

### **MODERN COMMUNICATION TECHNOLOGY**

# Smart School Solution Solution

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# Construction Background







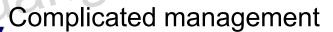
#### Isolated Information

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



#### 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



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



#### 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







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



Use 5G, cloud computing, big data, artificial intelligence, and other advanced technologies, with smart classrooms and interactive teaching as the core, to form an educational ecosystem with students as the main body, realizing the deep integration of information technology and teaching application.

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









**Student** 



**School** 



**Education Bureau** 



**Teacher** 



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

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

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

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

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





# Construction Solution







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

1

2

3

#### **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

#### **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"

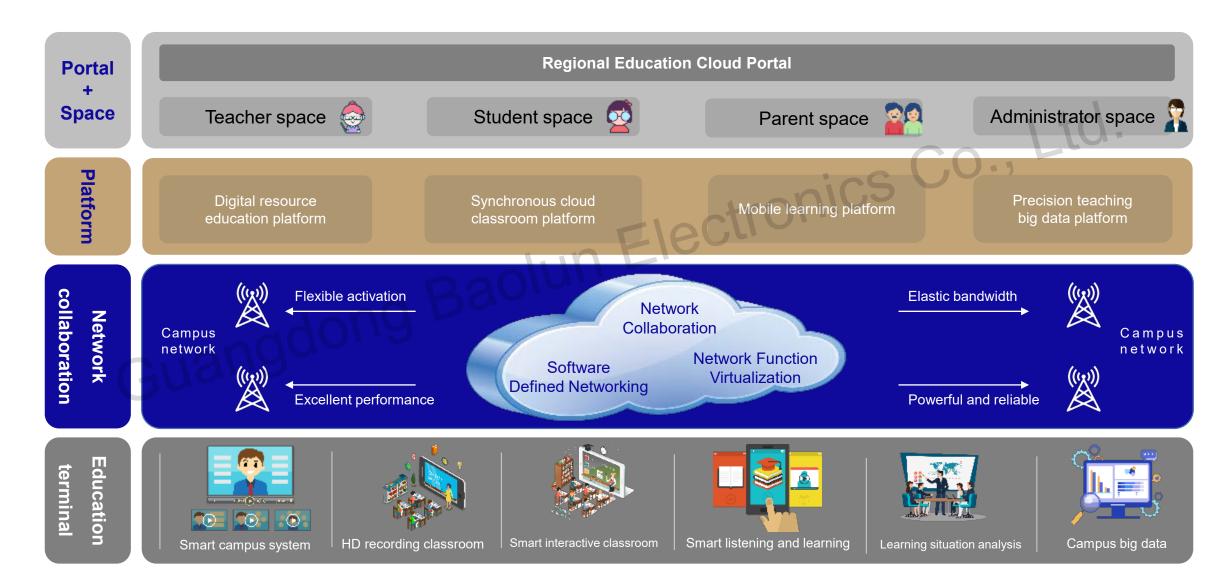
#### **Smart education terminal**

- 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





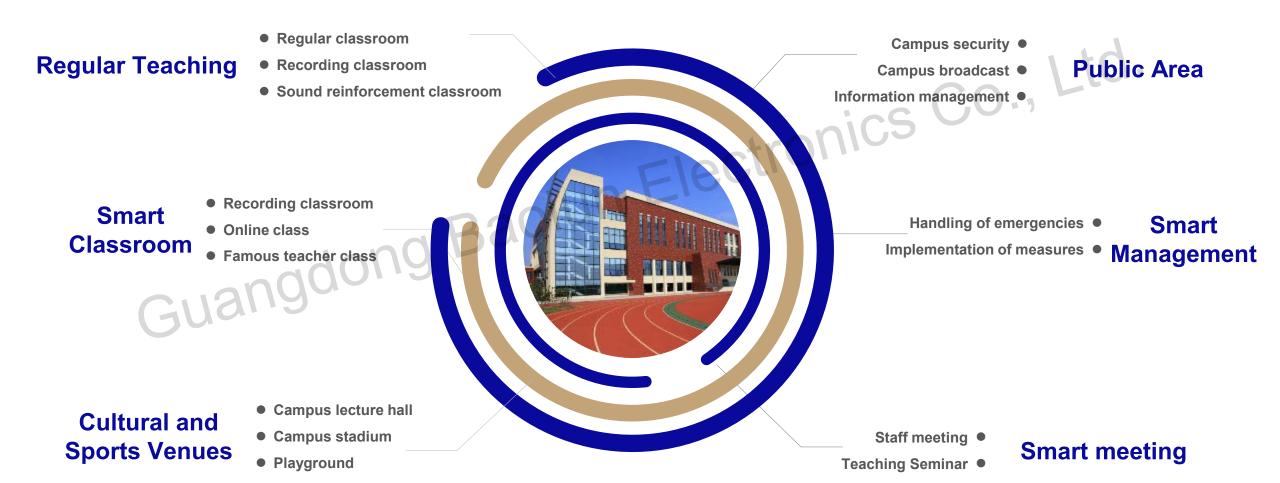
















# Scene Design





# PART 01 Smart Classroom

#### https://www.720yun.com/t/17akn78ms8y

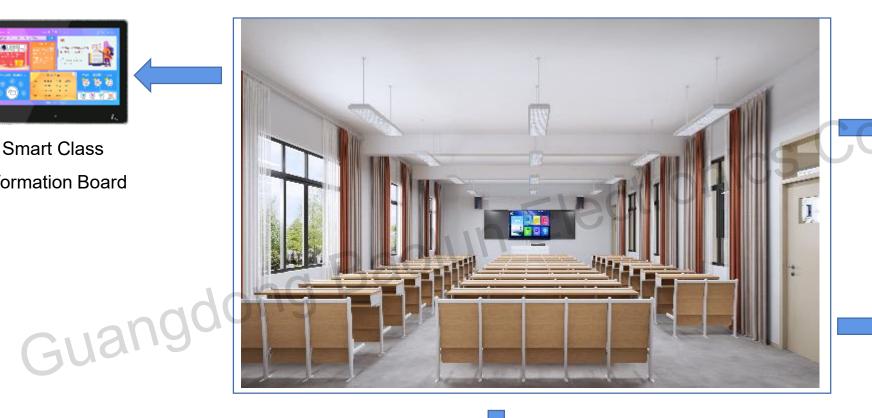




#### General classroom

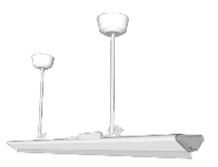


**Smart Class Information Board** 





**Smart Blackboard** 



**Classroom Lighting** 





**Broadcasting System** 



#### **Interactive Recording Classroom**

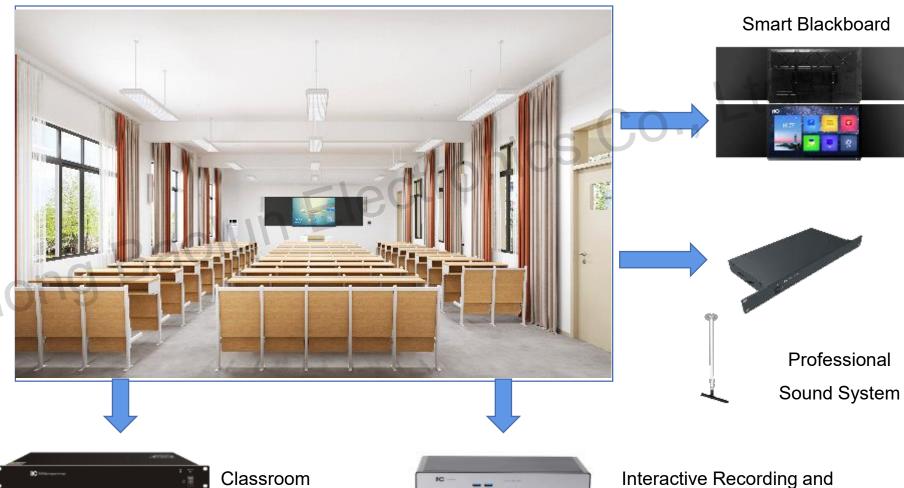
Multimedia Terminal

**Smart Class Information Board** 





Classroom Lighting System







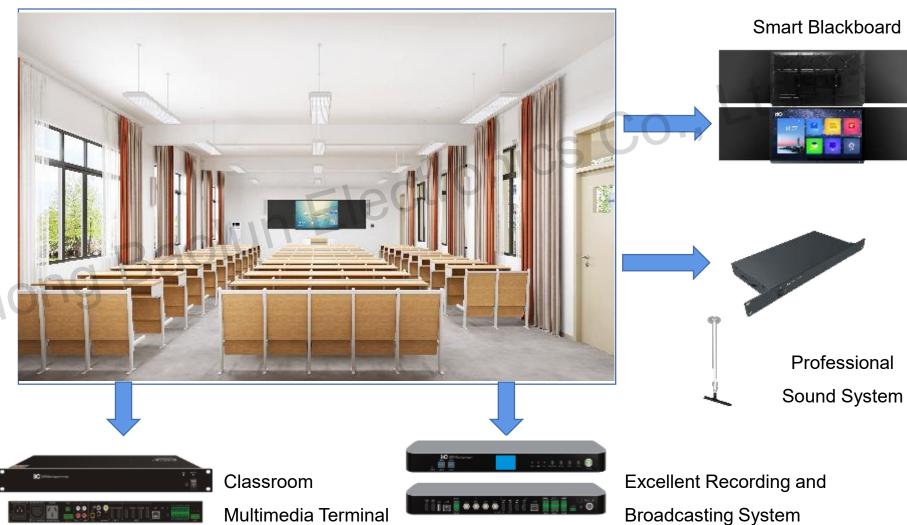
#### **Excellent Recording Classroom**

**Smart Class Information Board** 





Classroom Lighting System









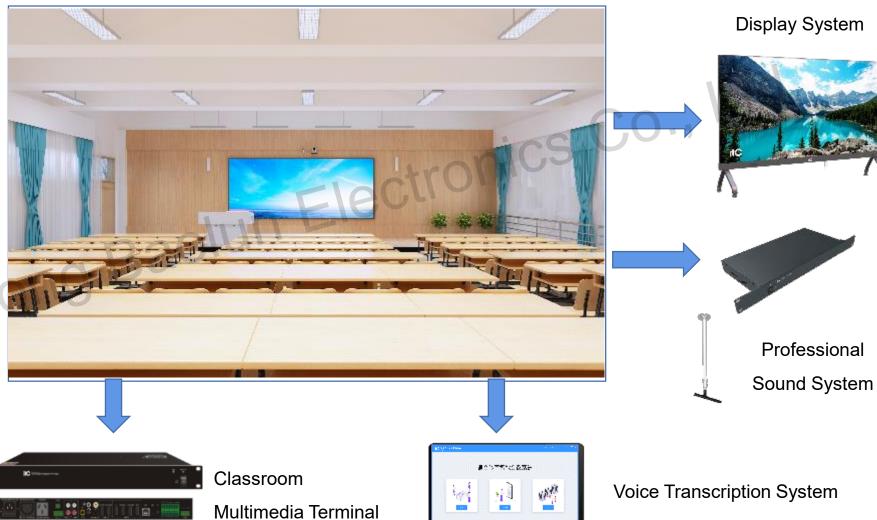
#### **Lecture Theater**







Classroom Lighting System













adony



**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
- 4K UHD display
- Surface light imaging

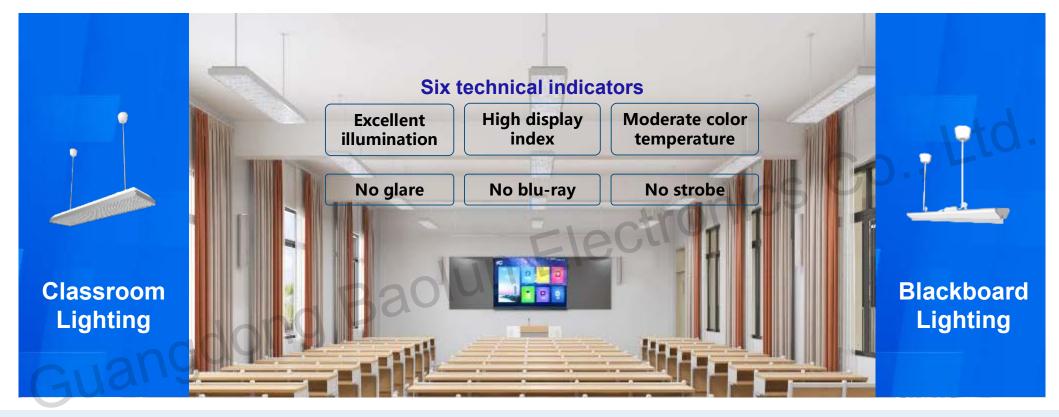
- Ultra-wide viewing angle
  - Anti-collision
- Arbitrary annotation

- NTSC high color gamut
- Anti-glare glass
- Gesture recognition









#### **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





Shaping the world-class brand



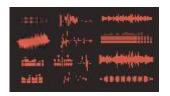
#### Classroom Professional Sound System

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** 



**Environmental Noise Cancellation** 



**Automatic Gain Control** 

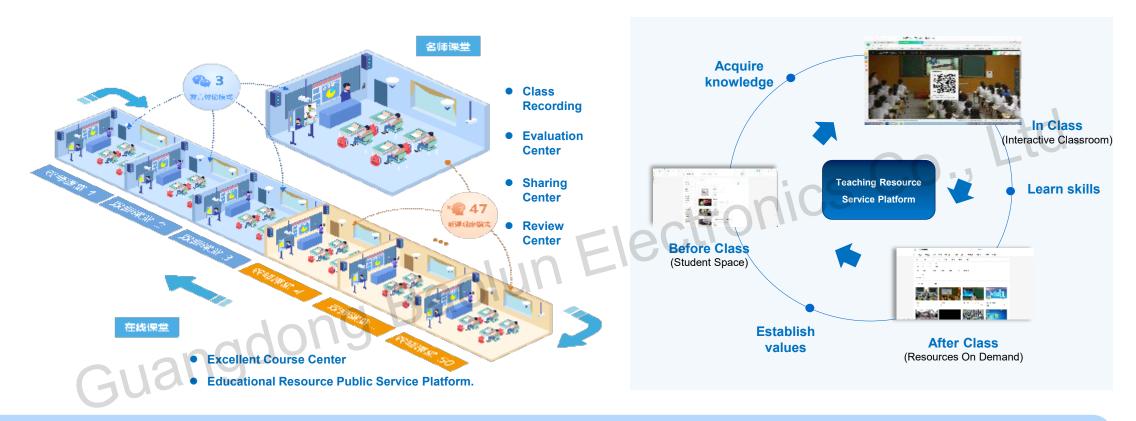


**Adaptive Feedback Control** 



#### https://www.720yun.com/t/1fakn78hrf9





- 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.

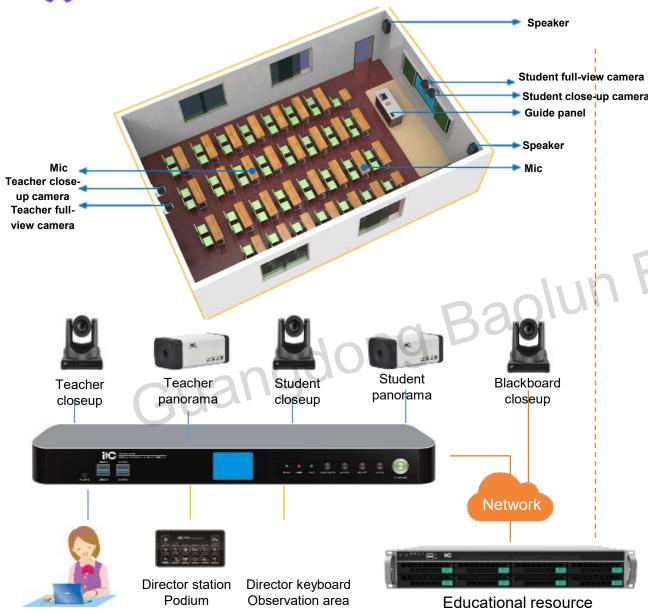
- In-class data synchronization
- Learning situation analysis
- View announcement
- Complete homework online

## Excellent Recording System

Teacher computer



















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

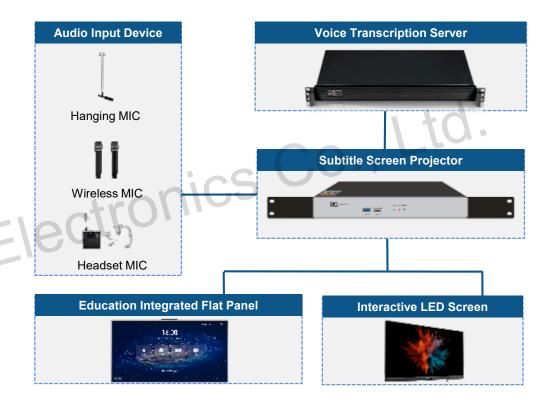
#### **Excellent course recording application**

- 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**

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



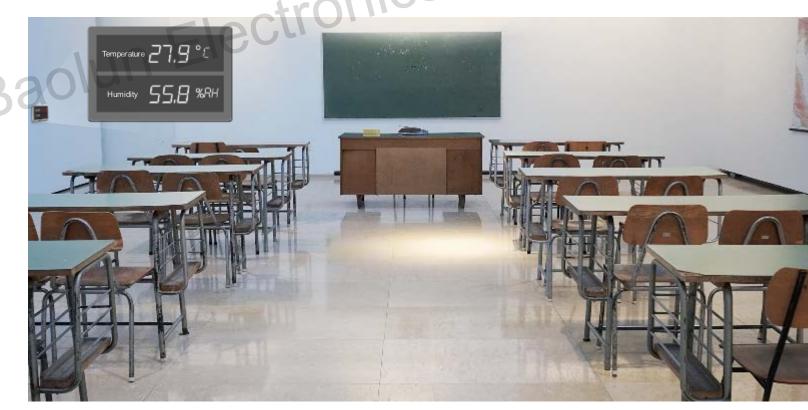


Through real-time monitoring of classroom **temperature**, **humidity**, **and PM2.5** content:

- 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 Face Quick
Card Recognition Attendance

Schedule

Course information

Ask for leave

Course selection

Schedule adjustment

Campus culture

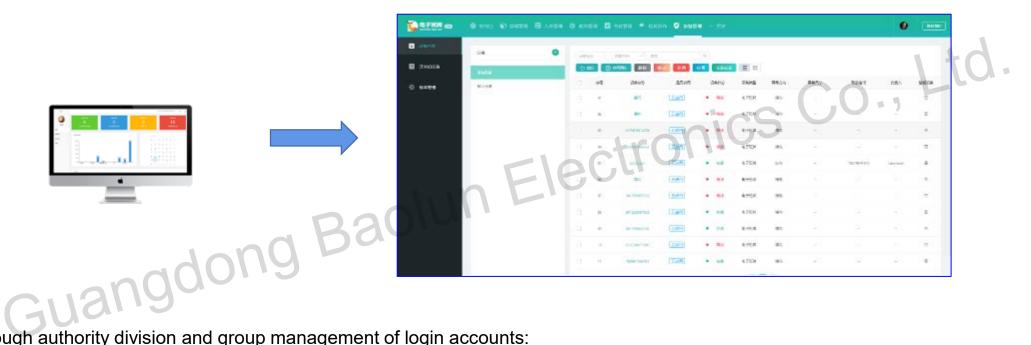
Result inquiry

Weather information

Emegency 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



#### Multi-function Lecture Hall







- LED system 4K UHD seamless splicing slim design
- Prof. Sound System
   Prof. sound reinforcement technology, hifi sound quality
- Stage light, curtain system HD recording 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 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
  - Large view angle
- Light weight

- High refresh
- 3D display

Fast heat dissipation

- High grayscale
- Brightness adjustable •
- Low power consumption

- Image correction •
- Silent design

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
- Convenient operation
- Seperate frequency band

- Mix Minus
- Fidelity sound quality
- Ultra-low delay

- Seamless backup
- Long battery life
- High scalability







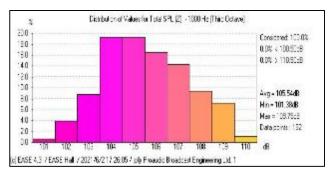


#### **Professional sound system**

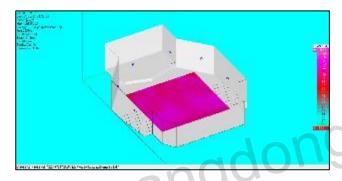
Professional sound system mainly covers program signal source, signal processing, amplifier, speakers, etc. Through advanced design concepts and high-quality device configurations, it creates perfect acoustics to satisfy the needs of speeches, reports, lectures, discussions and others in multi-function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

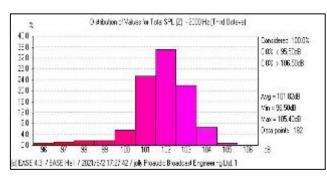




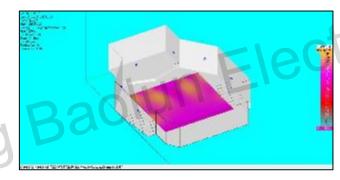
Distribution of direct SPL at 1000 Hz



Statistical plot of distribution of direct SPL at 1000 Hz



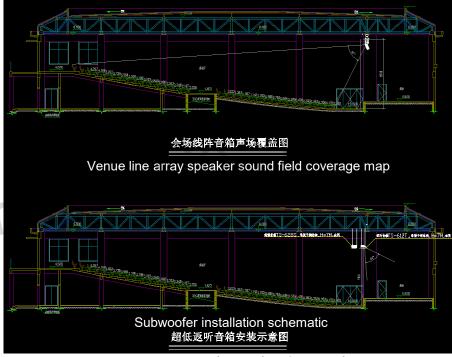
Distribution of direct SPL at 2000 Hz



Statistical plot of distribution of direct SPL at 2000 Hz







Venue speaker selection and elevation diagram

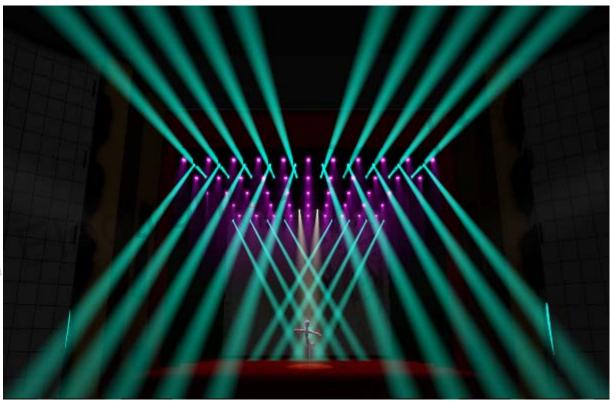
**EASE4.4 acoustic design** itc provides professional and detailed acoustic design solutions for the construction of professional sound systems in large venues such as lecture halls and stadiums. According to the decoration material, overall structure and the use of the lecture hall, combined with the 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 transmisson Hidden installation gain
- Excellent sound field Multi-scene switching uniformity
- Sufficient SPL









#### **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

- Energy saving and high efficiency
- High compatibility
  - Bright and rich colors
- Performance mode

Conference mode

- Shorter response time
- Strong mobility
- .....





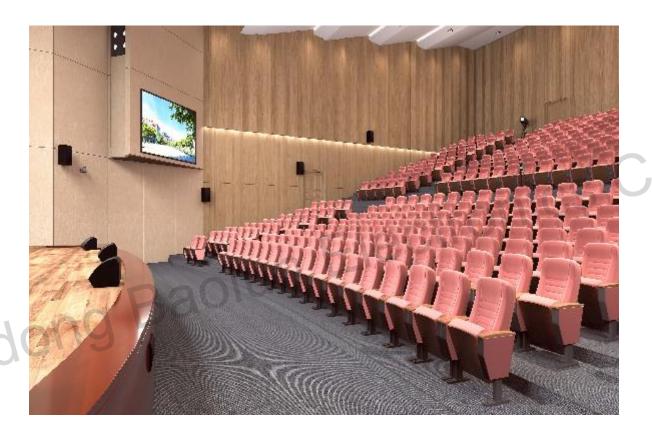




**HD** recording



Post-meeting on-demand via internal LAN



**LAN live streaming** 



**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 useDSP 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



#### **Conference Management**











- 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 submeetings, docking and supporting various types of meeting needs, and can be applied to a variety of scenarios.









# **Business LED - Perfect combination of interactive whiteboard 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, 50~80m² space
- 138": suitable for 30~60 people, 80~120m² space
- 165": suitable for 60~100 people, 120~150m² 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.

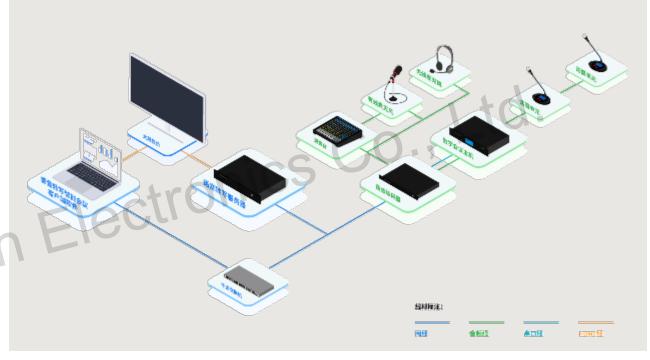


# **Smart Al Conference Minutes**









**Role separation** 

**Keyword optimization** 

Conference recording

**Emphasis mark** 

Paragraph & phrasing **Key content mark** 

Word-sound syn

Modal particle filtering

Lexical substitution

**Taboo word blocking** 

**Fluent speech** 

**Custom banner** 

High accuracy, ultra-fast recognition speed: using IFLYTEK's top voice transcription technology, real-time voice transcription efficiency of ≤ 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.



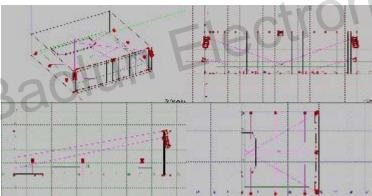
# **Professional conference sound reinforcement**













# **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
- Even sound pressure
  - Howling suppr.

- Dynamic EQ
- EASE4.4 design
- Hifi sound qlty

- Transmission gain •
- High definition
- ..





# PART 04 Public Area

Guangdong Baolun Electronics Co., Ltd.











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;

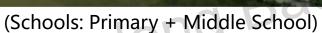
Play different music based on different environments and atmosphere. It can insert broadcast, send people search broadcast, emergency broadcast and so on;

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









Middle school building

## **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 subcontrol client.





# **Public Areas -- Security Aerts**

MODERN COMMUNICATION TECHNOLOGY



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.



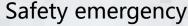
# Security broadcast

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











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

Guangdong Baolun Electronics Co., Ltd.









Beijing Institute of Technology

**Tsinghua University** 

East China University of Political Science and Law

**Fudan University** 

Sun Yat-sen University

**Xiamen University** 



National Defense Unive rsity, 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



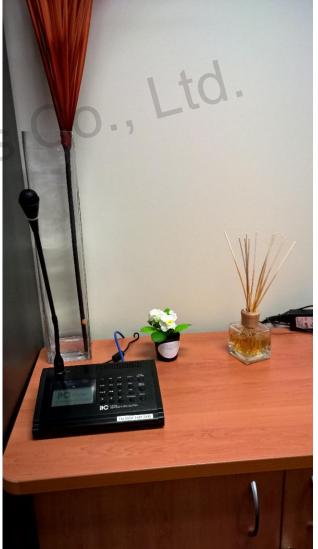












# ✓ Lawrence S.Ting School, HCMC, Vietnam















# ✓ Singapore Polytechnic School ✓ ITC IP PA System













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











# THANKS

Science and Technology Create Future, Strength Create Brand



Guangdong Baolun Electronics Co., Ltd.