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(54) **DISPLAY APPARATUS AND CONTROL METHOD THEREOF**

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G09G 3/36 (2006.01)

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CPC ***G09G 3/342*** (2013.01); *G09G 3/3611* (2013.01); *G09G 2310/024* (2013.01); *G09G 2320/0257* (2013.01); *G09G 2320/0261* (2013.01); *G09G 2320/064* (2013.01)

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CPC G09G 3/342; G09G 2320/0257; G09G 2320/0261; G09G 2320/064; G09G 2310/024; H04N 7/14
See application file for complete search history.

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(57) **ABSTRACT**

A display apparatus includes: a main information receiver which receives main information; a video processor which processes a main video corresponding to the received main information; a display unit which displays the main video thereon; a sub information communicator which receives sub information comprising at least one of a video, an audio and text through Internet Protocol; and a controller which controls the video processor to process a sub video corresponding to the sub information received through the sub information communicator and display the sub video on the display unit.

27 Claims, 4 Drawing Sheets

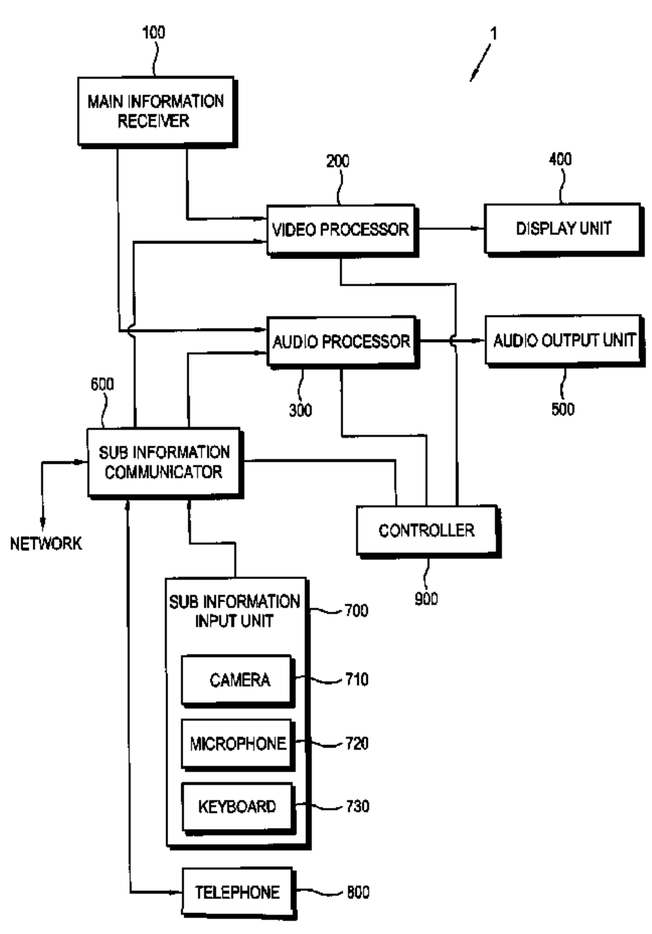

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FIG. 1

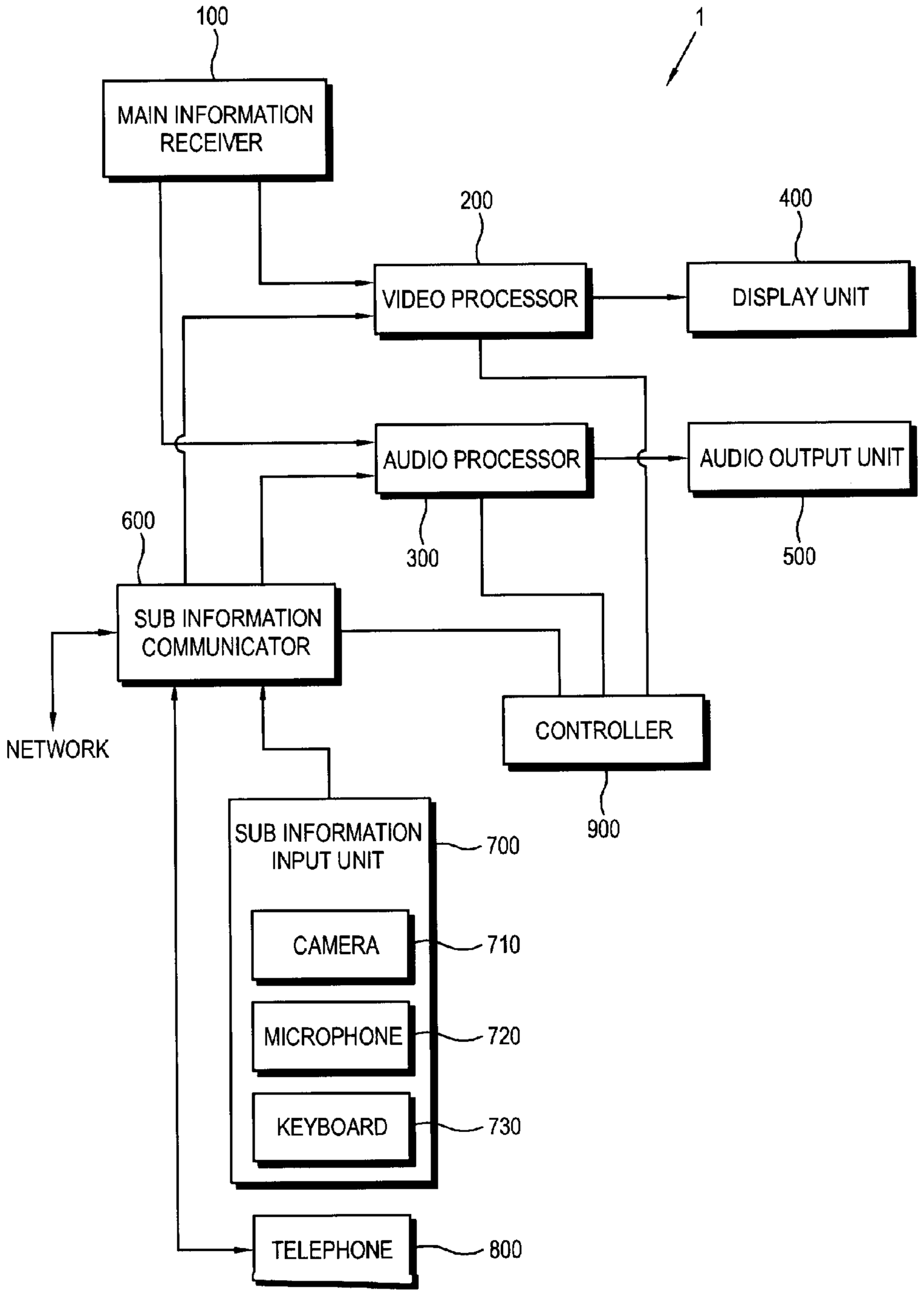

100
MAIN INFORMATION RECEIVER
1
200
VIDEO PROCESSOR
400
DISPLAY UNIT
AUDIO PROCESSOR
AUDIO OUTPUT UNIT
300
500
600
SUB INFORMATION COMMUNICATOR
NETWORK
CONTROLLER
900
SUB INFORMATION INPUT UNIT
700
CAMERA
710
MICROPHONE
720
KEYBOARD
730
TELEPHONE
800

FIG. 2

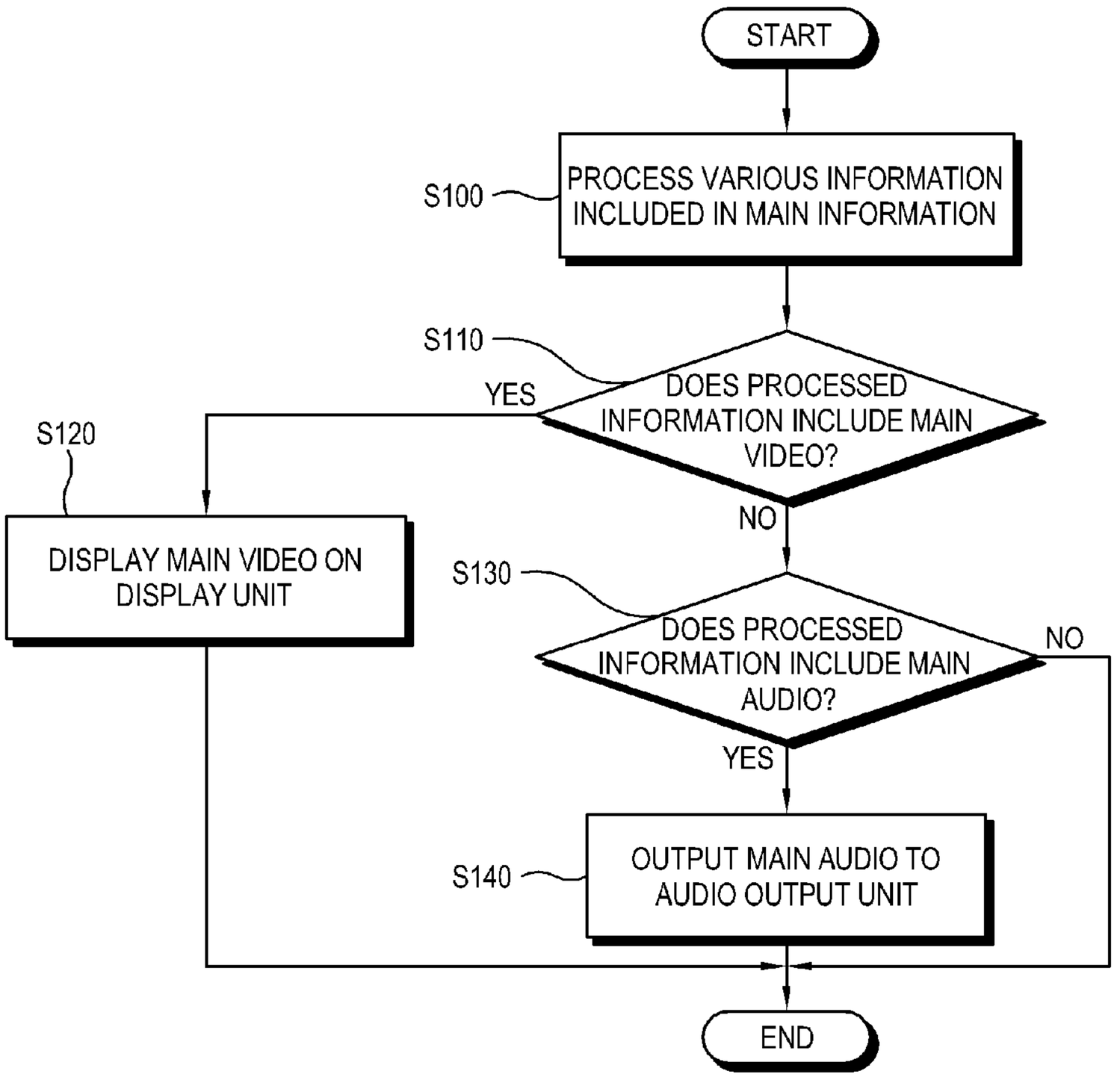

START
S100
PROCESS VARIOUS INFORMATION INCLUDED IN MAIN INFORMATION
S110
DOES PROCESSED INFORMATION INCLUDE MAIN VIDEO?
YES
NO
S120
DISPLAY MAIN VIDEO ON DISPLAY UNIT
S130
DOES PROCESSED INFORMATION INCLUDE MAIN AUDIO?
NO
YES
S140
OUTPUT MAIN AUDIO TO AUDIO OUTPUT UNIT
END

FIG. 3

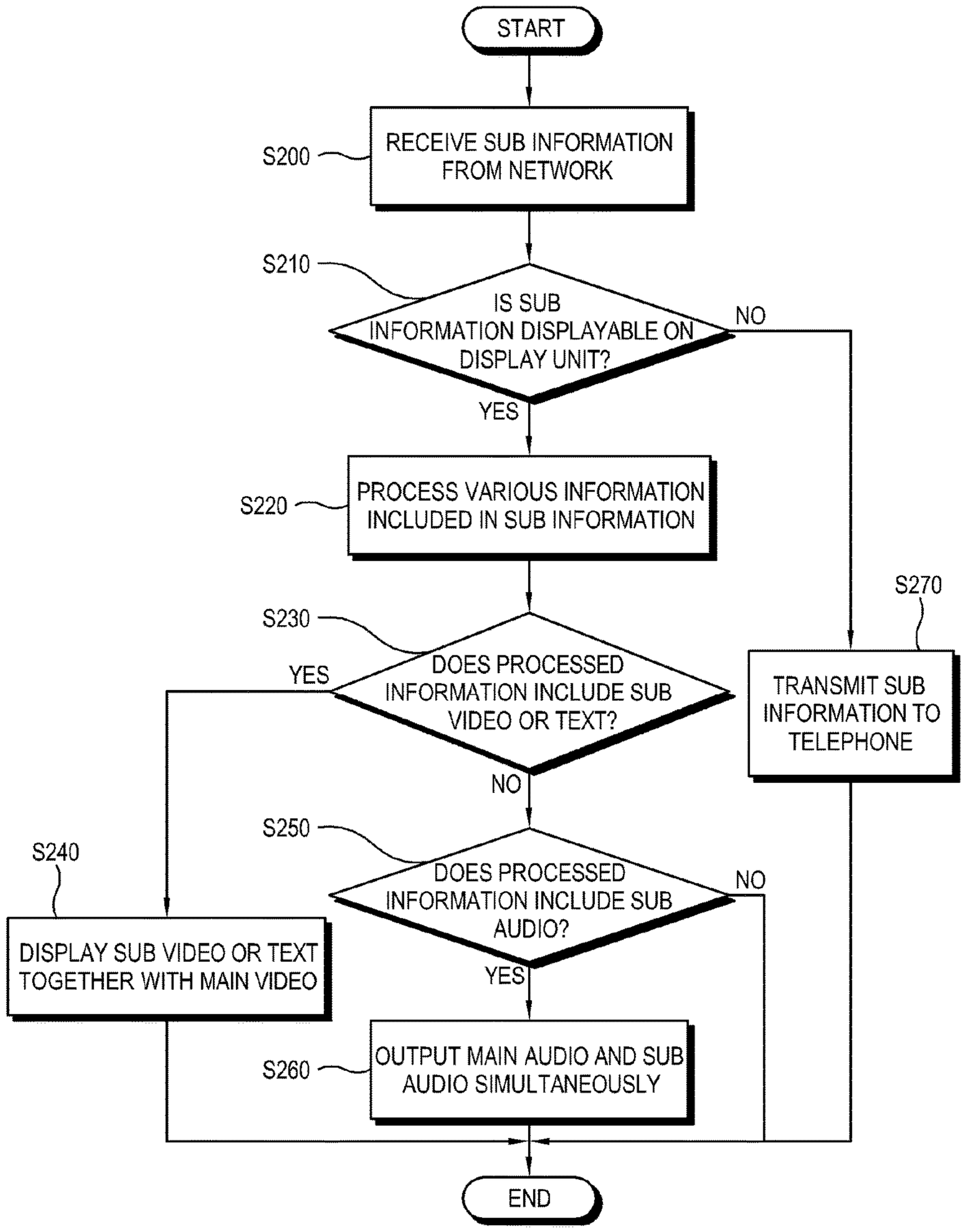
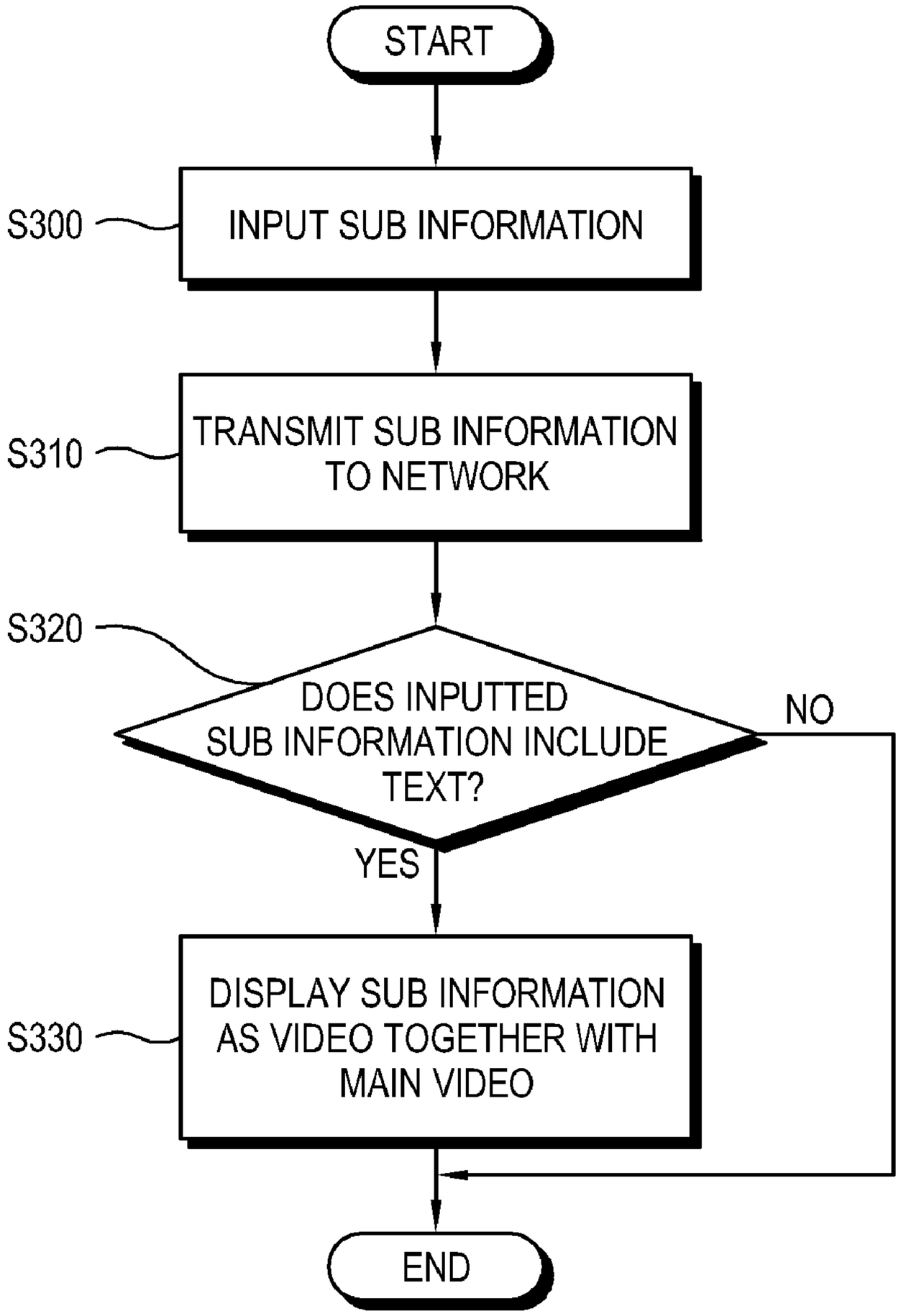

START
S200
RECEIVE SUB INFORMATION FROM NETWORK
S210
IS SUB INFORMATION DISPLAYABLE ON DISPLAY UNIT?
NO
YES
S220
PROCESS VARIOUS INFORMATION INCLUDED IN SUB INFORMATION
S230
DOES PROCESSED INFORMATION INCLUDE SUB VIDEO OR TEXT?
YES
NO
S240
DISPLAY SUB VIDEO OR TEXT TOGETHER WITH MAIN VIDEO
S250
DOES PROCESSED INFORMATION INCLUDE SUB AUDIO?
NO
YES
S260
OUTPUT MAIN AUDIO AND SUB AUDIO SIMULTANEOUSLY
S270
TRANSMIT SUB INFORMATION TO TELEPHONE
END

FIG. 4


START
S300
INPUT SUB INFORMATION
S310
TRANSMIT SUB INFORMATION TO NETWORK
S320
DOES INPUTTED SUB INFORMATION INCLUDE TEXT?
NO
YES
S330
DISPLAY SUB INFORMATION AS VIDEO TOGETHER WITH MAIN VIDEO
END

DISPLAY APPARATUS AND CONTROL METHOD THEREOF

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates the additions made by reissue; a claim printed with strikethrough indicates that the claim was canceled, disclaimed, or held invalid by a prior post-patent action or proceeding.

CROSS-REFERENCE TO RELATED APPLICATION

This application claims priority from Korean Patent Application No. 10-2007-0116233, filed on Nov. 14, 2007 in the Korean Intellectual Property Office, the disclosure of which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

1. Field of the Invention

Apparatuses and methods consistent with the present general inventive concept relate to a display apparatus and a control method thereof, and more particularly, to a display apparatus which makes and receives calls through a network, and a control method thereof.

2. Description of the Related Art

A display apparatus receives a video signal from various sources such as a digital video disk (DVD) player, a video player, a satellite antenna and a cable. The display apparatus processes the received video signal to display a video thereon. The display apparatus includes an additional speaker to output an audio signal received together with the video signal, as an audio.

Voice over Internet Protocol (VoIP) uses a data communication packet network to make and receive calls. VoIP is a communication service which converts the voice into an internet protocol data packet to be transmitted, and makes and receives calls to telephones.

The conventional VoIP provides only voice transmission/reception. Meanwhile, there can be various means to make and receive calls. If the call is made with such various means, an additional device is required to output received call information.

Thus, it would be convenient if a user makes and receives a video call including a video and an audio, and uses text transmission/reception service as well as the voice transmission/reception through VoIP and if received call information is output to the display apparatus so that a user recognizes it.

SUMMARY OF THE INVENTION

Accordingly, the present invention provides a display apparatus in which a use makes and receives calls with various calling means including voice through VoIP, and a control method thereof.

The present invention also provides a display apparatus which outputs call information received through a VoIP, and a control method thereof.

The present invention also provides a display apparatus which enables a user to make and receive calls even if the call information is not output, and a control method thereof.

According to an aspect of the present invention, there is provided a display apparatus comprising: a main information receiver which receives main information; a video processor which processes a main video corresponding to the received main information; a display unit which displays the main video thereon; a sub information communicator which receives sub information comprising at least one of a video, an audio and a text through an internet protocol; and a controller which controls the video processor to process a sub video corresponding to the sub information received through the sub information communicator and display the sub video on the display unit.

The sub information communicator may receive the sub information via VOIP.

The controller may control the video processor to display the main video with the sub video.

The display apparatus may further comprise a sub information input unit to input the sub information, wherein the controller controls the sub information communicator to transmit the sub information input by the sub information input unit through the VOIP, and controls the video processor to process a sub video corresponding to the input sub information and display the sub video on the display unit.

The sub information input unit may comprise at least one of a camera, a microphone and a keyboard.

The display apparatus may further comprise: an audio processor which processes an audio; an audio output unit which outputs an audio processed by the audio processor, wherein the controller controls the audio processor to process a sub audio corresponding to the sub information received by the sub information communicator and output the sub audio through the audio output unit.

The audio processor may process a main audio corresponding to the main information, and the controller controls the audio processor to output the main audio through the audio output unit.

The controller may control the audio processor to output the main audio with the sub audio.

The controller may control the audio processor to adjust a volume level of at least one of the main audio and the sub audio.

The audio output unit may be provided plurally, and the controller controls the main audio to be output through at least one of the plurality of audio output units and controls the sub audio to be output through at least another of the remaining audio output units.

The display apparatus may further comprise a telephone which inputs and outputs an audio, wherein the controller transmits sub information received by the sub information communicator to the telephone and controls the sub information communicator to transmit the audio input by the telephone through the internet protocol.

The controller may transmit the sub information to the telephone if the sub information received by the sub information communicator is not displayable on the display unit.

According to another aspect of the present invention, there is provided a control method of a display apparatus, the control method comprising: displaying a main video corresponding to received main information; receiving sub information having at least one of a video, an audio and a text through an internet protocol; and displaying a sub video corresponding to the received sub information.

The receiving the sub information may comprise receiving the sub information via VOIP.

The displaying the main video may comprise displaying the main video with the sub video.

The displaying the sub video may comprise receiving sub information; transmitting the input sub information through the internet protocol; and displaying a sub video corresponding to the input sub information.

The receiving the sub information may comprise receiving the sub information through at least one of a camera, a microphone and a keyboard.

The displaying the main video may comprise outputting a main audio corresponding to the main information.

The displaying the sub video may comprise outputting a sub audio corresponding to sub information received through the internet protocol.

The outputting the sub audio may comprise outputting the sub audio with the main audio.

The outputting the sub audio may comprise adjusting a volume level of at least one of the main audio and the sub audio.

The receiving the sub information may comprise transmitting the sub information to a telephone if the sub information received through the internet protocol is not displayable on the display unit.

BRIEF DESCRIPTION OF THE DRAWINGS

The above and/or other aspects of the present general inventive concept will become apparent and more readily appreciated from the following description of exemplary embodiments, taken in conjunction with the accompanying drawings of which:

FIG. **1** is a block diagram of a display apparatus according to an exemplary embodiment of the present invention;

FIG. **2** is a flowchart illustrating a method of processing main information in the display apparatus in FIG. **1** according to an exemplary embodiment of the present invention;

FIG. **3** is a flowchart illustrating a method of outputting sub information received through a VoIP from a network in the display apparatus in FIG. **2** according to an exemplary embodiment of the present invention; and

FIG. **4** is a flowchart illustrating a method of processing text information input to a sub information input unit of the display apparatus in FIG. **3** according to an exemplary embodiment of the present invention.

DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS OF THE INVENTION

Hereinafter, exemplary embodiments of the present general inventive concept will be described with reference to accompanying drawings, wherein like numerals refer to like elements and repetitive descriptions will be avoided as necessary.

FIG. **1** illustrates a display apparatus **1** according to an exemplary embodiment of the present invention.

As shown therein, the display apparatus **1** according to the exemplary embodiment of the present general inventive concept provides a picture-in-picture (PIP) function which displays a plurality of videos on a main screen and a sub screen. The display apparatus **1** includes a main information receiver **100** that receives main information, a video processor **200** that processes a main video corresponding to the main information, a display unit **400** that displays the main video thereon, a sub information communicator **600** that receives sub information through a network and a controller **900** that controls the video processor **200** to process and display a sub video corresponding to the received sub information.

The display apparatus **1** further includes an audio processor **300** that processes an audio, an audio output unit **500** that outputs the processed audio, a sub information input unit **700** that inputs sub information and a telephone **800** to input and output an audio.

The main information receiver **100** receives the main information and transmits the main information to the video processor **200** and the audio processor **300**. The main information may include various channels according to a frequency band, and a broadcasting signal including a video and an audio corresponding to each channel, but the present invention is not limited thereto. Alternatively, the main information may include a video signal transmitted by a computer (not shown). The main information according to the exemplary embodiment includes video information and audio information. The video and audio information are referred to as a main video and a main audio, respectively.

The main information receiver **100** has various configurations to receive the main information. For example, the main information receiver **100** may include an antenna (not shown) to wirelessly receive main information, may be connected to a cable (not shown) to receive main information from a broadcasting station or connected to a DVD player or a game console to receive main information therefrom. The main information receiver **100** may process the main information as main video information and main audio information to transmit the main video information and the main audio information to the video processor **200** and the audio processor **300**, respectively.

The video processor **200** processes the main information received from the main information receiver **100** into the main video and displays the main video on the display unit **400**. If sub information is transmitted from the sub information communicator **600**, the video processor **200** processes the sub information into a sub video or a text depending on a property of the sub information and displays it on the display unit **400**. The video processor **200** displays the sub video or the text together with the main video.

If the PIP function of the display unit **400** is turned on and the main video is already being displayed, the video processor **200** divides the screen of the display unit **400** into a main screen and a sub screen. The main screen includes an overall area of the screen of the display unit **400** while the sub screen includes a pop-up screen corresponding to a part of the main screen, but not limited thereto. The video processor **200** displays the main video on the main screen and displays the sub video on the sub screen.

If the received sub information includes text information, the video processor **200** may display the text information on the sub screen in a manner similar to that described above, or combine the text information with the main video to be overlaid in the main video.

The video processor **200** may include a video decoding function to decode the received information, a PIP function, a scaling function, a screen correction function, and other various functions.

The audio processor **300** processes the main information transmitted by the main information receiver **100** and the sub information transmitted by the sub information communicator **600** into a main audio and a sub audio according to a control of the controller **900**, and outputs the processed main and sub audios to the audio output unit **500**. If the sub audio is to be output while the main audio is already output through the audio output unit **500**, the audio processor **300** outputs the main audio together with the sub audio to the audio output unit **500**. The audio processor **300** may adjust the volume level of the main audio and the sub audio to relatively raise the volume of the desired audio.

The display unit **400** includes a liquid crystal display (LCD), a plasma display panel (PDP) or a cathode ray tube (CRT) to display the video processed by the video processor **200**. The display unit **400** performs a PIP function, and

divides a single screen into a plurality of screens to display different videos on the divided screens. Since the display unit **400** having the PIP function is known in the art, detailed description will be omitted.

The audio output unit **500** outputs an audio processed by the audio processor **300**. The audio output unit **500** includes a plurality of speakers (not shown) in a plurality of channels. If a main audio and a sub audio are output together through the audio processor **300**, the audio output unit **500** may simultaneously output the main and sub audios through a part of the speakers. That is, a single speaker (not shown) may overlap and output the main and sub audios, at least one of the plurality of speakers may output the main audio while at least another speaker of the remaining of the speakers may output the sub audio or the speaker may output the main audio and an additional headphone (not shown) may output the sub audio.

The sub information communicator **600** receives VoIP-based sub information through a network, more specifically through an Internet Protocol. The received sub information includes call information by VoIP. The call information may include one of audio information, video call information including a sub video and a sub audio, and text information. The sub information communicator **600** processes the received sub information. If the processed sub information includes a sub video or a text, the sub information communicator **600** transmits the sub information to the video processor **200**. If the processed sub information includes a sub audio, the sub information communicator **600** transmits the sub information to the audio processor **300**.

The sub information communicator **600** includes the sub information input unit **700** to input at least one of video, audio and text. Here, the VoIP-based sub information received through the Internet Protocol is called reception sub information, and sub information input by the sub information input unit **700** is called input sub information for convenience. The sub information communicator **600** separately processes the reception sub information and the input sub information.

More specifically, the sub information communicator **600** transmits the reception sub information to the video processor **200** and the audio processor **300** so that the reception sub information is displayed on the display unit **400** and output through the audio output unit **500**. The sub information communicator **600** transmits the input sub information to the network. In this case, the sub information communicator **600** processes the input sub information based on the VoIP. Thus, the two-way call through the network may be available.

If the sub information input through the sub information input unit **700** includes text, a user may desire to check what he/she input. Thus, the sub information communicator **600** may preferably transmit the input sub information to the video processor **200** to be displayed on the display unit **400**.

In summary, if the input sub information includes video and audio, the sub information communicator **600** processes the input sub information and transmits it to the network. If the input sub information includes text, the sub information communicator **600** processes the input sub information and transmits it to the video processor **200** as well as to the network. If the call is made and received through the text, a user's convenience may improve.

To support such function, the sub information communicator **600** may include VoIP-based encoder and decoder processing sub information, a network port (not shown) connected to the network and a local port (not shown) connected to the sub information input unit **700**.

The sub information communicator **600** is connected to the telephone **800** which can input and output an audio. If the controller **900** determines that the display unit **400** may not display thereon the sub information received from the network through the VoIP, the sub information communicator **600** transmits the sub information to the telephone **800** to make and receive calls through the telephone **800**. Here, the sub information communicator **600** transmits the audio information input by the telephone **800** to the network.

The sub information input unit **700** inputs sub information including video, audio and text and transmits them to the sub information communicator **600**. The sub information input unit **700** includes a camera **710**, a microphone **720** and/or a keyboard **730** to input the sub information, but not limited thereto.

With the foregoing configuration, the process of controlling the main information and the sub information by the controller **900** of the display apparatus **1** according to the exemplary embodiment will be described with reference to FIGS. **1** to **4**. Here, the explanation considers the sub information in two cases, one for video call information including a sub video and a sub audio and the other one for the text information.

The control method of the display apparatus **1** according to the present general inventive concept includes a process of displaying a main video corresponding to the received main information, a process of receiving sub information including at least one of a video, an audio and a text by the VoIP and a process of displaying a sub video corresponding to the sub information.

The processes of displaying the main video and the sub video are performed at the same time. Each process includes a process of displaying a main audio corresponding to the main information and a process of displaying the sub audio corresponding to the sub information.

The process of receiving, displaying and outputting the main information will be described first with reference to FIG. **2**.

As shown in FIGS. **1** and **2**, if the main information is transmitted to the main information receiver **100**, it is processed into the main video and the main audio (S**100**). The controller **900** determines whether the processed information includes the main video (S**110**). If the processed information includes the main video, the controller **900** controls the video processor **200** to process the main video and controls the display unit **400** to display the main video thereon (S**120**).

If the processed information does not include the main video, the controller **900** determines whether the processed information includes the main audio (S**130**). If the processed information includes the main audio, the controller **900** controls the audio processor **300** to process the main audio and controls the audio output unit **500** to output it (S**140**).

The foregoing processes are repeated to display and output the main video and the main audio to the display unit **400** and the audio output unit **500**, respectively.

Based on the foregoing processes, the process of receiving and outputting the sub information will be described with reference to FIG. **3**.

As shown in FIGS. **1** and **3**, if the VoIP-based sub information is transmitted from the network to the sub information communicator **600** (S**200**), the controller **900** determines whether the sub information is displayable on the display unit **400** (S**210**).

The sub information may not be displayable on the display unit **400** under some circumstances. For example, the sub information may not be displayable on the display

unit **400** if power of the display unit **400** is not turned on, if the PIP function of the display unit **400** is not activated, etc.

If it is determined that the sub information is displayable on the display unit **400**, the controller **900** controls to process various information included in the sub information (S**220**).

The controller **900** determines whether the processed sub information includes a sub video or text (S**230**). If the processed sub information includes the sub video or the text, the controller **900** transmits the sub information to the video processor **200**. As the main video is being displayed on the display unit **400**, the controller **900** controls the video processor **200** to process and display the sub video or the text together with the main video (S**240**).

If it is determined at operation S**230** that the processed sub information does not include the sub video or the text, the controller **900** determines whether the sub information includes the sub audio (S**250**). If it is determined that the sub information includes the sub audio, the controller **900** transmits the sub information to the audio processor **300** so that the sub audio and the main audio are output simultaneously (S**260**).

If it is determined at operation S**210** that the sub information received from the network is not displayable on the display unit **400**, the controller **900** transmits the sub information received from the network to the telephone **800** (S**270**). Thus, a user may make or receive calls through the telephone **800**, and the audio input through the telephone **800** is transmitted to the network by the sub information communicator **600**.

Alternatively, the sub information received from the network may be output through the audio output unit **500**. In this case, a user may input an audio through the microphone **720** to make and receive calls.

If the sub information includes the sub video and the sub audio in the display apparatus **1** according to the exemplary embodiment of the present general inventive concept, the sub information input by the sub information input unit **700** also includes the sub video and the sub audio corresponding thereto. The sub information communicator **600** transmits the input sub information to the network, and the sub information may not be output to the display unit **400** and the audio output unit **500**. Alternatively, the video and audio included in the sub information input by the sub information input unit **700** may be output to the display unit **400** and the audio output unit **500**, respectively.

If the input sub information includes text, the sub information needs to be displayed to be checked by a user. The process of inputting the text through the sub information input unit **700** will be described with reference to FIG. **4**.

As shown in FIGS. **1** and **4**, a user inputs the sub information through the sub information input unit **700** (S**300**). The controller **900** controls the sub information communicator **600** to process the input sub information based on the VoIP and transmit it to the network (S**310**). The controller **900** determines whether the sub information includes a text (S**320**).

If it is determined that the sub information includes the text, the controller **900** controls the video processor **200** to display the sub information as a video together with the main video (S**330**). Thus, a user may check what he/she input. The input text may be displayed by an on screen display (OSD) or a graphic user interface (GUI).

As described above, the display apparatus according to the present general inventive concept receives sub information such as a call signal to output a video, an audio or a text of the sub information together with a main video and a main audio and transmits information corresponding to the sub information to perform a two-way communication.

As described above, the present general inventive concept provides a display apparatus which includes a VoIP call function by using a video call and a text as well as an audio, and improves user's convenience.

Also, the present general inventive concept provides a display apparatus which mixes and outputs broadcasting video and audio and enables a user to make and receive calls while viewing TV broadcasting.

If call information may not be output by a display unit and an audio output unit, the call information is output through a telephone instead. Thus, a user may make and receive calls even if a TV is turned off.

Although a few exemplary embodiments of the present general inventive concept have been shown and described, it will be appreciated by those skilled in the art that changes may be made in these exemplary embodiments without departing from the principles and spirit of the invention, the scope of which is defined in the appended claims and their equivalents.

What is claimed is:

1. A display apparatus comprising:

a main information receiver which receives main information;

[a sub information communicator which receives sub information comprising at least one of video, audio and text through Internet Protocol;**]**

a video processor which processes a main video received by the main information receiver and a sub video *that is* received **[**by the sub information communicator**]**;

a display unit which displays the main video and the sub video processed by the video processor;

an audio processor which processes a main audio received by the main information receiver and a sub audio *that is* received **[**by the sub information communicator**]**;

an audio output unit *comprising a speaker and* which outputs the main audio and the sub audio processed by the audio processor*, through the speaker*; **[**and**]**

a memory which stores a computer program comprising instructions;

a processor which executes the instruction to implement a controller which*:*

determines whether sub information that is received through Internet Protocol is displayable on the display unit, based on whether power of the display unit is turned on and whether a Picture In Picture (PIP) function of the display unit is activated, the sub information comprising at least one of the sub video, the sub audio, and text; and

controls the video processor and the display unit to display the sub video as a **[**Picture In Picture (PIP)**]** *PIP* sub video of the main video *with the main video*, and controls the audio processor and the audio output unit to *overlap the sub audio and the main audio and* output the sub audio with the main audio simultaneously*, in response to the determination that the received sub information is displayable on the display unit; and*

a telephone which receives and outputs an audio,

wherein the controller further:

controls to transmit the received sub information to the telephone in response to the determination that the received sub information is not displayable on the display unit; and

controls to transmit the audio received by the telephone, through the Internet Protocol.

2. The display apparatus according to claim 1, wherein the sub information [communicator receives the sub information] *is received* via Voice Over Internet Protocol (VOIP).

3. The display apparatus according to claim 2, further comprising a sub information input unit through which the sub information is input,

wherein the controller *further:*

controls [the sub information communicator] to transmit the sub information input [by] *through* the sub information input unit, through the VOIP[, and];

controls the video processor to process a sub video corresponding to the input sub information; and

controls the display unit to display the sub video on the display unit.

4. The display apparatus according to claim 3, wherein the sub information input unit comprises at least one of a camera, a microphone and a keyboard.

[5. The display apparatus according to claim 1, wherein the controller controls the video processor to display the main video with the sub video.]

6. The display apparatus according to claim 1, wherein the audio processor processes [a] *the* main audio corresponding to the main information, and

the controller controls the audio processor to output the main audio through the audio output unit.

7. The display apparatus according to claim 6, wherein the controller controls the audio processor to output the main audio with the sub audio *through the audio output unit*.

8. The display apparatus according to claim 7, wherein the controller *further* controls the audio processor to adjust a volume level of at least one of the main audio and the sub audio.

[9. The display apparatus according to claim 6, wherein the audio output unit comprises a plurality of audio output units, and the controller controls the main audio to be output through at least one of the plurality of audio output units and controls the sub audio to be output through at least another one of the plurality of audio output units.]

[10. The display apparatus according to claim 1, further comprising a telephone which inputs and outputs an audio,

wherein the controller transmits sub information received by the sub information communicator to the telephone and controls the sub information communicator to transmit the audio input by the telephone through the internet protocol.]

[11. The display apparatus according to claim 10, wherein the controller transmits the sub information to the telephone if the sub information received by the sub information communicator is not displayable on the display unit.]

12. A control method of a display apparatus, the control method comprising:

displaying a main video corresponding to main information which is received;

receiving sub information [having] *comprising* at least one of a video, an audio and text, through Internet Protocol; [and]

determining whether the received sub information is displayable on the display apparatus, based on whether power of the display apparatus is turned on and whether a Picture In Picture (PIP) function of the display apparatus is activated;

displaying a sub video corresponding to the sub information which is received, *with the main video corresponding to the main information in response to the determination that the received sub information is displayable on the display apparatus,*

wherein the displaying the main video comprises outputting a main audio corresponding to the main information, and

wherein the displaying the sub video comprises outputting a sub audio corresponding to sub information received through the Internet Protocol *by overlapping the sub audio and the main audio, through a speaker; and*

transmitting the received sub information to a telephone in response to the determination that the received sub information is not displayable on the display apparatus.

13. The control method according to claim 12, wherein the receiving the sub information comprises receiving the sub information via Voice Over Internet Protocol (VOIP).

[14. The control method according to claim 12, wherein the displaying the main video comprises displaying the main video with the sub video.]

15. The control method according to claim 12, [wherein the displaying the sub video comprises] *further comprising:*

receiving *the* sub information *through a sub information input unit*;

transmitting the [input] sub information *received through the sub information input unit,* through the Internet Protocol; and

displaying [a] *the* sub video corresponding to the [input] sub information *received through the sub information input unit*.

16. The control method according to claim 15, wherein the receiving the sub information *through the sub information input unit* comprises receiving the sub information through at least one of a camera, a microphone and a keyboard.

17. The control method according to claim 12, wherein the outputting the sub audio comprises outputting the sub audio with the main audio.

18. The control method according to claim 17, [wherein the outputting the sub audio comprises] *further comprising* adjusting a volume level of at least one of the main audio and the sub audio.

[19. The control method according to claim 12, wherein the receiving the sub information comprises transmitting the sub information to a telephone if the sub information received through the Internet Protocol is not displayable on the display unit.]

20. A display apparatus comprising:

a display configured to display a video;

a speaker configured to output an audio;

a receiver configured to receive a broadcasting signal;

a signal processor configured to process a broadcasting video and a broadcasting audio of the received broadcasting signal;

a memory configured to store a computer program comprising instructions; and

a processor configured to execute the instructions to implement a controller configured to:

control the display to display the processed broadcasting video;

control the speaker to output the processed broadcasting audio;

determine whether a video call signal that is received through an Internet protocol is displayable on the display, based on whether power of the display is turned on and whether a picture in picture (PIP) function of the display is activated, in response to the reception of the video call signal while the processed

broadcasting video is displayed on the display, the video call signal comprising a call video and a call audio;

control the signal processor to process the call video, control the display to display the processed call video with the processed broadcasting video, control the signal processor to process the call audio by overlapping the call audio and the processed broadcasting audio, and control the speaker to output the processed call audio with the processed broadcasting audio, in response to the determination that the received video call signal is displayable on the display;

control to transmit the call audio of the received video call signal to a telephone in response to the determination that the received video call signal is not displayable on the display; and

control to transmit an audio that is input through the telephone, through the Internet protocol.

21. The display apparatus according to claim 20, wherein the controller is further configured to control the speaker to output the processed broadcasting audio and the processed call audio simultaneously.

22. The display apparatus according to claim 21, wherein the controller is further configured to adjust a volume level of either one or both of the output broadcasting audio and the output call audio.

23. The display apparatus according to claim 20, wherein the controller is further configured to control the signal processor to:

process the call video to be displayed on one of a main screen and a sub screen of the display, based on the PIP function of the display; and

process the broadcasting video to be displayed on another one of the main screen and the sub screen in response to the call video being displayed.

24. The display apparatus according to claim 20, further comprising a user input unit,

wherein the controller is further configured to:

control to transmit information that is input through the user input unit, via a voice over Internet protocol; and

control the signal processor to process a video corresponding to the input information to be displayed on the display.

25. The display apparatus according to claim 20, wherein the display apparatus comprises a television.

26. A method of controlling a display apparatus comprising a display and a speaker, the method comprising:

receiving a broadcasting signal;

displaying a broadcasting video of the broadcasting signal on the display;

outputting a broadcasting audio of the broadcasting signal through the speaker;

receiving a video call signal comprising a call video and a call audio, through an Internet protocol, while the broadcasting video is displayed on the display;

determining whether the received video call signal is displayable on the display, based on whether power of the display apparatus is turned on and whether a picture in picture (PIP) function of the display apparatus is activated, in response to the reception of the video call signal;

displaying the call video with the broadcasting video, on the display, overlapping the call audio and the broadcasting audio, and outputting the call audio overlapped with the broadcasting audio through the speaker, in response to the determination that the received video call signal is displayable on the display;

transmitting the call audio of the video call signal to a telephone in response to the determination that the received video call signal is not displayable on the display; and

transmitting an audio that is input through the telephone, via the Internet protocol.

27. The method according to claim 26, wherein the outputting the call audio comprises outputting the broadcasting audio and the call audio simultaneously through the speaker.

28. The method according to claim 27, further comprising adjusting a volume level of either one or both of the output broadcasting audio and the output call audio.

29. The method according to claim 26, wherein the displaying the call video with the broadcasting video comprises:

displaying the call video on one of a main screen and a sub screen of the display, based on the PIP function of the display; and

displaying the broadcasting video on another one of the main screen and the sub screen in response to the call video being displayed.

30. The method according to claim 26, further comprising:

transmitting information that is input through a user input unit included in the display apparatus, via a voice over Internet protocol; and

displaying a video corresponding to the input information on the display.

31. The method according to claim 26, wherein the display apparatus comprises a television.

32. A display apparatus comprising:

a display;

a loudspeaker;

a receiver configured to receive main information;

a video processor configured to process a main video of the received main information and a sub video of sub information that is received through an Internet protocol, to be displayed on the display;

an audio processor configured to process a main audio of the received main information and a sub audio of the received sub information, to be output through the loudspeaker;

a memory configured to store a computer program comprising instructions; and

a processor configured to execute the instructions to implement a controller configured to:

determine whether the received sub information is displayable on the display, based on whether power of the display is turned on and whether a picture in picture function of the display is activated;

control the video processor to display, on the display, the processed sub video with the processed main video, and control the audio processor to output, through the loudspeaker, the processed sub audio with the processed sub video, in response to the determination that the received sub information is displayable on the display;

transmit the sub audio to an external device in response to the determination that the received sub information is not displayable on the display; and

control to transmit an audio that is input through the external device, through the Internet protocol.

33. The display apparatus according to claim 1, wherein the controller is further configured to overlap the processed sub audio and the processed main audio.

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