JWIPC iLearn Solution Whitepaper

Interactive Remote Class

2017.08.31

Overview of the Market:

With the development and usage of cloud computing and big data, the cloud application had extended to education field. More and more schools share education resources based on cloud technology and internet, so the students could study at any time and in any place after school. To better share and more efficient use the high quality education resource, and to further develop online learning and self study, JWIPC offers a new comprehensive campus AV solution—"campus cloud platform solutions"; it is based on the actual demands of school, and integrated teaching, interactive, class content recording, on-demand and live broadcasting and campus management etc. multi-functions.

JWIPC iLearn Solutions based on the interactive recording and broadcasting OPS C+ PC in user side, and combined with a back-end multi functional cloud platform for education resources. Taking E-education as cut-in point, the solutions highly integrate modern teaching equipment and online education function, to realize Theme teaching and researching activities, teaching resource sharing, curriculum study reviews, best class competition, Mirco-class and a good teacher's best lesson etc. activities under different platform levels.

JWIPC iLearn Solution that is based on the Intel's architecture

➢ High performance E3, E5 platform manage server
➢ Core platform streaming media live and on demand broadcasting server
➢ Core platform data storage
➢ OPS teaching terminal

Intel processors have strong graphics and parallel processing capabilities; they can support more video channels, encode and decode more complex videos and performance more intelligent. At the same time, they also have remote management capabilities: through the related advanced technology to allocate the system operating resource based on the different tasks. They are with features like high performance, extendable and flexible etc.

Intel processor is an open platform based on common X86 architecture. X86 open platform and the mature eco-environment further simplify the campus backstage management. Intel software platform can well support the connection and compatibility between devices. The collaboration of Intel Atom platform and MeeGo OS has provided the transmission of network video the most optimization technology.

How will this offering will be used?

The solution based on high-definition recording and broadcasting system and education cloud platform, and can achieve live video broadcasting, intelligent direct broadcasting, high-definition recording, online on-demand broadcasting, touch screen control, image recognizing and tracking etc. functions. It is the latest generation multi-media information record and broadcast device independently developed by JWIPC, for meeting the demands of producing fine teaching video for education industry, online learning, interactive teaching and studying and so on.

Teaching resources cloud platform is a video resource display platform expanded from the basis of recording and broadcasting OPS C+ PC which equipped with large screen. Regarding better manage the video resources after the classroom equipped with the recording and broadcasting OPS C+ PC, and further apply and develop the education video resource comprehensive platform, JWIPC provides this excellent solution for the transfer, sharing and interaction of teaching resource.

Industry introduce and Product leading point

In popularizing campus education informatization, the difficulties of high quality teaching videos which needed to be solved are as below:

a. How to minimize the number of devices needed for recording requirements;
b. How to effectively reduce the costs for equipments and their maintenance;
c. How to fully use the video recorded, to meet the actual needs of educators, teachers and students.

To solve these problems, JWIPC creatively developed the iLearn Solution for remote interactive classroom. Combined with RB OPS C+ PC and data center, it could meet various demands like teaching process review, E-exam room, AV broadcasting, class patrol etc. in campus.

Industry leading points:

a. Highly integrated with interactive flat display panel, more convenient and simple to use;
b. It can realize more applications of campus audio and video through the expansion of campus cloud platform;
c. Software and hardware highly integrated, easy installation and debugging;
d. The most advanced tracking algorithm, through the face contour detection etc. ways to reach accuracy rate 90% or above;
e. Can realize: video recording and broadcasting management, user management, data storage, personal information services, message services, resource collection, resource upload, resource management, resource association, recording and broadcasting reservations, video playback, video indexing, playback operations, on-demand broadcasting statistics, resource management, excellent course interaction and management, data statistics, WeChat platform, micro-curriculum, curriculum selection, teacher lectures, interactive teaching and research, educational administration, audio-visual management, remote guidance, interactive management, campus broadcasting, information dissemination and other applications.

Potential customers and customer types

Interactive whiteboard manufacturers
Campus audio and video manufacturers
Education integrators

What market or business problem the solution will help solve

With the HD recording and broadcasting system, to achieve live video , intelligent broadcasting, high-definition recording, online on demand, touch screen control, image recognizing and tracking and other functions; Aim to satisfy the requirements of boutique teaching video, online learning, interactive teaching and other needs , we launched the Self-developed latest Generation of multimedia information recording and communication equipment.

The iLearn Solution is also a video resources display platform based on the expansion of recording and broadcasting system ,when the campus recording and broadcasting classroom construction is completed, the recording and broadcasting video resources management and further application of the development of educational video resources integrated platform for teaching Resource delivery, sharing and interaction provide a set of excellent solutions.

The iLearn Solution is aim to follow the national "three links and two platforms" policy and launched video on-demand, live, teaching and research activities and campus management in a comprehensive education application platform, based on the Educational Technology and Information Technology deeply integration, deep understanding of the education industry users in the course recording and the use of the recording content to carry out follow-up application of the actual needs . Combined with the cloud computing, big data and other applications in the education industry, starting from the business needs with efficient instruction, with stable and reliable system structure to meet the requirements of teaching, learning, parental tracking and educational management based on the platform and so on.

Online Class / Interactive Class :

a.   It is comprised of Boutique classroom , interactive classroom , watching classroom, micro classroom . Boutique classrooms with automatic five-viewpoint camera ,interactive classroom with Three-viewpoint h camera ; micro c lassroom with Two-viewpoint camera.
b.   Take advantage of audio and video interactive terminal, using the campus network or WAN to achieve the synch ronous transports between the classrooms and schools.
c.   Build a model of one school expand to more schools ;one campus expand to more campus .
d.   A variety of images transmission, one-screen, multi-screen, Pop Up Video.
e.   Transmission of HD 720P / 1080P images, recording HD 1080P video as MP4 format.
f.   High-fidelity audio capturing and transmission, with audio noise reduction, echo cancellation, feedback inhibition, background noise reduction and other audio processing.

Regular class:

a.   Automatic three-viewpoint HD camera to capture teacher close-up shot , teacher panorama shot, students close-up shot.
b.   A variety of shooting effects, support movie mode and multi-screen mode.
c.   Recording HD 1080P video as MP4 format.

d. High-fidelity audio capturing and transmission, with audio noise reduction, echo cancellation, feedback inhibition, background noise reduction and other audio processing.
e. Recording and uploading to the cloud automatically, meeting with the live online, after-school on-demand, excellent class selection, micro-class creating.
f. Easy operation, one-key record, one-key stop, one-key screen switch.
g. Automatically recording according to courses schedule .

Boutique Class :

a. Applicable to Individual Boutique classroom, flexible configurations according to actual needs, use for Four plus one viewpoint Scenario (Podium panorama shot, teacher close-up shot, student panorama + close-up + interactive whiteboard interface).
b. Intelligent recording and broadcasting system The whole shooting process can be used automatic, semi-automatic and manual three modes.
c. In the automatic mode, the teacher can automatically record through the center panel of the podium: tap the recording button, start the recording function, finish the button and press the stop button, the recording is finished, the multimedia file is generated in real time, no longer need the staff Site operations, real record live lectures.
d. When the recording is complete, the video is automatically uploaded to the resource publishing platform for publishing and sharing.

Micro class:

Micro-class center providing micro-class resources construction and watching resources as the core functions, offering comprehensive support from creating and editing teaching materials to publishing and sharing process. The teaching video and electronic courseware are recording and automatically uploading to the cloud, therefore we can edit and demonstrate the resources from the cloud .
a. Automatic two-viewpoint HD camera apply to capture teacher's close-up and panoramic shooting.
b. Variety of shooting effects, supporting movie mode and multi-screen shooting mode.
c. Recording HD 1080P video as MP4 format.
d. High-fidelity audio capturing and transmission, with audio noise reduction, echo cancellation, feedback inhibition, background noise reduction and other audio processing.
e. Recording and uploading to the cloud automatically, meeting with the live online, after-school on-demand, excellent class selection, micro-class creating.
f. Easy operation, one-key record, one-key stop, one-key screen switch.

Campus Cloud Platform:

With the help of simple equipment to achieve back-end complex and powerful educational functions , and guide the direction of a more deep, more integration, more concise application.
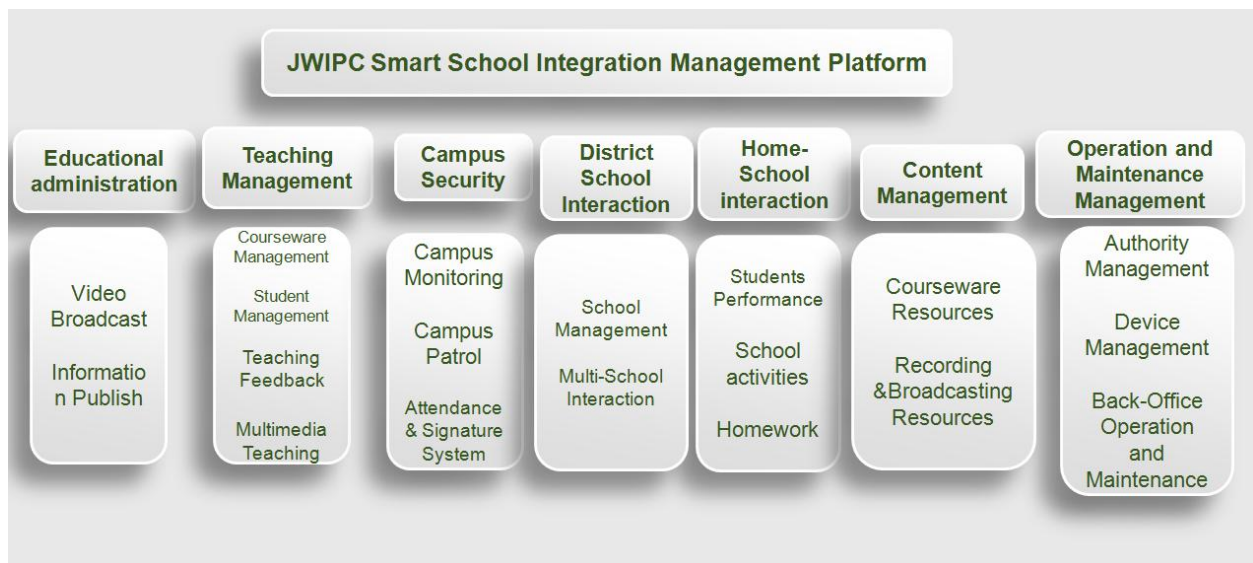
The Challenge of the solution

Challenge 1：raditional recording and broadcasting solution based on Hisi chip.

A high level architecture of the market ready offering

Highly integrated with embedded HD capture module, recording and coding module, image recognition tracking module, intelligent guide module, image segmentation and splicing module, the local echo output module, JWIPC recording &broadcasting OPS-C+ PC which is special for education industry can achieve video broadcast, intelligent director, HD recording, image recognition tracking, Touch screen control and other functions, it is the latest generation of multimedia information recording and communication device which can meet the requirement of making quality teaching video ,online learning, interactive teaching etc.

The software platform can realize: video management, user management, data storage, personal information service, message service, resource collection, resource upload, resource management, resource association, recording and broadcasting reservation, video playback, video indexing, Online communication, resource management, excellent course interaction and management, data statistics, wechat platform, curriculum selection, teacher lectures, interactive teaching and research, educational administration, audio-visual management, remote director, interactive management, campus broadcasting, information dissemination and other applications.

Scalability

a. Can be used with different terminal hardware to achieve different needs.
b. Can be used with different servers to achieve different campus management needs.

c. Can be used with different recording and broadcasting terminals to achieve the different needs of the course recording.

Incorporate Intel Hardware/Software

Server :

The intelligent micro campus video solution server system contains three parts: computing server, management server and storage server.

Computing server:

2U dual E5 server series, 3U 12 blade server products using Intel E5-2600V3 series, E3 series, Gordon Haswell I3 processor, can be calculated to meet the needs of big data.

Storage server:

JWIPC Storage Server currently has 4U24Bay high performance storage server, 3U16Bay easy plug-in storage server two main series, which based on Intel Skylake C236/B150 chipset, support Intel Gen6 series processor, using Intel Gigabit Ethernet 2-5-Port, support multi port network load balancing, can support Intel AMT technology.

OPS recording system:

JWIPC iLearn OPS solution main based on Intel X86 architecture, equipped with Intel 6th / 7th Gen core processor.

The processor uses the intelligent cache technology, can be in a kernel idle let another run in the kernel of all two level cache, which will bring more excellent dual core performance.

In addition, support for hyper threading technology Intel dual core products can handle four software threads. This will provide a direct performance advantage for complex algorithms in video solution applications and meet the requirements of multi-channel, high resolution images. In addition, JWIC OPS taped the main control also has support for a variety of Intel technology. For example, Intel hyper threading technology, virtualization technology, Intel active management technology.

To meet different customer needs

JWIPC as a OEM/ODM vendor, the program can be customized according to the customer's requirements of the deployment of the solution architecture, customized solutions and products for the customer. To meet the needs of different customers through the hardware and software function modules. According to customer demand, can do the normal recording and interactive recording applications, fine recording applications.

Q: Is this a global offering or a geo offering?
A: Global offering

Support

a.   Better functional technology open

b.   More support for promotion

c.   More in-depth global education industry promotion

d.   More marketing activities

Classical Case

In the project with CKDZ (A school in Zhejiang Province) cooperation, relying on the excellent recording system + normalization system + resource management application form, the formation of educational video resource acquisition, production, management, application, sharing a complete set of application mode, create the characteristics of the recording and interactive education integration function to achieve, the classes, school to school, home school".

All the contents of the class can be recorded, and in the school after a simple delete after the regular upload to the Education Bureau platform; the entire platform and the use and management of the program should be simple, maintenance workload is small.

Promote the integration of information technology and educational technology depth, promote the improvement of teaching quality, realize the sharing of educational resources, parents can and Internet school / classroom, see Children's performance at school and realize the real-time dynamic, interactive.

Recording system realizes the course record and through editing become a real micro classroom, students in the class through the course of playback review the teacher difficult learning content.

Micro classroom sharing to other needs of users through the Internet to become learning between the teachers gave a new paradigm, educational methods and ideas for education resource poor schools, excellent teachers will let more students benefit.