(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
12 July 2012 (12.07.2012)

WIPO | PCT

(10) International Publication Number
WO 2012/094105 A1

(51) International Patent Classification:
H04N 21/436 (2011.01) *H04N 21/475* (2011.01)
H04N 21/41 (2011.01)

(21) International Application Number:
PCT/US2011/064534

(22) International Filing Date:
13 December 2011 (13.12.2011)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/460,598 5 January 2011 (05.01.2011) US

(71) Applicant *(for all designated States except US)*: **THOMSON LICENSING** [FR/FR]; 1-5 rue Jeanne d'Arc, 92130 Issy-les-Moulineaux (FR).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **SRIDHAR, Avinash** [IN/US]; 96 N Main Street, Apt. #5, Cranbury, New Jersey 08512 (US). **CAMPANA, David Anthony** [CA/US]; 4619 l02nd Lane N.E., Kirkland, Washington 98033 (US). **ANDERSON, David Brian** [US/US]; 94 Nelson Avenue, Hamilton, New Jersey 08619 (US).

(74) Agents: **SHEDD, Robert D.** et al.; Thomson Licensing, LLC, Two Independence Way, Suite 200, Princeton, New Jersey 08540 (US).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE,

[Continued on next page]

(54) Title: MULTI-SCREEN INTERACTIONS

(57) Abstract: A secondary screen device sends information relating to media content viewed on a primary screen device to the primary screen device. The information sent can be altered and/or unaltered information. The secondary screen device can send the information to the primary screen device automatically and/or manually via a user interface on the secondary screen device. In some instances, an intermediate device can be employed to relay the information from the secondary screen device to the primary screen device. The intermediate device can also process the information received from the secondary screen device before sending it to the primary screen device.

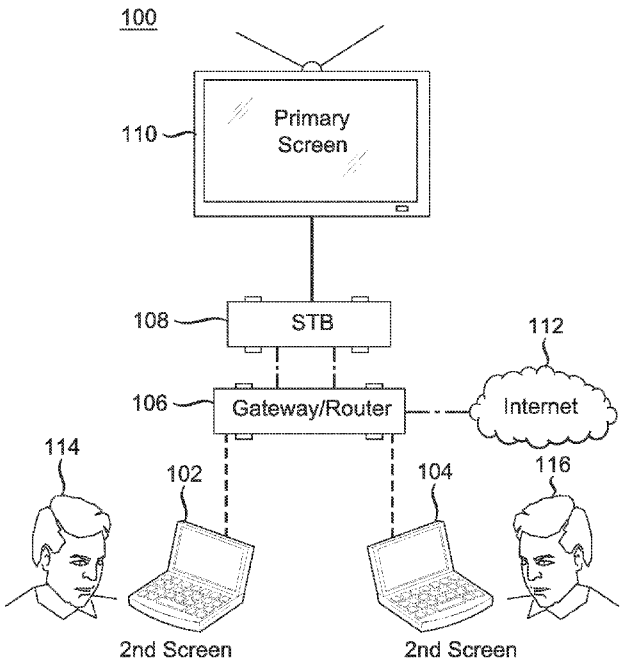

FIG. 1

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DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*

MULTI-SCREEN INTERACTIONS

This application claims priority from U.S. Provisional Application No. 61/460,598 filed 05 January 2011.

BACKGROUND

[0001] Users of supplemental viewing devices or as they are sometimes referred to as - second screen devices - cannot communicate directly with the primary or first screen device. This limits the second screen user to only disseminating their second screen information by physically showing another person their second screen display. In larger audience settings and/or in remote viewing settings, this becomes increasingly difficult if not impossible to accomplish.

SUMMARY

[0002] In the context of second screen solutions, interactions between a second screen and a first screen are given. These interactions permit single and/or multiple users to utilize the first screen to display information beyond the currently watched program. This allows the second screen to get the attention of its user, etc. It also allows a second screen user to share information to other people watching the first screen.

[0003] The above presents a simplified summary of the subject matter in order to provide a basic understanding of some aspects of subject matter embodiments. This summary is not an extensive overview of the subject matter. It is not intended to identify key/critical elements of the embodiments or to delineate the scope of the subject matter. Its sole purpose is to present some concepts of the subject matter in a simplified form as a prelude to the more detailed description that is presented later.

[0004] To the accomplishment of the foregoing and related ends, certain illustrative aspects of embodiments are described herein in connection with the following description and the annexed drawings. These aspects are indicative, however, of but a few of the various ways in which the principles of the subject matter can be employed, and the subject matter is intended to include all such aspects

and their equivalents. Other advantages and novel features of the subject matter can become apparent from the following detailed description when considered in conjunction with the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] FIG. 1 is a basic diagram of architecture showing a first screen, a second screen, intermediate devices and communications means.

[0006] FIG. 2 is an overlay on first screen notifying of a user of content on a second screen.

[0007] FIG. 3 is a second screen user interface for interacting with a first screen.

[0008] FIG. 4 is a first screen overlay providing information resulting from second screen interactions.

[0009] FIG. 5 is a flow diagram of a method of providing information to a viewing device.

DETAILED DESCRIPTION

[0010] The subject matter is now described with reference to the drawings, wherein like reference numerals are used to refer to like elements throughout. In the following description, for purposes of explanation, numerous specific details are set forth in order to provide a thorough understanding of the subject matter. It can be evident, however, that subject matter embodiments can be practiced without these specific details. In other instances, well-known structures and devices are shown in block diagram form in order to facilitate describing the embodiments.

[0011] As used in this application, the term "component" is intended to refer to hardware, software, or a combination of hardware and software in execution. For example, a component can be, but is not limited to being, a process running on a processor, a processor, an object, an executable, *and/or* a microchip and the like. By way of illustration, both an application running on a processor and the processor can be a component. One or more components can reside within a process and a component can be localized on one system *and/or* distributed between two or more systems. Functions of the various components shown in the figures can be provided

through the use of dedicated hardware as well as hardware capable of executing software in association with appropriate software.

[0012] A communication channel is established between at least one second screen device and a first screen device. The first screen can be, but is not limited to, a television, a monitor, and/or a projector and the like. In other words, the first screen can include a movie screen with a projector projecting media content onto the movie screen. Communications between the second screen and the first screen can then be made to the projector which then projects the information on the movie screen, etc.

[0013] The communication means can include, but is not limited to, wired (e.g., Ethernet, phone lines, etc.) and/or wireless (e.g., Bluetooth, etc.) means and the like. This includes direct (e.g., peer-to-peer communications, directly wired to each other, etc.) and/or indirect communication means as well (e.g., via the Internet, WLAN, remote server, local server, etc.). This permits the second screen device to display information on the first screen. In one instance, the second screen device can directly write to at least a portion of the first screen. In other instances, the second screen communicates with the first screen and the first screen places the information itself. For example, the information displayed can be an overlay to existing media content being watched on the first screen, and/or it can be in place of the currently watched media content. Similarly, it can be placed in a particular location such that the media content can still be viewed on other areas of the first screen. Likewise, the first screen can automatically reduce the size of the media content being viewed and place the second screen information in proximity of the media content (above, beside, below it, etc.).

[0014] The displaying of the information by the second screen device can be at the prompting of a user of the second screen device and/or solely by the prompting of the second screen device itself (automatically and/or manually). If multiple people and/or multiple second screen devices are viewing the same first screen, the second screen devices can share information by displaying it on the first screen. This allows people watching the first screen who do not have a second screen device to also view the information. Most second screen users have different preferences selected on their second screen devices and can be viewing different information related to the same media content being viewed on the first screen. If something of interest comes

up on their second screen device, they can easily share it with other watchers of the media content by sending it to the first screen.

[0015] In some instances, a user of a second screen device can opt to have the second screen device automatically communicate with the first screen device. For example, the user might be an avid movie buff and likes to have a short biography overlaid on the first screen when a new actor enters into the movie. Thus, as each new character is introduced in the movie, information regarding that character from the second screen device can be automatically displayed on the first screen. If others are watching the movie, the user can turn this feature off to avoid interfering with other viewers.

[0016] In another instance, the second screen device user can opt to have important information displayed automatically on the first screen as well. For example, while watching a program which can last several hours, a mined media content guide on the second screen device might discover a show that the user is highly interested in and notify (e.g., send a user notification, etc.) the user on the first screen to review the information on the second screen device. This is handy because most users are unlikely to be constantly viewing their second screen device during multi-hour long programs.

[0017] Interactive functions can also be provided between multiple second screen device users watching a given media content. This can include, for example, which second screen user is first to notice a phrase and/or object that keeps reoccurring in the media content, etc. Second screen users can select a button, and the first second screen device user is shown on the first screen. This can also be used to break a tie when multiple second screen device users attempt to change a channel on the first screen device. For example, a game of tic tac toe might appear on each of the tied second screen devices and the winner gets to change the channel, etc.

[0018] In another example, second screen device users can vote on whether they like the media content as they watch it. This is especially helpful in large viewing environments such as auditoriums where second screen device users can be evaluating the media content and the like such as a product commercial, etc. It can also be used in classrooms where a teacher can ask students to guess a correct answer regarding media content on a first screen. This technology can also incorporate a

second screen device user's social networking information such as Facebook friends and the like. Collaborative efforts can also be accomplished with this technology.

[0019] FIG.1 illustrates a basic architecture 100 of an environment that supports multi-screen interactions. In this example, two second screens 102, 104 communicate with an intermediate device such as a gateway/router 106 and the like. The gateway/router 106 is linked to a wide area network (WAN) (e.g., the Internet) 112. In this instance, the gateway/router 106 is connected to another intermediate device such as a set top box 108 that is in communication with a primary screen 110. In another instance, the set top box 108 can be linked to a WAN and/or a cable service provider and the like. The WAN connections facilitate to provide secondary or supplemental information to users 114, 116 of the second screens 102, 104 respectively.

[0020] The supplemental information is typically associated with the media content being viewed on the primary screen 110. It can be automatically downloaded to the second screens 102, 104 and/or downloaded to the second screens 102, 104 when prompted by a user 114, 116. In other instances, the second screens 102, 104 can be connected directly to the set top box 108 and/or directly to the first or primary screen 110. The second screens 102, 104 can also receive supplemental information from a wireless and/or wired local area network as well. A user might have locally stored information on a shared storage device and the like. A storage device (e.g., hard drive, etc.) within a second screen device can also be accessed for supplemental information.

[0021] In FIG.2, an example 200 of an overlay 202 is shown on a primary screen 204. In this example 200, the overlay 202 is directing the viewers of the primary screen 204 to look at their second screen devices (not shown). The second screen device users are informed that a vote is taking place relating to the media content being viewed on the primary screen. FIG. 3 illustrates and example 300 of a second screen 302 with a user interface for interacting with the first screen 200. In this example, a second screen device user can select their pick for whether they like the media content or they don't 304. Users can accomplish the selection using any type of selection device such as a mouse, keyboard, pointing instrument, and/or their finger and the like.

[0022] FIG. 4 is an example 400 of an overlay 404 on a primary screen device 402 that provides information resulting from second screen interactions. In this example 400, the primary screen device 402 processes the communicated information and determines results 406 from that information. In other instances, the primary screen device can display the raw information received from a second screen device and/or format the information without changing/altering it. Since the primary screen device 402 can know the location of a second screen device it is communicating with, it can use this location information to further add value to the information such as, for example, tallying how many votes came from nationwide versus in-home. This type of processing is extremely useful in teaching environments where students from different locations (e.g., schools) can vote and see what other students are thinking, etc.

[0023] In view of the exemplary systems shown and described above, methodologies that can be implemented in accordance with the embodiments will be better appreciated with reference to the flow charts of FIG. 5. While, for purposes of simplicity of explanation, the methodologies are shown and described as a series of blocks, it is to be understood and appreciated that the embodiments are not limited by the order of the blocks, as some blocks can, in accordance with an embodiment, occur in different orders *and/or* concurrently with other blocks from that shown and described herein. Moreover, not all illustrated blocks may be required to implement the methodologies in accordance with the embodiments.

[0024] FIG. 5 is a flow diagram of a method 500 of providing information to a viewing device. The method starts 502 by receiving information on a secondary screen device that relates to media content being viewed on a primary screen device 504. For example, this can include, but is not limited to, biographical information about an actor in media content displayed on the primary screen, statistical information for a sports player while a game is being viewed on the primary screen, and even indications that a user's favorite program is about to begin on a different station and the like. It can also be information generated from a user response entered on a secondary screen device that relates to the primary screen content and the like. The information can originate from a wide area network and/or local area network and the like. Remote servers often carry meta data relating to media content that can

be accessed as the media content is displayed on the primary screen device. This allows the secondary device screen to be constantly updated with information as the media content progresses.

[0025] At least a portion of the information is then sent from the secondary screen device to the primary screen device 506, ending the flow 508. The secondary screen device can limit, filter, compile and/or otherwise alter the information sent to the primary screen device. It can also send raw information to the primary screen as well. Similarly an intermediate device can relay information (or at least a portion of the information) from the secondary screen device to the primary screen device. The intermediate device can also process the information before sending it to the primary screen device. One skilled in the art can appreciate that the secondary screen device can be programmed to automatically send at least a portion of the information to the primary screen device directly and/or indirectly (via an intermediate device and the like). Likewise, the secondary screen device can have a user interface that lets a user input preferences and commands that can be used to automatically and/or manually send information to the primary screen devices. The secondary screen device can also use a user's social network information to facilitate in sending, altering and/or filtering the information sent to the primary screen device.

[0026] What has been described above includes examples of the embodiments. It is, of course, not possible to describe every conceivable combination of components or methodologies for purposes of describing the embodiments, but one of ordinary skill in the art can recognize that many further combinations and permutations of the embodiments are possible. Accordingly, the subject matter is intended to embrace all such alterations, modifications and variations that fall within the spirit and scope of the appended claims. Furthermore, to the extent that the term "includes" is used in either the detailed description or the claims, such term is intended to be inclusive in a manner similar to the term "comprising" as "comprising" is interpreted when employed as a transitional word in a claim.

CLAIMS

1. A system that provides information to a viewing device, comprising:

a secondary screen device in communication with a primary screen device; and

a user interface on the secondary screen device that allows a user to send information from the secondary screen device to the primary screen device.

2. The system of claim 1, wherein the secondary screen device receives information relating to media content viewed on the primary screen from at least one of a wide area network and a local area network.

3. The system of claim 1, wherein the user interface allows a user to manually select at least one of when to send the information from the secondary screen to the primary screen and what information to send from the secondary screen to the primary screen.

4. The system of claim 1, wherein the user interface allows a user to command the secondary screen device to automatically select at least one of when to send the information from the secondary screen to the primary screen and what information to send from the secondary screen to the primary screen.

5. The system of claim 1, wherein the secondary screen device is at least one of in direct communication with the primary screen device and in indirect communication with the primary screen device.

6. The system of claim 1, wherein the secondary screen device writes information directly to at least a portion of a screen of the secondary screen device.

7. The system of claim 1, wherein the secondary screen device automatically sends a user notification to the primary screen device when the secondary screen device receives information relating to media content displayed on the primary screen device.

8. The system of claim 1, wherein the secondary screen device utilizes at least one of a social network of a user and at least one preference of a user in determining what information is sent to the primary screen device.

9. The system of claim 1, further comprising:

an intermediate device that sends at least one of altered information to the primary screen device from the secondary screen device and unaltered information to the primary screen device from the secondary screen device.

10. A method for providing information to a viewing device, comprising:

receiving information on a secondary screen device that relates to media content being viewed on a primary screen device; and

sending at least a portion of the information from the secondary screen device to the primary screen device.

11. The method of claim 10, further comprising:

automatically sending the information from the secondary screen device to the primary screen device.

12. The method of claim 10, further comprising:

sending the information from the secondary screen device to the primary screen device when a user command is received by the secondary screen device.

13. The method of claim 10, further comprising:

relaying at least a portion of the information sent by the secondary screen device to the primary screen device via an intermediate device.

14. A system that provides information to a viewing device, comprising:

a means for receiving information on a secondary screen device that relates to media content being viewed on a primary screen device; and

a means for sending at least a portion of the information from the secondary screen device to the primary screen device.

15. The system of claim 14 further comprising:

a means for allowing a user to interact with the primary screen device via the secondary screen device.

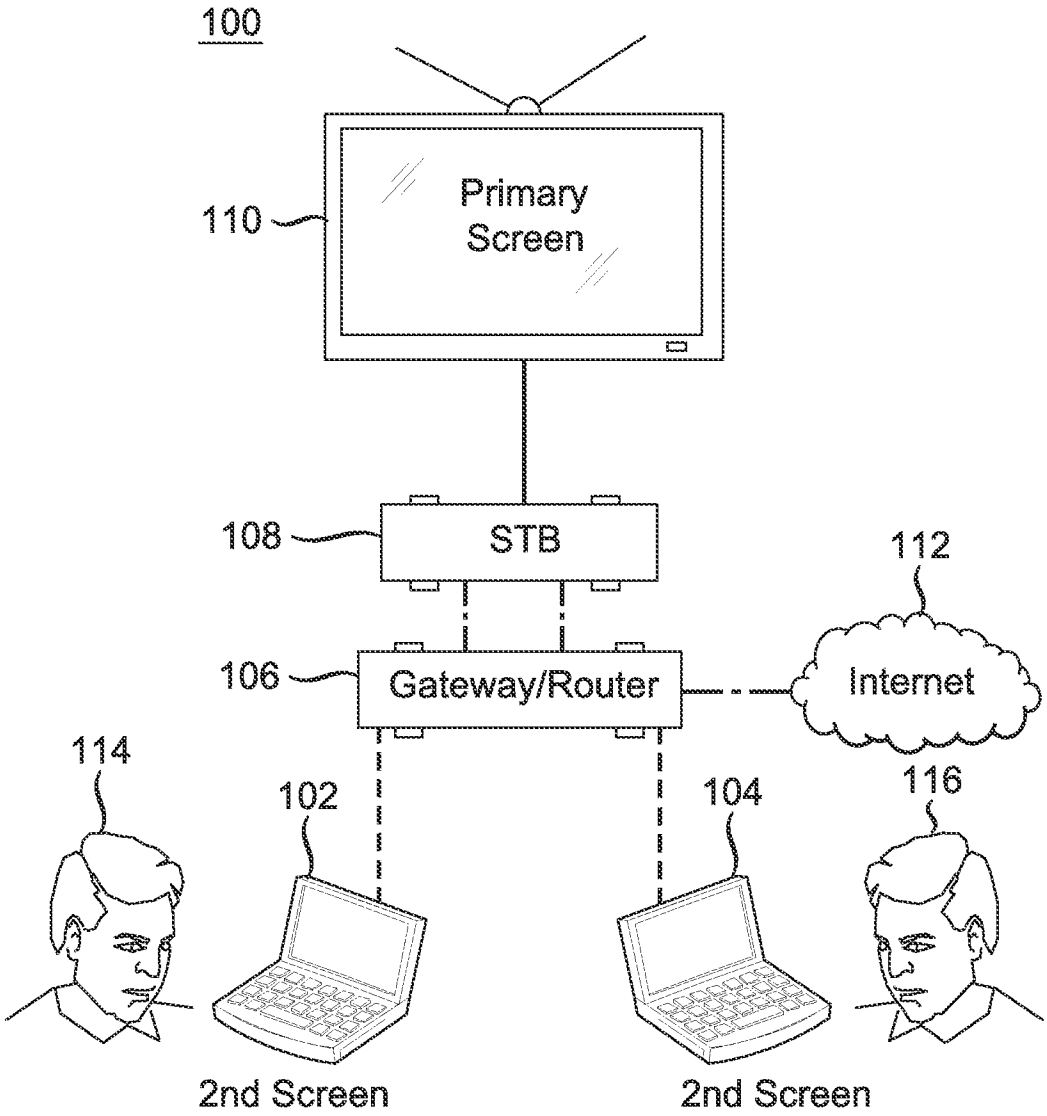
100
Primary Screen
110
108
STB
112
106
Gateway/Router
Internet
114
102
104
116
2nd Screen
2nd Screen

FIG. 1

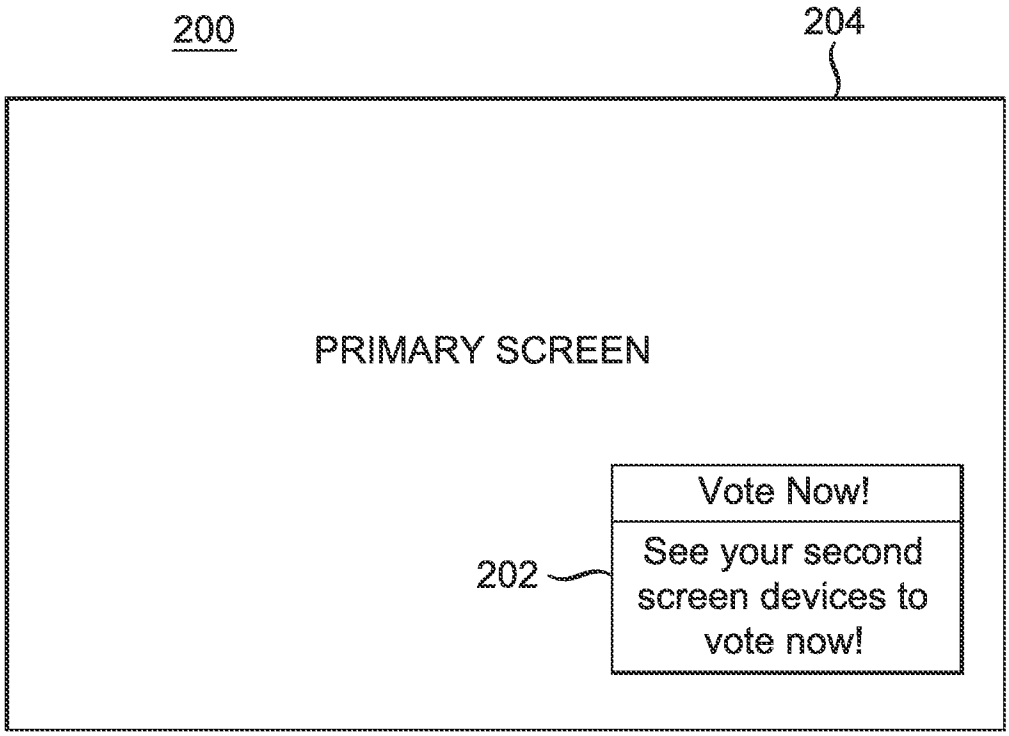
200
204
PRIMARY SCREEN
Vote Now!
See your second screen devices to vote now!
202

FIG. 2

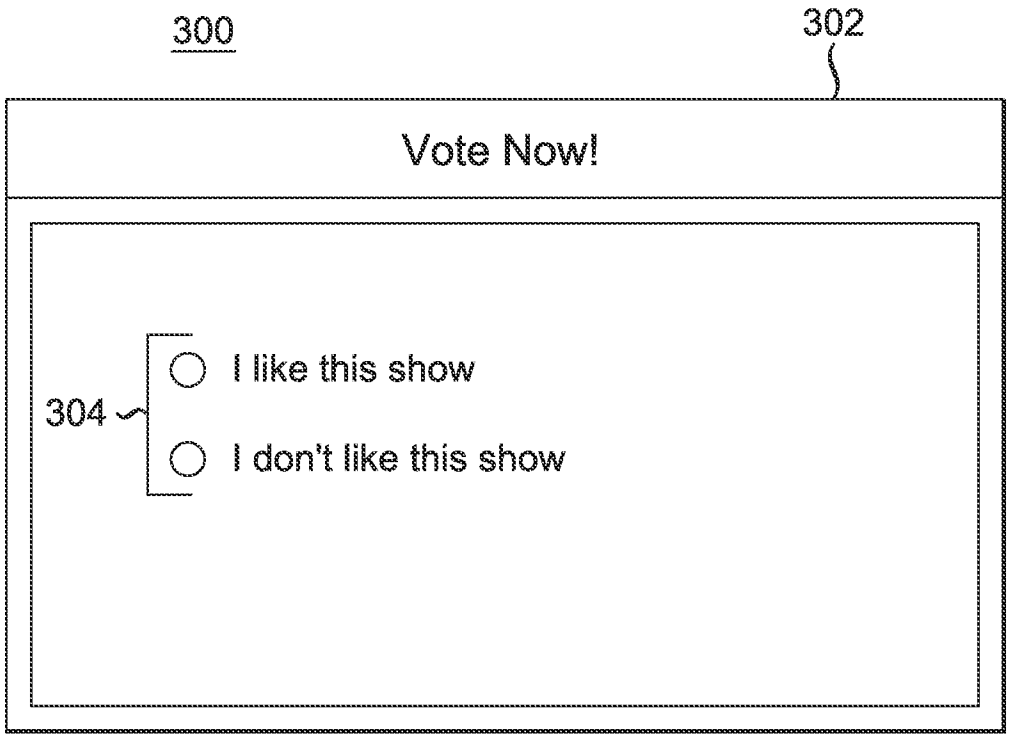
300
302
Vote Now!
I like this show
I don't like this show
304

FIG. 3

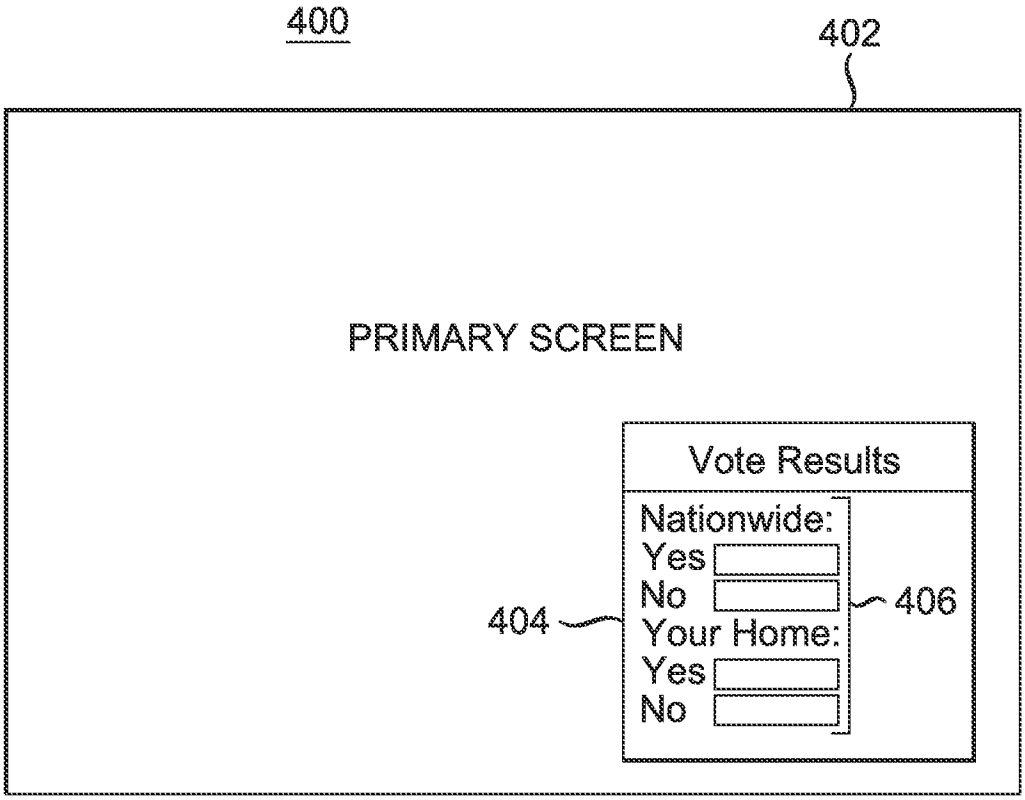
400
402
PRIMARY SCREEN
Vote Results
Nationwide:
Yes
No
Your Home:
Yes
No
404
406

FIG. 4

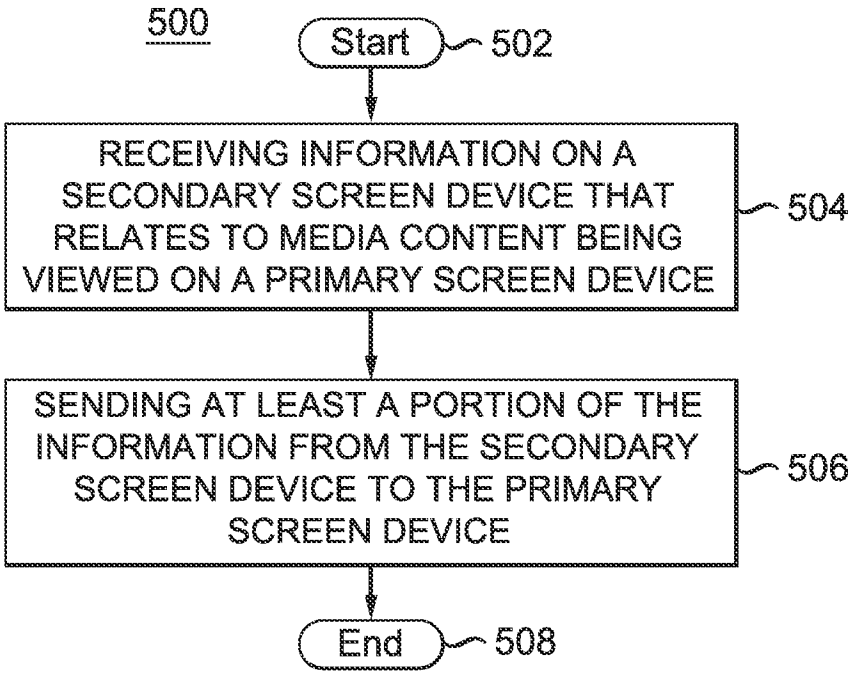
500
Start
502
RECEIVING INFORMATION ON A SECONDARY SCREEN DEVICE THAT RELATES TO MEDIA CONTENT BEING VIEWED ON A PRIMARY SCREEN DEVICE
504
SENDING AT LEAST A PORTION OF THE INFORMATION FROM THE SECONDARY SCREEN DEVICE TO THE PRIMARY SCREEN DEVICE
506
End
508

FIG. 5

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2011/064534

A. CLASSIFICATION OF SUBJECT MATTER
INV. H04N21/436 H04N21/41 H04N21/475
ADD.

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)
H04N

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

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2010/268810 A1 (SATO) 21 October 2010 (2010-10-21) paragraphs [0039] - [0115]; figures 1-12	1-15
A	US 2009/144435 A1 (NANIYAT) 4 June 2009 (2009-06-04) paragraphs [0021] - [0039], [0075] - [0084]; figures 1-3,6,7	1-15

☐ 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

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"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

Date of the actual completion of the international search	Date of mailing of the international search report
8 February 2012	16/02/2012

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Dudley, Clifford

1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2011/064534

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2010268810 A1	21-10-2010	CN 101866541 A	20-10-2010
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		WO 2009069989 A2	04-06-2009