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Research and Design of an Improved Electronic Whiteboard Meeting System

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Abstract

The paper studies and improves an electronic whiteboard conference system. Wireless technology enables people to get rid of the shackles of wired, and realize real-time sharing of content between multiple devices in projection and video conference system anytime and anywhere. It can be widely used in group companies, government departments, teleconference, video conference and teaching in the education industry, as well as real-time sharing of various household electronic tools such as tablet, computer and mobile phone.

Keywords

Electronic Whiteboard, Conference System, Improvement.

1. Introduction

At present, the conference system is more traditional, with more computer projections. It is mainly composed of computers, projectors, screens, electronic whiteboards, audio and other equipment. Whiteboard can only be written simply, and its function is relatively simple, so it can't be operated interactively in time, which affects the enthusiasm of participants. With the update and development of mobile network and mobile devices, it will be the future trend to use WiFi as the representative of wireless technology to transmit and share data among multiple devices. At present, in the field of video media transmission, cable transmission is still dominant, which makes it inconvenient to share video media among devices.

We have developed a wireless intelligent electronic whiteboard media system that can integrate multiple terminal devices. The purpose is to use wireless technology to let people get rid of the shackles of wired, and share real-time resources among multiple devices anytime and anywhere. Through this technology, users can directly transmit the content on the tablet and computer screen to our wireless intelligent cloud media center system through wireless. Any content on the tablet and computer screen will be shared and displayed through the wireless intelligent cloud media center system. At the same time, it is also convenient to mark and explain on the electronic whiteboard of the system, just like a teacher in class When explaining on the blackboard, it is clear and convenient.

2. Research Status at Home and Abroad

Electronic whiteboard is a high-tech product developed by a variety of high-tech means, such as advanced electronic technology and software technology. Writing does not require the use of consumable products, such as chalk, which saves costs and has rich multimedia resources. After writing, it is easy to print and use. It is an excellent solution to realize paperless office and paperless teaching. The traditional electronic whiteboard uses touch screen or optical tracking principle to realize human-computer interaction, and carries on the information exchange with the computer through the interface. The defect of this product is that it needs to use the transmission cable to connect with the computer, which makes the use of the electronic whiteboard have more restrictions, especially in some old classrooms, old offices and other occasions where the wiring is not considered

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in advance, the exposed cable is easy to bring certain security risks to the users, and at the same time, it is easy to be damaged.

The traditional wired projector conference mode system, which has single and scattered functions, brings a lot of troubles to the site environment, equipment connection and debugging, use and maintenance, and is not conducive to the centralized sharing and decentralized use of information.

Some devices, such as mobile phones and tablets, do not have external display interfaces and cannot display their contents through projection. Traditional projection devices need to be compatible with a variety of display interfaces, such as HDMI, VGA, DVI, DP, etc. In addition, there is no way to mark the projection, add or delete content, explain, etc. The traditional whiteboard can only share content by copying files such as USB flash disk, not directly sharing device content.

3. Research and Design Scheme

A wireless interactive whiteboard conference system is studied. Wireless technology enables people to get rid of the shackles of cable, and realize real-time sharing of content between multiple devices in projection and video conference system anytime and anywhere. It can be widely used in group companies, government departments, teleconference, video conference and teaching in the education industry, as well as real-time sharing of various household electronic tools such as tablet, computer and mobile phone.

3.1 Technical Features

This paper proposes a wireless interactive whiteboard conference system, which can support three wireless network protocol standards, and can meet the use of windows devices, Android devices and apple devices at the same time. In our scheme, wireless technology is used instead of wired transmission to realize real-time sharing of content between multiple devices in the media system anytime and anywhere. The design scheme will effectively change the situation of the electronic island in the current media system, and make the information sharing, exchange and discussion more convenient and effective.

3.2 Specific Design Scheme

There are two wireless solutions for wireless interactive whiteboard conference system based on different devices:

(1) Widi standard on Windows / Intel platform.

(2) It is the miracast standard recommended by WiFi alliance, which is strongly supported by Google. The versions after Android 4.2 support the miracast standard.

(3) Apple's airplay standard

Wireless interactive whiteboard conference system (referred to as P2P device) implements two standards: widi standard on Windows / Intel platform and miracast standard recommended by WiFi Alliance (this only needs to be implemented according to the existing standard programming). At present, the realization of network connection between devices is mainly based on P2P protocol. Our wireless interactive whiteboard conference system is also based on this protocol.

When wireless interactive whiteboard conference system needs to realize wireless connection with relevant communication equipment, wireless connection between our system (P2P equipment) and communication equipment (such as mobile phone, tablet, etc.) is also realized based on P2P basic protocol. According to the P2P protocol, the communication device will automatically find the relevant P2P device, and then connect according to the protocol. After connecting, it means that the physical layer is open, and then the communication protocol layer. One party (usually the initiator, here is the communication device) will ask: what protocol do you support? According to the content format of this query, P2P devices determine what protocol the other party supports, and then call the corresponding protocol standard to realize wireless connection.

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By supporting the two standards mentioned above, the wireless interactive electronic whiteboard meeting system solves the problem of equipment universality. Windows devices can use widi standard, Android devices can use miracast standard. The wireless electronic whiteboard meeting system is compatible with these two standards, and can receive the display content of different types of devices, so that it can be directly displayed on the electronic whiteboard, and can mark and explain in real time, so as to realize the sharing, exchange and discussion of meeting information.

The system diagram is shown in Figure 1.

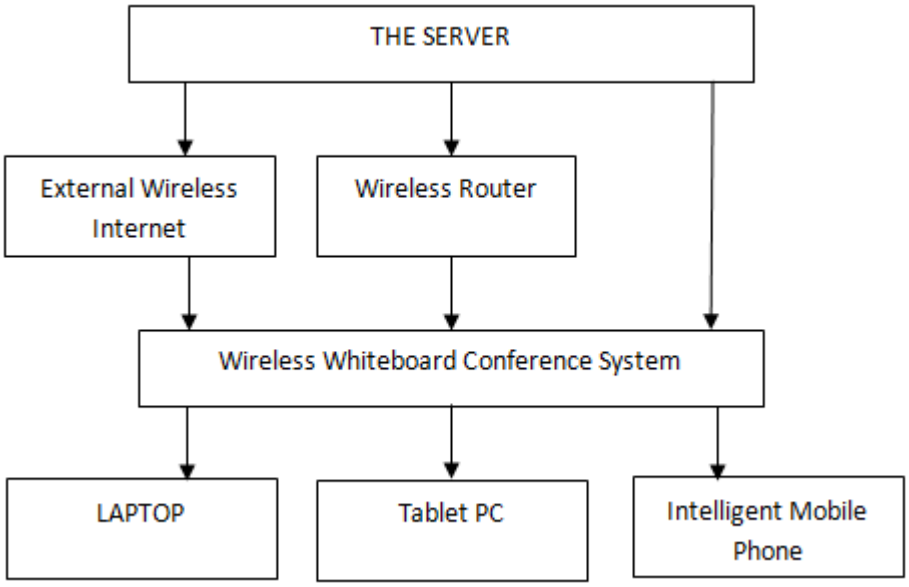

Figure 1. wireless interactive whiteboard conference system

By using the above three wireless solutions, the problem of device commonality is well solved. This technical solution can be compatible with the standards supporting these three different wireless networks: widi standard on Windows / Intel platform can be used by windows devices; miracast standard can be used by Android devices; and apple devices can be used by airplay standard.

In this way, through compatibility with these three standards, we can change the traditional wired connection to wireless interaction to realize wireless interactive electronic whiteboard meeting system. It can effectively change the situation of each electronic island in the current conference system, and make the sharing, exchange and discussion of the conference more convenient and effective.

4. Innovation

Wireless interactive electronic whiteboard conference system uses wireless technology instead of wired transmission to realize real-time sharing of content between multiple devices in the conference system anytime and anywhere. It can receive the display contents of different types of equipment and display them directly on the electronic whiteboard. It can mark and explain in real time and realize the sharing, exchange and discussion of conference information. This design scheme effectively changes the situation of each electronic island in the current conference system, which makes the sharing and discussion of the conference are more convenient and effective.

5. Conclusion

This paper designs a wireless interactive whiteboard conference system which can integrate a variety of terminal devices. By using wireless technology, people can get rid of the shackles of wire and share real-time resources among multiple devices anytime and anywhere. Through this technology, users can directly transmit the content on the tablet and computer screen to our wireless interactive

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electronic whiteboard through wireless, and any content on the tablet and computer screen will be shared and displayed through the wireless electronic whiteboard. At the same time, it is also convenient to mark and explain on the electronic whiteboard of the system according to the needs, just like the teacher's explanation on the blackboard in class Clear and convenient.

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