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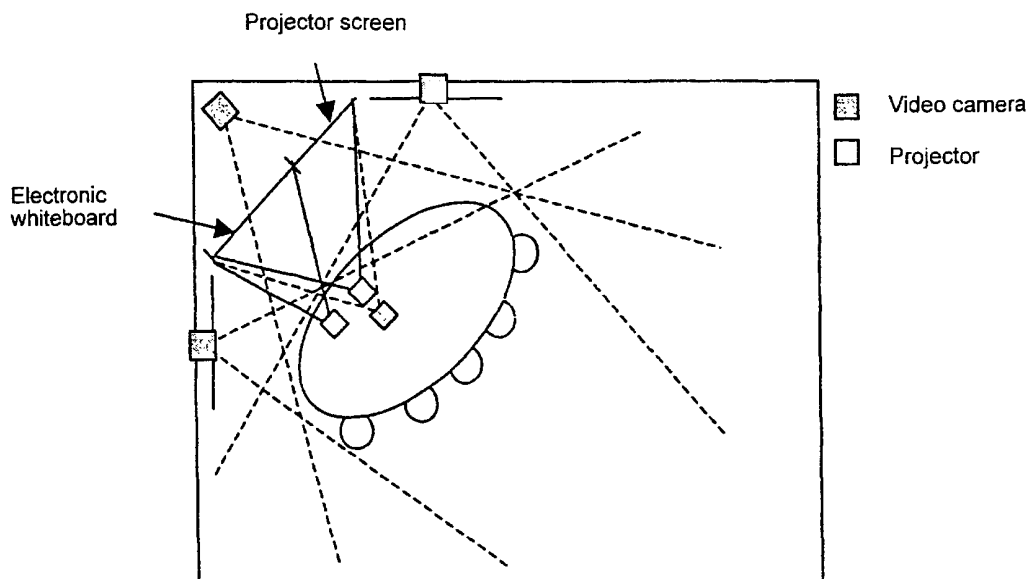
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(54) Title: VIDEO CONFERENCE SYSTEM FOR TRANSMISSION OF INFORMATION



(57) Abstract: Video conference system for transmission of information, via a communications network, consisting of a first room with conference participants who execute two-way communication with participants in one or more remotely/at a distance located conference rooms, at which the via the eyesight conveyed information is shown via one or more image showing surfaces located in each of the different conference rooms. At least one of said image showing surfaces insaid first room receives image information of different type from two or more image producers, at which the images are superimposed on said image showing surface.



WO 01/03435 A1

VIDEO CONFERENCE SYSTEM FOR TRANSMISSION OF INFORMATION

TECHNICAL FIELD

5 Video conference system for transmission of
information via a communications network, consisting of a
first room with conference participants, who execute two-
way communication with conference participants in one, or
more, remotely/at a distance located conference rooms, at
10 which the by eyesight conveyed information is shown via an
image showing surface located in the different conference
rooms.

PRIOR ART

15 Video conference systems are generally previously
known and are today used in several different applications.
A common application is that one at a company wants to
communicate with other units within a company that are
20 located at different places. The video system then is built
up in such a way that one has a video camera and display
monitor or other image showing surface on either unit, and
it is possible to put through both sound and image of the
person who is talking. The display monitor in these cases
25 consists of an ordinary computer or TV-screen. At, for
instance, educational situations, then it is so that the
person who is teaching is seen on a viewing screen, and
those who are being taught are passively sitting and
listening.

30

TECHNICAL PROBLEM

 The general problem is to effect a video conference
system so that the listeners at, for instance, a lecture or
35 other educational situation will have a feeling that the
teaching person is in the room, and that he/she can

activate the persons being taught, to physically influence the working material. At an educational situation of video conference type, according to the technology that is prevalent today, the teacher can be seen on a TV-screen, talking and possibly drawing on a board, or using some other kind of means to convey his/her message. Those who are being taught are all the time sitting passively watching. They can at any rate not participate actively in the presentation the teacher is engaged in. Further, the listeners will experience, which is actually true, that the teacher is in another spatial room than where the persons being taught are. The problem then is to create a video conference system which makes it possible for the teacher to enter the same three-dimensional system as the physical room constitutes, where the persons being taught are sitting. Another problem that the present invention solves, is to activate those who are being taught, by giving them possibility to influence the education material by means of the teacher's instructions. Much research within the field of education indicates that those who are teaching should influence the persons being taught, to be more active to make the conveyed message understood.

The invention solves the problem that the teacher shall have eye contact with the listeners in certain situations, and eye contact with the education material in certain situations during the teaching. Education according to the previous technology, with TV-screens and cameras, often results in that the teacher in certain situations almost is turning his back towards the audience.

TECHNICAL SOLUTION

The technical solution is described in what is claimed in patent claim 1.

ADVANTAGES

By the present invention, video conference systems are improved in that way that remote presentations resemble
5 presentations that are made at the place, as to where the feeling of presence is concerned.

By the superimposing of images, possibility is obtained to a lecturer to in real time comment on an image
10 and in this image show where changes, if any, shall be made.

Persons being in another place have possibility to enter in full scale and can, together with present persons,
15 discuss and debate on the material.

Distributed cooperation utilizes the same technology as local cooperation. Conferences where a number of participants are in another place can be held, since the
20 lecturing and presentation possibilities for physically present and "electronically" present are similar.

List of drawings

25 Figure 1 shows a graphical outline of an education room with audience/listeners.

Figure 2 shows a graphical outline of the room where a lecturer is.

30

Detailed description

In order to facilitate the understanding of the invention, a description over the configuration of the
35 video conference system, and an example of how the invention is realized, is provided in the following.

In Figure 1 is shown a big rectangle, which symbolizes a first room where there is an oval table with a number of seats, which are indicated as half-circles in the figure. These seats are intended for participants in a video
5 conference. Further, there are in this room a number of cameras, which are taking films of the participants, and are connected to a communications network for transmission of sound and image to one or more remotely/at a distance located rooms, where there are persons with whom one wants
10 to communicate. One of these cameras is also filming an image showing surface or projector screen. Further there are two projectors which are projecting moving images on the image showing surface.

15 The image showing surface consists entirely, or partly, of an electronic whiteboard, which normally is white. It consist of an interactive whiteboard, where it is possible to control, for instance, a Windows application by pressing by the fingers, or draw by means of specific pens.
20 On this image showing surface is projected by one of the in the figure shown projectors a moving image of the one, or those, who is/are lecturing in the remotely/at a distance located room. The projection covers the entire image showing surface. The other projector projects an image of
25 some type of education material, which the lecturer is using. It can be an image of a computer screen, OH-film or the like. This projection covers only a part of the image showing surface. The image showing surface also can be so arranged that a part of the surface consist of a whiteboard
30 which not only has the function of an input unit, but also has the function of an output unit, and consequently without projector produces an image on the surface. By output unit is meant that one via a computer can transmit images to the board which in its turn shows them.

When there is a plurality of persons who remotely/at a distance participate in the conference, it is appropriate to supplement the room with a number of projector screens that show these persons. (Not shown).

5

In Figure 2 is shown one of these remotely/at a distance located video conference rooms where a person is filmed by a video camera, which is shown in the figure. This image then is, by a projector, projected on the image showing surface in the first room. Further, behind a person is shown a preferably black screen against which the person is filmed. The person is filmed in full-length, and then, in the first room, is projected in full-length on the image showing screen.

15

In this room there is also a showing screen so that the person in this room sees a projected image of the image showing surface. When the lecturer then turns and looks at the education material, he/she is filmed from the side by the camera that is in the room, and the audience in the first room see him/her from the side. When he/she then points at the education material, the audience in the first room experiences that he/she is pointing in the same vertical plane as the education material is. This means that the lecturer does not have his/her back towards the audience when he/she is looking at his/her education material. If the lecturer then wants that some of the listener/listeners shall change anything in the material the lecturer has, he/she asks them to step up to the image showing surface and press, draw, or in any other way change the material, at which the electronic whiteboard executes the change. As to the rest, there are in all conference rooms computers, for the listeners, and for the lecturer, which are connected to the digital whiteboard in such a way that also those can follow the education material that is shown on the digital whiteboard via the computer.

35

The lecturer consequently sees changes that are made when a listener makes the change directly on the digital whiteboard. The camera in this room is placed at about right angles to the showing screen in the horizontal plane.

5

As for the type of information that is superimposed on the image showing surface, it is worth mentioning that one of the video images is created in real time, whereas the other image is previously created as a basis for discussion, or constitutes some type of education material.

10

A conceivable scenario is the following

15

A group of persons from a development department have come together in the first conference room to revise a suggestion regarding change of the production process that is practiced in the company.

20

The presentation of the suggestion has just started, it consists of a number of flow charts made in PowerPoint. The participants can either choose to follow the presentation on the electronic whiteboard, which serves as showing surface, or to follow the presentation on their own computer, which is connected with the display computer via some type of network.

25

During the presentation/showing, critic turns up from one of the participants; it concerns a certain flow chart which, according to the critic, should not be complete. The critic is asked by the lecturer to show what he/she means, which he/she also does.

30

It, however, becomes apparent that not everybody shares the critic's views. The person who possesses the knowledge that might solve the problem is working in Oslo;

35

this so-called expert is "called" (via for instance NetMeeting) and a video conference has started. He/she then is in a conference room according to what is shown in Figure 2.

5

After a brief presentation of the problem, the so called expert stands up from his/her place, which all the time has been visible on a screen (not shown in Figure 1), which is located beside the image showing surface in Figure 10 1. He/she has been video filmed in conventional way by a camera, at which the image in conventional way has been transmitted and then projected on the screen.

He/she then disappears from image and puts 15 himself/herself in the position the person in Figure 2 has. Then he/she turns up on the image showing surface beside the material that is discussed.

From this place the expert now shows, with the hand 20 directed towards the showing screen he has in the room, where changes shall be made. The participants in the first room see him/her in full length (in life-size) and his/her hand in the same plane as the PowerPoint image. One/some of the participants in the first room now steps up to the 25 electronic whiteboard and activates it so that suggested change is performed. The expert then can see that this person is doing right by watching the showing screen.

The invention is not limited to the above shown 30 example but can also be used in all connections and educational situations where one wants to achieve a high experience of presence at remote cooperation and education.

PATENT CLAIMS

1. Video conference system for transmission of information, via a communications network, consisting of a first room with conference participants who execute two-way communication with conference participants in one or more remotely/at a distance located conference rooms, at which the via the eyesight conveyed information is shown via one or more image showing surfaces located in each of the different conference rooms, characterized in that, at least one of said image showing surfaces in said first room receives image information of different type from two or more image producers, at which the images are superimposed on said image showing surface.

15

2. Video conference system, as claimed in patent claim 1, characterized in that the via the eyesight conveyed information from a first image producer includes a person, or a number of persons, who are reproduced in life-size, on the image showing surface, by a projector, at which the image information is created in real time and can originate from one, or more, remotely/at a distance located conference rooms.

25 3. Video conference system, as claimed in patent claim 1, characterized in that the by the eyesight conveyed information from a second image producer is information from an electronic whiteboard (a digitizer), which is shown on a part of the image showing surface.

30

4. Video conference system, as claimed in patent claim 2, characterized in that the reproduced person, or persons, can move over the whole image showing surface by the image, by the projector, being projected over the whole image showing surface.

35

5. Video conference system, as claimed in patent claim 3, characterized in that the electronic whiteboard preferably is fixed in one position on the image showing surface.

5

6. Video conference system, as claimed in patent claim 2, characterized in that the first image producer is connected via a communications network to a remotely/at a distance located conference room (2) where a camera
10 device (7) reproduces the person, or the persons, against a neutral screen surface, preferably a black screen.

7. Video conference system, as claimed in patent claim 6, characterized in that the person, or the
15 persons, in the remotely/at a distance located conference room see an image of the in the first room located electronic whiteboard on a surface that is erected at preferably right angles to the neutral screen surface.

20 8. Video conference system, as claimed in patent claim 7, characterized in that the person, or persons, in the remotely/at a distance located conference room see the participants in the first video conference room on an image showing surface or monitor, which is located in
25 direct connection to the camera device.

9. Video conference system, as claimed in patent claim 8, characterized in that the electronic whiteboard and image showing surface are erected at preferably right
30 angles to the horizontal plane to said person.

10. Video conference system, as claimed in patent claim 1, characterized in that at least one of the images that are projected on the image showing surface is
35 created in real time.

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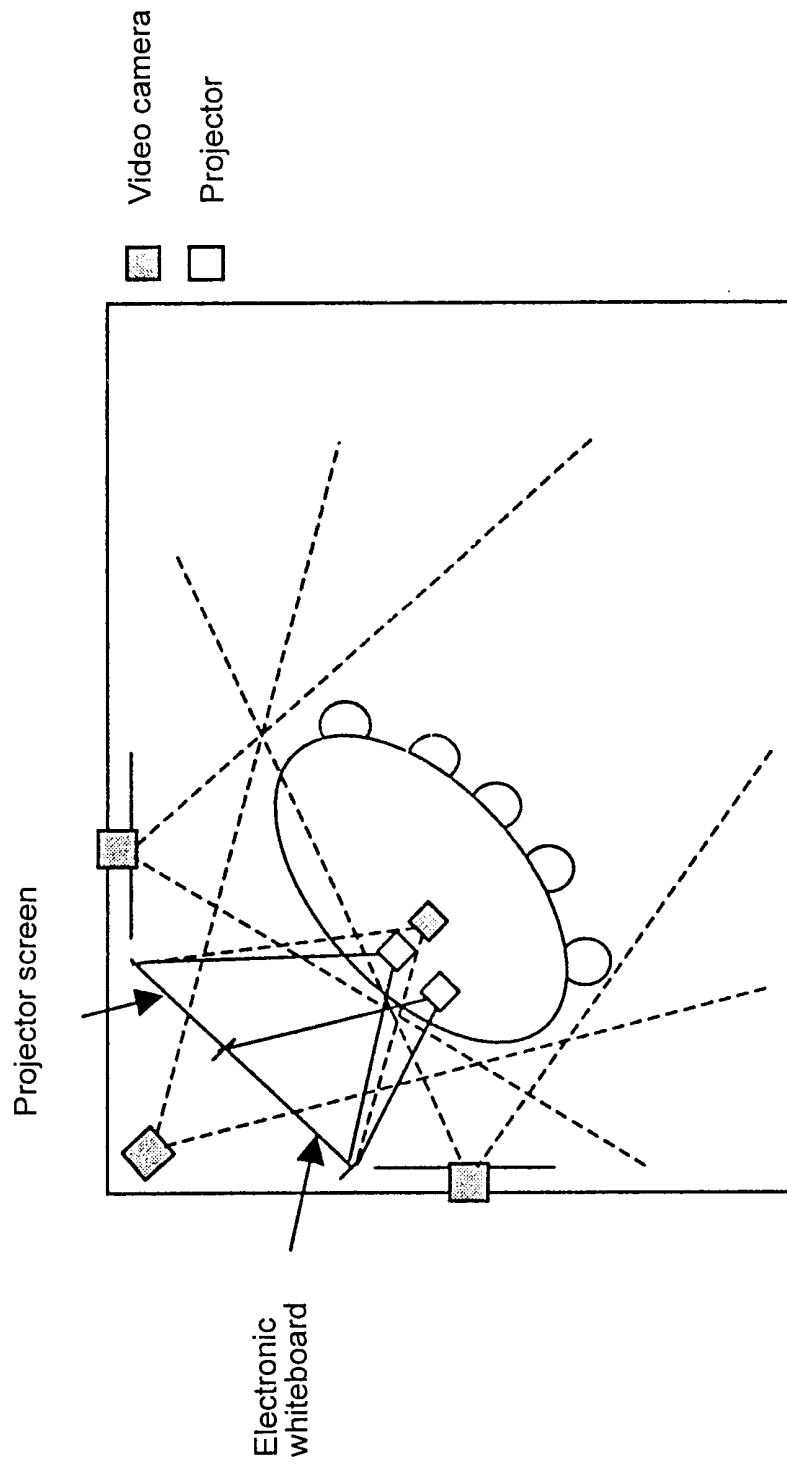


Figure 1

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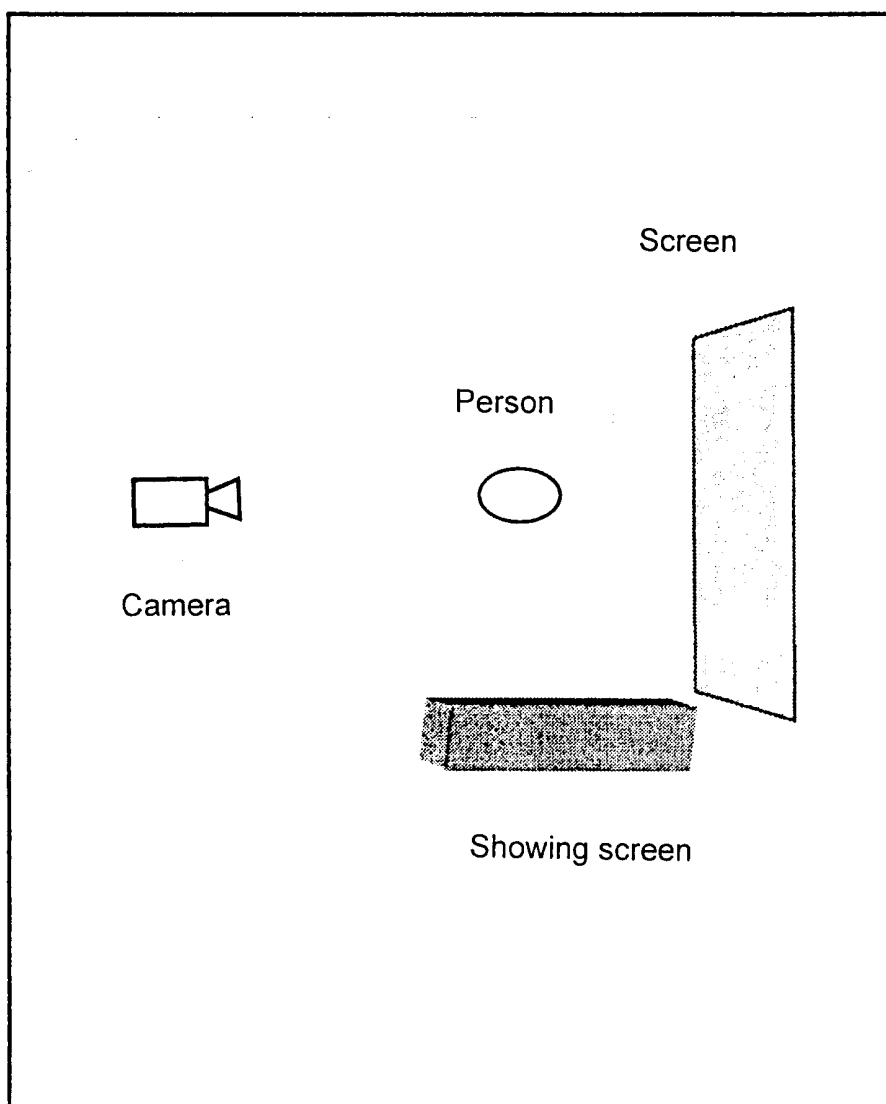


Figure 2

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 00/01409

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04N 7/15

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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A	--	3-9
X	US 5751445 A (MAKOTO MASUNAGA), 12 May 1998 (12.05.98), see the whole document	1
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Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 00/01409

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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Information on patent family members

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International application No.

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03/10/00

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