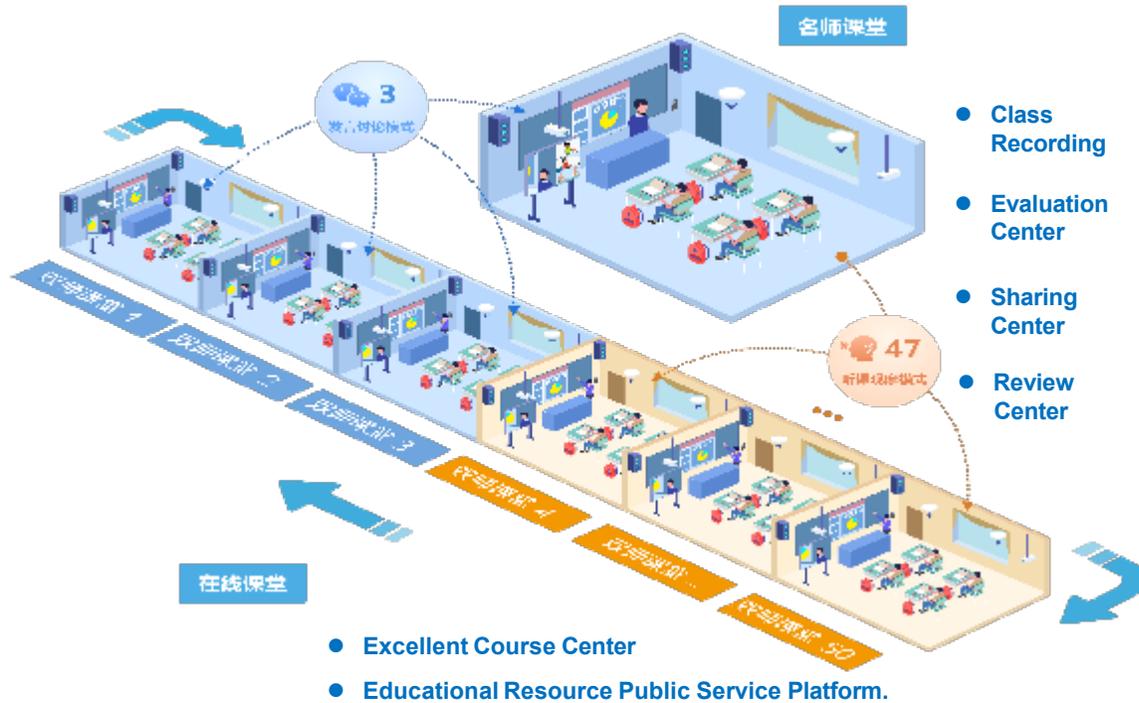


# Interactive Classroom Recording System

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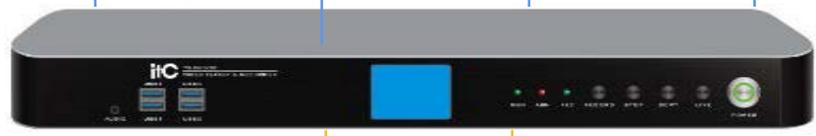
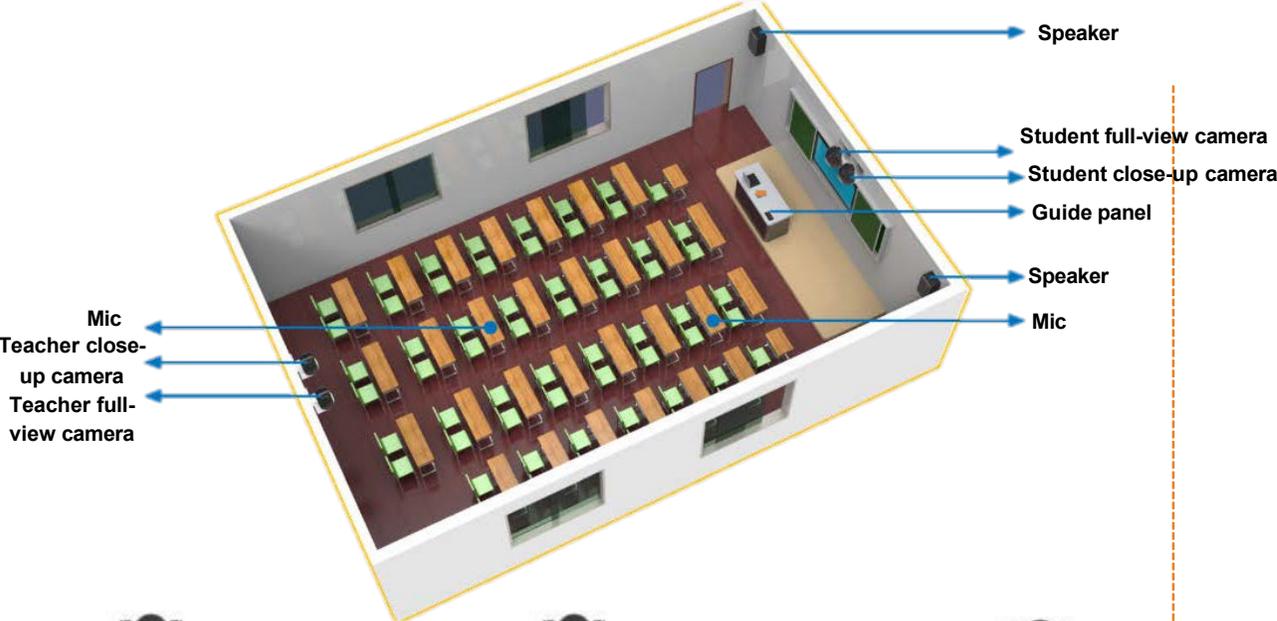


1. Adopt itc "cloud + network + terminal" technology to build an online classroom teaching model.
2. Support interactive discussion mode to realize distance teaching.
3. Resource sharing solves the problem of isolated information.
4. Achieve real-time management, learning situation feedback, and data analysis.

- **In-class data synchronization**
- **Learning situation analysis**
- **View announcement**
- **Complete homework online**



# Excellent Recording System



Educational resource cloud platform



## System construction

- Fully automatic five-camera solution to realize tracking of panoramic and close-up of teachers, students and blackboard
- High-fidelity audio acquisition, with audio processing capabilities such as noise reduction, echo cancellation, feedback suppression, and background noise cancellation
- Indoor hardcover: decoration, lighting, and sound design all meet the standard recording requirements

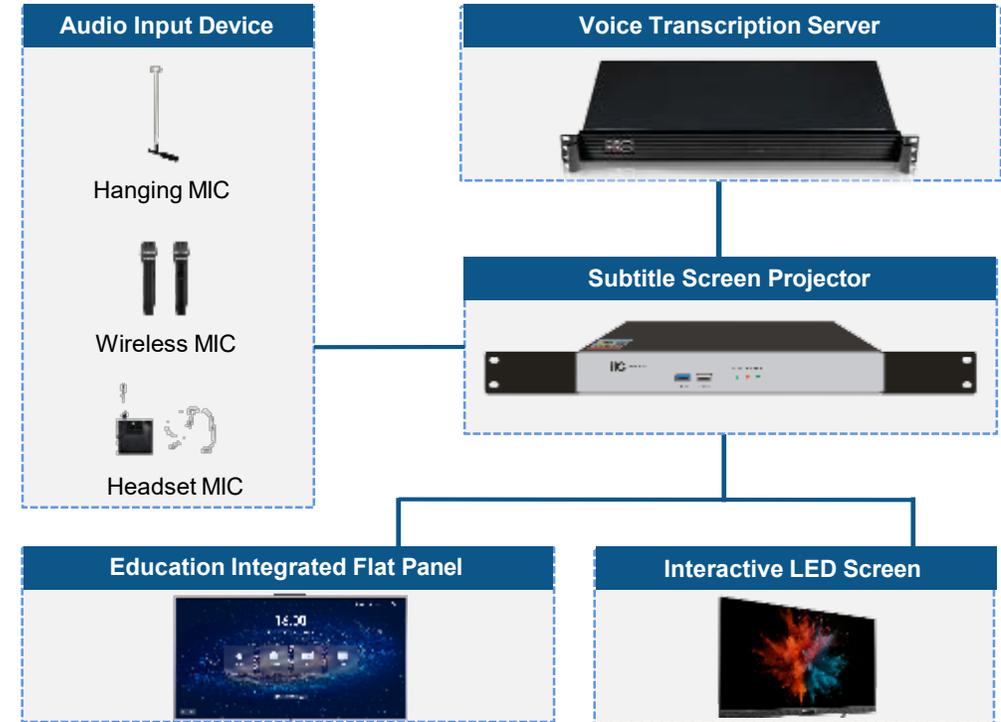
## Excellent course recording application

- Record UHD 4K video, restore live images.
- Built-in camera automatic tracking module, with precise tracking technology and smooth screen switching
- Adopt director station for one-click recording and automatic recording, improving efficiency.
- Recorded classes are automatically uploaded to the cloud platform to meet the needs of large capacity for live broadcast, after-class on-demand, excellent course selection, micro-course production, etc.
- High-quality teaching resources are recorded and shared to other regions to achieve teaching resource sharing and education balance.





# Voice Transcription System



## Voice Transcription System

The classroom voice transcription solution provides **real-time voice transcription to subtitles** for teachers' lecture content. Teachers can freely switch this function. One voice transcription server can support 10 channels of audio input and output, providing voice transcription services for 100 classrooms.

- Class Notes
- Class recording
- Floating window display
- Sync subtitles
- Real-time subtitles
- Automatic segmentation
- Multilanguage
- See and hear clearly
- Multi-classroom interaction



# Multimedia Central Control System

Through real-time monitoring of classroom **temperature, humidity, and PM2.5** content:

1. The system can automatically adjust the ambient temperature, brightness and air quality of the classroom before class;
2. The system can automatically turn on the lights;
3. The system can automatically turn on the classroom air conditioner;
4. The system can automatically turn on the fresh air system.

- **Lightweight and easy to install**
- **Data status updated in real time**
- **Support major environmental data monitoring**
- **Link scene control based on monitoring data**





# Smart Class Information Board



Campus Card



Face Recognition



Quick Attendance

Schedule

Course selection

Result inquiry

Course information

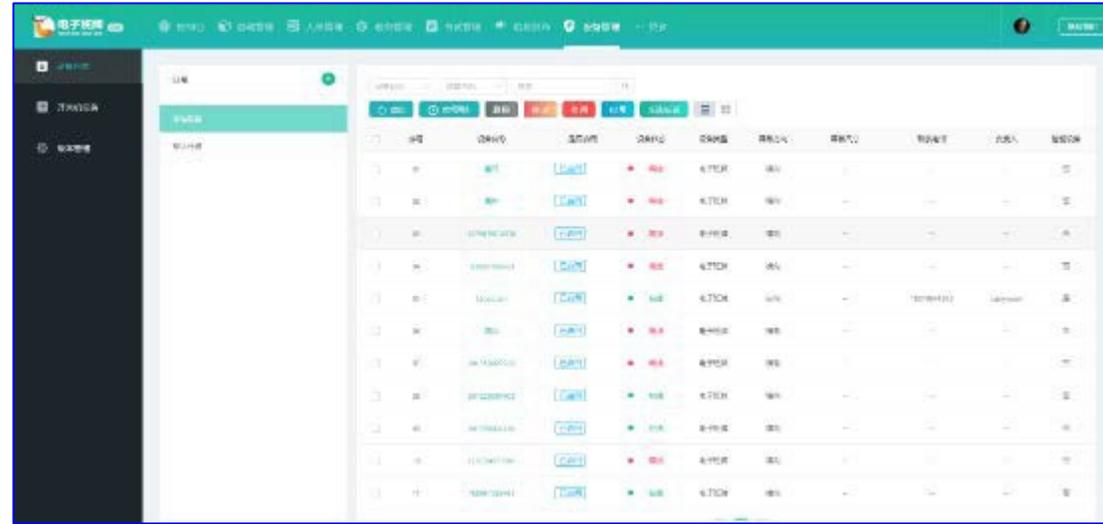
Schedule adjustment

Weather information

Ask for leave

Campus culture

Emergency notice



Through authority division and group management of login accounts:

1. The system can group primary school and junior high school;
2. The system can group different grades in primary school;
3. The system can group different grades in junior high school;
4. Class boards are installed at different heights according to different grades. The installation height of the primary school is about 1.2 meters, and that of the junior high school is about 1.5 meters.

## PART 02

# Smart Recreation and Sports

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## Performance mode

- LED system  
4K UHD seamless splicing slim design
- Prof. Sound System  
Prof. sound reinforcement technology, hifi sound quality
- Stage light, curtain system  
Combining perf. and conf. mode, curtains controllable
- Central control matrix system  
Command and control, centralized control device
- Digital conference system  
Long distance sound pickup, wireless conferencing
- HD recording system  
HD recording storage for important conferences and performances

## Lecture hall application program

According to the needs of different lecture hall scene including school conference sound reinforcement, cultural performances, itc builds one-stop solution integrating LED screen, professional sound reinforcement, stage lighting, distributed central control, digital conference, HD recording system, with UHD display, hifi sound quality, multi-mode lighting, wireless conference, and HD recording, which can satisfy scene demands containing school's various kinds of large-scale conferences, academic lectures, presentations, parent-teacher conferences, speeches, competitions. Meanwhile,, it also has the function of cultural performances, which can bring the perfect conference experience to the teachers and students.





# LED UHD Display System



## LED UHD Display System

itc UHD LED display system adopts China's first-line brand lamp beads, chips, with seamless display of the whole screen, ensuring the accurate display of digital signals, graphic signals and text signals. Support for multi-channel video display, superposition. High reliability ensures that the LED screen works stably for the whole day. With low brightness, high gray, high refreshment LED display. Viewers will not suffer from visual fatigue even after long-term

viewing. Dual backup of power signal to ensure stable operation of screen body.

- Ultra HD lossless
- High refresh
- High grayscale
- Image correction
- Large view angle
- 3D display
- Brightness adjustable
- Silent design
- Light weight
- Fast heat dissipation
- Low power consumption
- Stable and reliable

## Performance mic: for presenters' speeches, mobile use



## Conference mic: for presentation meetings, symposiums



## Report mic: for interviews and leadership speeches



## Mic pickup system

Based on the computer network as a platform, digital conference system uses all-digital network transmission and control, which can be widely used in: round table conference room, square table conference room, multi-function hall, banquet hall, lecture hall and other meeting places. Aiming at the problems of difficult sound reinforcement, easy to produce howling and complex deployment in the meeting room, it provides a better solution. Also, it is capable of realizing the functions such as role separation, digital recording, Mix Minus and seamless backup, and so on.

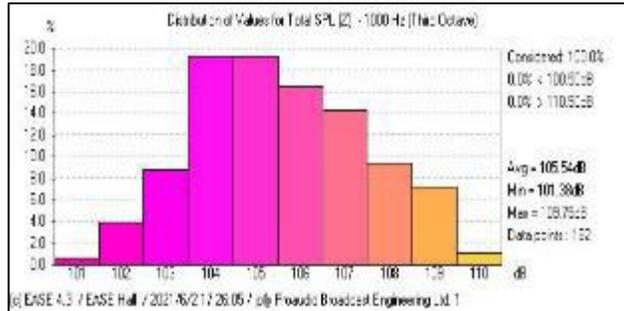
- Digital recording
- Mix Minus
- Seamless backup
- Convenient operation
- Fidelity sound quality
- Long battery life
- Seperate frequency band
- Ultra-low delay
- High scalability



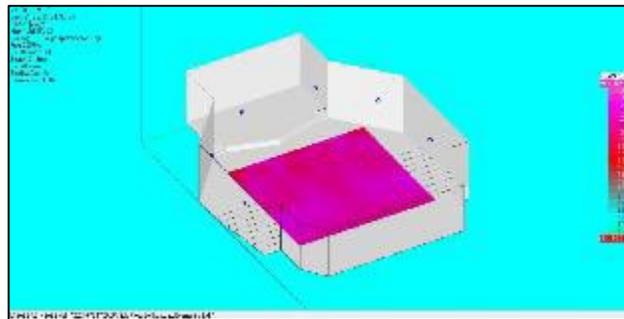
## Professional sound system

Professional sound system mainly covers program signal source, signal processing, amplifier, speakers, etc. Through advanced design concepts and high-quality device configurations, it creates perfect acoustics to satisfy the needs of speeches, reports, lectures, discussions and others in multi-function lecture halls, and it can achieve clear feedback of the human voice speeches.

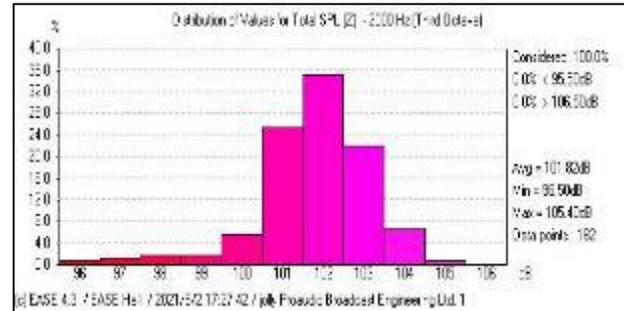
- Four-frequency two-driver design
- Three-frequency design
- Beam control technology
- Wide bandwidth pointing control



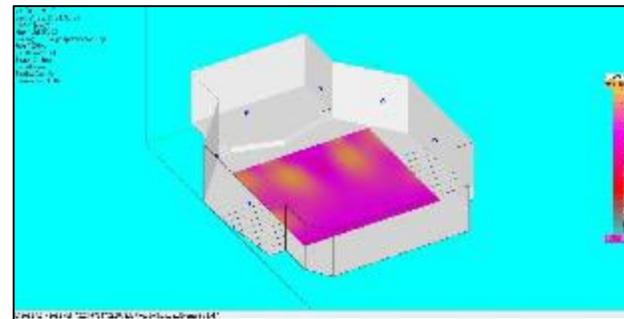
Distribution of direct SPL at 1000 Hz



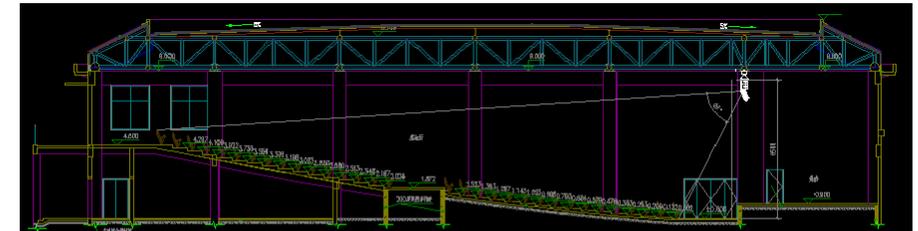
Statistical plot of distribution of direct SPL at 1000 Hz



Distribution of direct SPL at 2000 Hz



Statistical plot of distribution of direct SPL at 2000 Hz



会场线阵音箱声场覆盖图

Venue line array speaker sound field coverage map



Subwoofer installation schematic

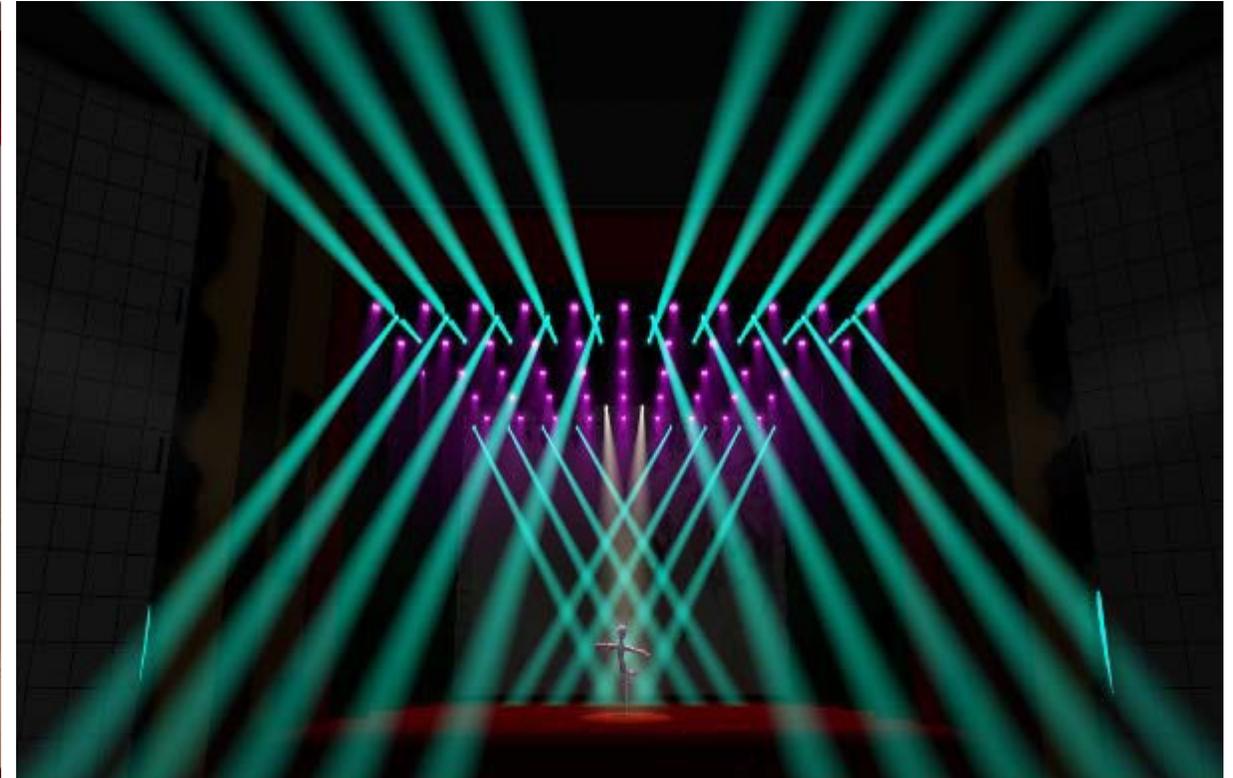
超低返听音箱安装示意图

Venue speaker selection and elevation diagram

## EASE4.4 acoustic design

itc provides professional and detailed acoustic design solutions for the construction of professional sound systems in large venues such as lecture halls and stadiums. According to the decoration material, overall structure and the use of the lecture hall, combined with the principle of architectural acoustics design, the solution will make reasonable selection of suitable venue audio; then use EASE4.4 professional sound field simulation and analysis software to establish a 1:1 building 3D model, thus creates the best acoustic design scheme to ensure of sufficient SPL , even sound reinforcement, and comprehensive coverage in the scene.

- EASE4.4 sound field analysis
- Sound reinforcement system analysis
- Smooth transmission characteristics
- High sound transmission gain
- Excellent sound field uniformity
- Sufficient SPL
- Hidden installation
- Multi-scene switching
- .....



## Stage lighting system

The design, configuration and layout of the lecture hall stage lighting system can also meet the requirements of daily meetings and artistic performances. The lighting of the whole stage is scientific, reasonable and beautiful. It can meet the needs of various kinds of meetings such as large-scale report meetings and summarization meetings. In the performance mode, the stage lighting can do different stage lighting effects according to the content of the performance.

- Long life
- High compatibility
- Shorter response time
- Energy saving and high efficiency
- Bright and rich colors
- Strong mobility
- Conference mode
- Performance mode
- .....





# HD Recording System



HD recording



LAN live streaming



Post-meeting on-demand via internal LAN



Easy to control

## HD recording system

For major meetings, decision-making meetings, their contents often require recording. Conference recording system can record pictures, PPT scripts, speech sounds, multimedia audio and so on during the meeting, and can provide online live broadcasting, post-conference on-demand (broadcasting, resource integration and other application functions.

- HD recording
- One-touch tracking
- Low bandwidth demand
- Face tracking
- CD-quality sound
- AAC coding technology
- Easy to use
- DSP acquisition
- .....



# Stadium Application Program



## Stadium application program

itc actively guides and encourages schools to carry out sports activities, making full use of the existing sports venues, encouraging schools to carry out various sports, mobilizing teachers and students sports enthusiasm, and striving to enhance the physical quality of the students.

### Info release

Announce events in advance

### Prof. sound reinforcement

Indoor area full coverage of hifi sound quality

### LED screen

Audio and video visualization, distributed scheduling

### Pickup system

Long-distance pickup, maintain order at the scene

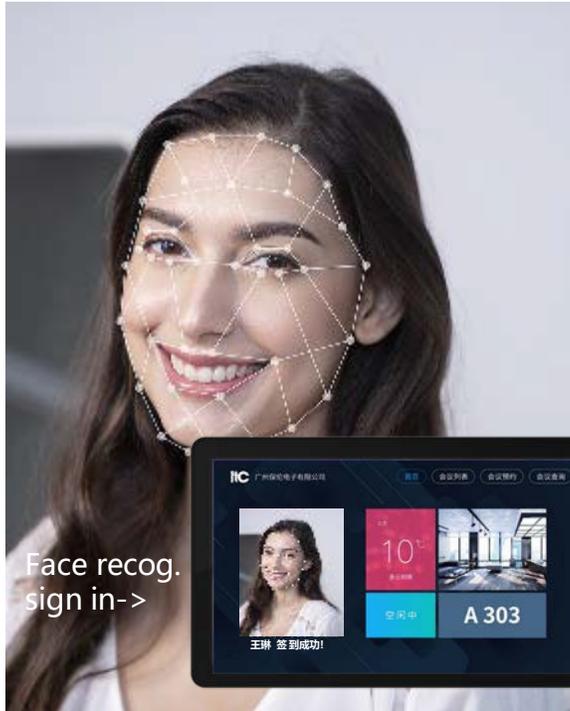
## PART 03

# Faculty and Staff Conference Room

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# Conference Management



Face recog. sign in->



- Face recog. sign in
- Door control mgt
- Conf. reservation
- Attendance
- Seat management
- Info release
- Conf. services
- Conf. envir. control
- Asset management
- Integrate & interface with internal systems
- Data analysis
- .....

## Cloud Conf. Mgt Platform - Multiple Expanded Functions · Facilitate Campus Conf.

itc conf. mgt system through the PC terminal, mobile phone, conference room reservation control screen and other ways to launch the meeting. Based on the specific requirements of the meeting scene, one key to set up, remote control of the conference room environment. Hardware terminals are used to implement the multi-party video conferencing function between conference rooms and sub-meetings, docking and supporting various types of meeting needs, and can be applied to a variety of scenarios.



# Conference Display



## Interactive All in one LED Display - Perfect combination of smart board and LED display screen

- Standard resolution and display ratio, using PWM control technology, with low brightness and high gray, 16:9 display ratio
- Static and high dynamic images are fine and non-destructive. No optical splicing 1920\*1080 resolution
- The installation mode depends on the actual situation, supporting wall-mounting, floor-mounting
- Suitable for meeting rooms, lecture halls, exhibition halls, command and monitoring centers, office building lobbies and other application scenarios.



**Multi-Screen Interaction**  
• **Wireless Sharing**

- 110": suitable for 20~40 people, 50~80m<sup>2</sup> space
- 138": suitable for 30~60 people, 80~120m<sup>2</sup> space
- 165": suitable for 60~100 people, 120~150m<sup>2</sup> space
- 220": suitable for 100~200 people, 150~350m<sup>2</sup> space



# Paperless Office



- Silky lift panel
- Biometric sign-in
- Conf. note retention
- Smart shared screen
- Local off-site interconnection
- Website search for info
- Handwritten annotation
- Scan to take notes away
- System confidentiality agreement
- System integration and interfacing

## Education Bureau Meetings • Teachers' Wrap-up Meetings • Teaching Seminars • Reading Exchange

### Faculty & Staff Paperless Conference System · Covering Teaching and Office Life

- Integrated OA system, one touch to complete course schedule issued, office approval, attendance leave, collaborative data meetings and other information campus office, docking video conferencing, teaching recording and broadcasting and other systems
- Helps to realize paperless, energy-saving and environmentally friendly office meetings

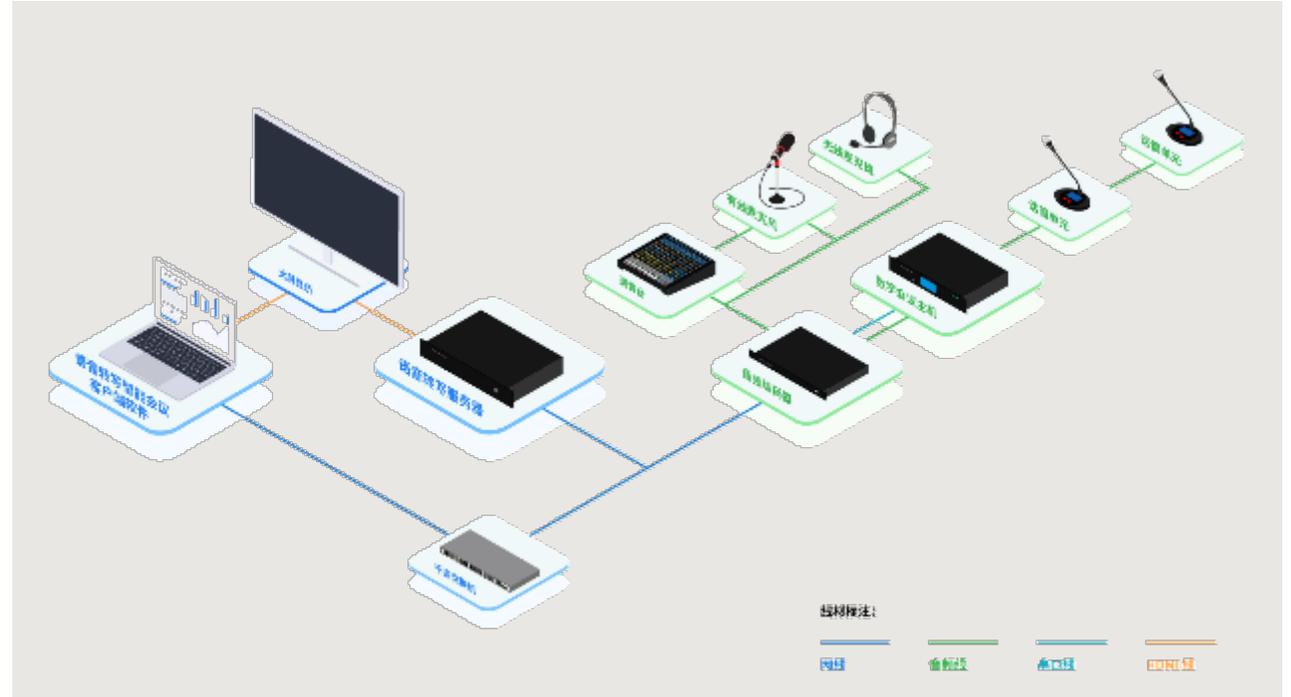
and efficient collaborative training.

### Paperless Operating System · High Security for System Confidentiality

- Meet the high security requirements of application systems in government, defense, finance, electric power, confidentiality and other fields.
- Support CPU hardware such as Loongson, Zhaoxin, Phytium, Kylin, etc., with NeoKylin operating system, exclusive operation interface, and high security.



# Smart AI Conference Minutes



- Role separation
- Keyword optimization
- Conference recording
- Emphasis mark
- Paragraph & phrasing
- Key content mark
- Word-sound syn
- Modal particle filtering
- Fluent speech
- Lexical substitution
- Taboo word blocking
- Custom banner

**High accuracy, ultra-fast recognition speed:** using IFLYTEK's top voice transcription technology, real-time voice transcription efficiency of  $\leq 200ms$ . **5-10 minutes** to complete the audio transcription of 1 hour, the correct rate of standard Mandarin can reach **more than 98%**. Support batch import and transcription of **50 audios**.



# Remote HD Video Conferencing



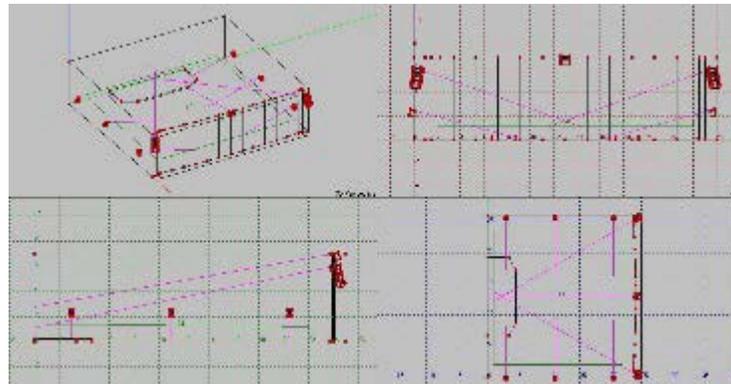
- Sound source location
- MCU union
- 4K image quality
- Multi-tier architecture
- Virtual conf. room
- Easy deployment
- Hot standby
- Hifi sound quality
- IP camera access
- IRDA control

## Remote Video Conference System

Integrating HD audiovisual technologies, supporting seamless docking and rapid data sharing among different platforms, realizing off-site video interconnection meetings. With rich conference management features, teachers can carry out remote interactive teaching, discuss academics, instantly convene a meeting, etc., greatly improving office efficiency.



# Professional conference sound reinforcement



Speech system

Mixer

Audio processor

Prof. speaker

## Conference room professional sound reinforcement

Design should fully consider the sound and decoration environment, using EASE4.4 system software, based on Indices of Acoustic Characteristics for Sound Reinforcement System in Halls and Rooms, Methods of Measurement for the Characteristics of Sound Reinforcement in Auditoria; select the right speaker to ensure of optimal sound reinforcement effect without affecting the aesthetics, and to meet the sound reinforcement, which requires clear language, no distortion, sufficient sound pressure margin, uniform sound field distribution, no howling.

- Mix Minus
- Dynamic EQ
- Transmission gain
- Even sound pressure
- EASE4.4 design
- High definition
- Howling suppr.
- Hifi sound qlty
- ...

# PART 04

# Public Area

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Classroom



Campus perimeter



Cafeteria for teachers&students



Security office

## PA System

PA system provides daily automated **background music, business notification broadcast, fire emergency evacuation** for campus personnel;  
 Play different music based on different environments and atmosphere. It can insert broadcast, send people search broadcast, emergency broadcast and so on;  
 Meet the demand for full coverage of business broadcasting such as public area broadcasting, classroom point-to-point control, perimeter help alarms, security office scheduling, and so on;



Primary school building



(Schools: Primary + Middle School)



Middle school building

- Middle school bldg 01 sub-area
- Middle school bldg 02 sub-area
- Middle school bldg 03 sub-area
- Middle school bldg 04 sub-area
- Middle school bldg 05 sub-area

### Arbitrary zoning

- Set up any number of groups (zones) according to the primary and middle school divisions to broadcast designated programs;
- Broadcast speech to any designated group;
- The digital broadcasting system can realize unlimited zones without being limited by the number of zones, which is convenient for the expansion of areas and functions.

### Zone control

- Support power control zone setting for 8-channel power zone terminals, and the zone can be easily set up through the web page backstage or the sub-control client.





## Public Areas -- Security Alerts

In recent years, **campus safety issues** have been particularly prominent. **Campus fire safety** incidents, **laboratory safety** incidents, **apartment safety** incidents are on the rise, deeply affecting the safety of students on campus. So enhancing the awareness of teachers and students of safety precautions, add safety warning facilities has been imminent.



### Unilateral disconnection

Alarm buttons are set up in dormitories, academic buildings and other venues to provide protection for students seeking help, and students are unable to hang up on their own initiative after dialing.



### Safety management

Unified management of safety bulletins, safety system documents, safety task management, safety information filling, safety duty statistics and safety data.



### Security broadcast

In the event of an emergency contingency, the linkage broadcast system emergency plan evacuates people and ensure the safety of students.



Safety management



Safety education



Safety emergency



Call for help and alarm

- Meet the demand for full coverage of business broadcasting such as public area broadcasting, classroom point-to-point control, perimeter help alarms, security office scheduling, and so on;
- Installation free. Log in to use it.

# Application case

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# Selected Cases of high education



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**Beijing Institute of Technology**



**Tsinghua University**



**East China University of Political Science and Law**



**Fudan University**



**Sun Yat-sen University**



**Xiamen University**



**National Defense University, Turkey**



**Kazakh National Pedagogical University**



**Swinburne University in Sarawak, Malaysia**



**Singapore Polytechnic School**



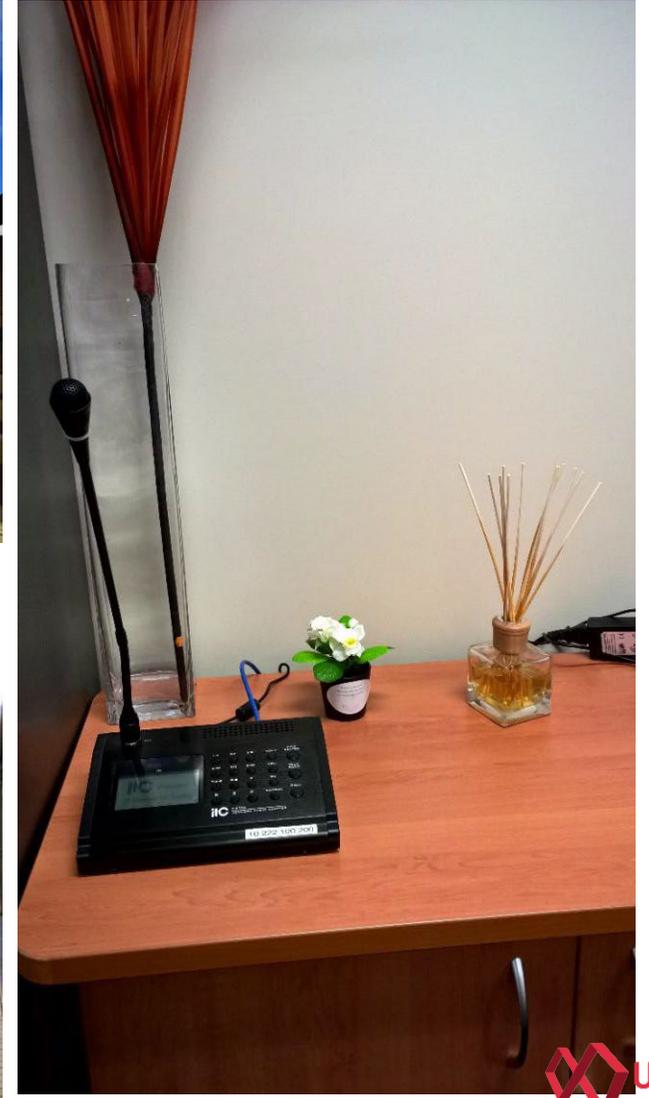
**South China University of Technology**



**Nanjing University of Technology**



✓ Lake Joondalup Baptist College , Australia  
✓ IP Network Public Address System





✓ Lawrence S.Ting School, HCMC, Vietnam

✓ AV system



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✓ Singapore Polytechnic School  
✓ ITC IP PA System



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✓ Swinburne University in Sarawak, Malaysia  
✓ ITC Pro Sound System



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