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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
23 February 2012 (23.02.2012)

PCT

(10) International Publication Number
WO 2012/023091 A1

(51) International Patent Classification:
G06F 17/30 (2006.01) *H04N 21/482* (2011.01)

(21) International Application Number:
PCT/IB2011/053582

(22) International Filing Date:
11 August 2011 (11.08.2011)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10172856.6 16 August 2010 (16.08.2010) EP

(71) Applicant *(for all designated States except US)*: **KONINKLIJKE PHILIPS ELECTRONICS N.V.** [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventor; and

(75) Inventor/Applicant *(for US only)*: **PROIDL, Adolf** [AT/AT]; c/o High Tech Campus Building 44, NL-5656 AE Eindhoven (NL).

(74) Agents: **KROEZE, John** et al.; c/o High Tech Campus Building 44, NL-5656 AE Eindhoven (NL).

(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, 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, 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, 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).

Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

Published:

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

(54) Title: METHOD AND APPARATUS FOR SELECTING AT LEAST ONE MEDIA ITEM

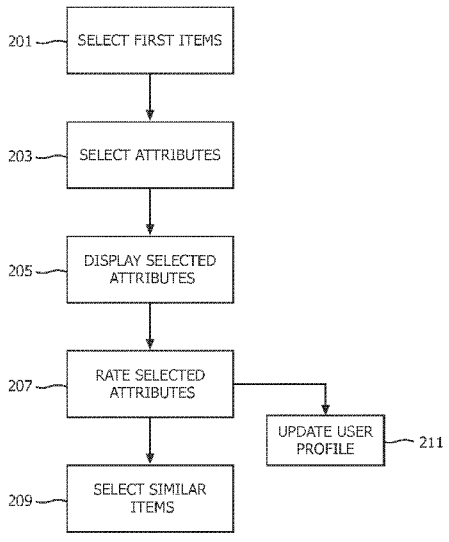


FIG. 2

(57) Abstract: Items having a plurality of attributes associated therewith, each of said associated attributes having a rating, the rating indicating the importance of the attribute to the user can be selected (201) and displayed (205) with its associated attributes and corresponding ratings. The ratings can be adjusted (207) and at least one item similar to one of the selected at least one first item is selected (209) based on the rating of at least one of the displayed attributes.

WO 2012/023091 A1

METHOD AND APPARATUS FOR SELECTING AT LEAST ONE MEDIA ITEM

FIELD OF THE INVENTION

The present invention relates to a method and apparatus for selecting at least one item. In particular, but not exclusively, it relates to automatically selecting content items or content assets.

BACKGROUND OF THE INVENTION

The number of available content assets, such as digital, audiovisual assets that can be consumed at any point in time is exploding. As a result, instant, interest driven access to that expanding content universe is becoming more and more important. Digitalization of audiovisual materials together with the broad availability of high speed data transfer has resulted in an ever increasing amount of content that any consumer has available for consumption at any point in time. Examples of large repositories of audiovisual assets on the internet are YouTube, Netflix, and Hulu. They are competing with digital, live TV channels and VoD libraries, offered by TV service providers, e.g. Comcast.

As the consumer's time to select and enjoy the available content assets doesn't increase the importance of conveniently controllable guidance towards the most interesting and appropriate audiovisual content gains in importance.

Typically internet sites, service providers, and device manufacturers offer solutions that allow users to search and navigate their content offerings. The first of these is a simple input means for search using text entry, for example, the search bar from Google or YouTube. Such searching is essentially easy to use (at least on a PC), but returns a lot of results that are irrelevant. Attempting to improve the detail of the search request instantly requires the user to go back one step in the search process which is cumbersome and may take many attempts to obtain good results, which is time consuming. Some sites (e.g. specifications like "site: www.philips.com" or "Include entire text"), require expert skills, which makes the solution unsuitable to the general public.

Another known technique is implicit input means, e.g. tracking what the user is browsing via cookies, making use of his purchase history etc. This takes significant time, before providing useful recommendations. Furthermore, this technique does not allow the user to specifically express his interests.

A further known technique is the use of comparative input means, for example, rating a movie as "liked" or "disliked". This is equally effective as a simple input means, allowing the user to refine the result on the go without going back. However, as above it returns, at least initially, many irrelevant results and can be time consuming to refine it to obtain useful results.

Another known technique uses complex input means, for example, allowing the user to explicitly state his preferences like "I love Alfred Hitchcock" but "slightly dislike Horror Movies". This allows more control of search results and navigation, but is too overwhelming to be useful for the general public, especially as the user first needs to understand which criteria can be used to constrain the result set, and how they need to be applied. Also these techniques are not suited to refine on the go.

An example of such a complex input means is disclosed by US 7617511 in which, whilst browsing an electronic programming guide (EPG), the user can enter new preference ratings or modify previously saved ratings for program attributes. This results in recommendations being made based on the user's preferences. However, as mentioned above, the user first needs to understand how the criteria are used and how to apply it. Furthermore, any further browsing of the EPG is limited to these preferences.

SUMMARY OF THE INVENTION

The present invention seeks to provide improved browsing of items allowing easy refinement of selections.

This is achieved according to a first aspect of the present invention by a method for selecting at least one item, the method comprising the steps of: selecting at least one first item, each of the selected at least one first item having a plurality of attributes associated therewith, each of the associated attributes having a rating, the rating indicating the importance of the attribute to the user; displaying each of the selected at least one first item and its associated attributes and corresponding ratings; allowing adjustment of the ratings of any one of the displayed associated attributes; selecting at least one item similar to one of the selected at least one first item based on the rating of at least one of the displayed attributes.

This is also achieved according to a second aspect of the present invention by apparatus for selecting at least one item, the apparatus comprising: a processor for selecting at least one first item, each of the selected at least one first item having a plurality of attributes associated therewith, each of the associated attributes having a rating, the rating

indicating the importance of the attribute to the user; a controller for controlling a display for displaying each of the selected at least one first item and its associated attributes and corresponding ratings; an interface for communicating with a user interface device for allowing adjustment of the ratings of any one of the displayed associated attributes; the processor selecting at least one item similar to one of the selected at least one first item based on the rating of at least one of the displayed attributes.

As a result a first selection is made. This may comprise a search of items, like content assets for example, to retrieve the selection based on criteria, for example, a plurality of search terms. This first selection is displayed and browsed by the user if desired. For each displayed item, attributes are identified. This may be, for example, the criteria which were used to select the items, i.e. the search terms. The user can then provide a rating for any of these attributes indicating the importance of the attribute to the user in the selection. The user thus has a clear indication of how the selection of similar items is made, i.e. how the attributes will be used to refine the search. Furthermore, selection is not limited to the user's preferences.

Optionally a selection of the most relevant attributes is made per item so as to reduce the burden on the user in rating attributes. The most relevant may be determined from the user's profile or currently indicated preferences. Any adjustment the user performs on a rating may also be used to update the user's profile to improve the selection of items and/or of attributes to be rated.

The interface for input of ratings may be placed in the user interface directly, for example, included in a display of the interface device and/or the display of the selected items, making the user aware of the configurable options and allowing the user to instantly provide input in the context of the result page.

This may allow the user to refine his profile, search query, or preferences. As a result, there is no need to leave the navigation of items, such as content assets, to adjust/refine a profile, search query, or preference input screen and the adjustment takes place directly in the appropriate context, allowing the user the conveniently take confident decisions, while developing trust in the solution as a whole.

BRIEF DESCRIPTION OF DRAWINGS

For a more complete understanding of the present invention, reference is made to the following description in conjunction with the accompanying drawings, in which:

Figure 1 is simple schematic of the apparatus according to an embodiment of the present invention;

Figure 2 is a flowchart of the method of selecting an item according to an embodiment of the present invention;

Figure 3 is an illustration of an example of a screen shot according to an embodiment of the present invention; and

Figure 4 is an illustration of an example of a screen shot according to an alternative embodiment of the present invention.

DETAILED DESCRIPTION OF AN EMBODIMENT OF THE INVENTION

With reference to figure 1, the apparatus 100 comprises a processor (100_5) connected to a controller (100_1) for controlling the output for a display means 105, interface means (100_2) for communicating with storage devices 103, 107 and an interface device 101. The apparatus 100 may comprise a PC having a monitor 105 and a keyboard 101, a local memory device 107 and connection via a network such as the internet to a remote storage device 103. Alternatively, the apparatus 100 may comprise a set top box having a local memory device 107 communicating with a television 105, a remote control device 101 and a remote storage device 103 via the internet, for example. Although the storage devices 107, 103 are illustrated here as separate devices, it can be understood that they may comprise a single storage device integrated within the apparatus 100 or remote thereof.

Operation of the apparatus 100 will now be described with reference to Figures 1 to 4.

A first selection of items is made, step 201. This may involve use of a search engine such as Google to input search terms or browsing recommendations of content assets on a television screen. These items are retrieved from a storage means 103 and displayed on the display means 105. Examples of screen shots of such a display are shown in Figures 3 and 4.

In Figure 3, a window 301 is provided in which the search terms are entered and displayed. Below this window 301 a list of selected items 303 retrieved from the storage means 103 is displayed. For each item 303, attributes of the item are selected, step 203 and highlighted on the display, step 205. The attributes may be selected by selecting those which

are considered most relevant to the user. This may be based on the content of the user's profile and/or their preference stored in the storage means 107. Alongside each attribute a slider 305 is displayed. The slider 305 (or alternatively other rating devices such as a star rating) may be used. Via the interface device 101 the user then rates any one of the attributes, step 207, indicating which is of importance to the user. These rating are then used to select similar items, or refine the initial selection taking into account the ratings and therefore, taking into consideration those attributes that are of more importance to the user, step 209. The ratings may be used to update the user's profile, step 211. If a rating is not known for a particular attribute then a default value may be used.

In an alternative embodiment, in figure 4, content assets may be retrieved from the storage means 103 and displayed on the display means 105 as shown for example in figure 4, Each content item may be displayed to show a representative image 401 of the asset. Details of the asset, such as title 403, price 405 etc. A synopsis 409 of the asset and selected attributes 411 may be displayed. The attributes may include a list of actors, the genre, format etc. The attributes are displayed with a corresponding slider 413 (or the like) indicating the rating, which may correspond to a setting retrieved from a user profile, and which may be adjusted by the user as required.

In a specific example, with reference to Figure 3, the user uses a search engine such as Google to carry out a video search. The user starts from the usual text entry 301 looking for "documentary programs" related to "earth".

A list 303 of a first selection is shown below. For each item, an attribute, for example, "HD material only", or a particular source, e.g. "YouTube" is highlighted. These are highlighted and a rating can be provided so that the user can indicate the importance of any one attribute to provide preference input related to search results in order to improve the relevancy performance of the listed items. For example, the attributes may include any one of the search terms and the user can indicate how important they are for the selection of items. The attributes, in this specific example, may include the preference on the media source of the selected item (video). Other attributes may be implied from ontologies, e.g. that if a search is performed for the term "documentaries" then for the attribute media source "BBC" is a relevant value that should be displayed for rating.. The ratings can then be used to de-prioritize search terms in order to refine the search or select items that have similar attributes that are important to the user.

The user can now directly give feedback, specifying that "documentaries" and the "BBC" are important for him, but "YouTube" as a source isn't. In an embodiment, as

soon as one of the sliders 305 is adjusted a control button appears, e.g. marked with the text "Search Again" next to the display of the corresponding item. In this way it is very easy to quickly refine the search taking full advantage of the knowledge available in the search/recommendation engine, but without overloading the user with options.

As shown in Figure 4 and described above, a typical program detail view, presented when a user browses the VoD library of multi-service operator is shown as another specific example. In the left lower part 407 of the screen, a list of selected similar movies are shown to increase the probability of a sale.

In an embodiment, all relevant attributes 411 are directly shown on the details screen allowing the user to give feedback. Such feedback will instantly change the list of recommendations on the left lower part 407 of the screen, and also the corresponding ratings 413.

Although embodiments of the present invention have been illustrated in the accompanying drawings and described in the foregoing detailed description, it will be understood that the invention is not limited to the embodiments disclosed, but is capable of numerous modifications without departing from the scope of the invention as set out in the following claims.

As will be apparent to a person skilled in the art, the elements listed in the apparatus claims are meant to include any hardware (such as separate or integrated circuits or electronic elements) or software (such as programs or parts of programs) which reproduce in operation or are designed to reproduce a specified function, be it solely or in conjunction with other functions, be it in isolation or in co-operation with other elements. The invention can be implemented by means of hardware comprising several distinct elements, and by means of a suitably programmed computer. In the apparatus claim enumerating several means, several of these means can be embodied by one and the same item of hardware. 'Computer program product' is to be understood to mean any software product stored on a computer-readable medium, such as a floppy disk, downloadable via a network, such as the Internet, or marketable in any other manner. In the claims, any reference signs placed between parentheses shall not be construed as limiting the claim. The word "comprising" does not exclude the presence of elements or steps other than those listed in a claim. The word "a" or "an" preceding an element does not exclude the presence of a plurality of such elements. The mere fact that certain measures are recited in mutually different dependent claims does not indicate that a combination of these measures cannot be used to advantage.

CLAIMS:

1. A method for selecting at least one item, the method comprising the steps of:

selecting (201) at least one first item, each of said selected at least one first item having a plurality of attributes associated therewith, each of said associated attributes having a rating, the rating indicating the importance of the attribute to the user;

displaying (205) each of said selected at least one first item and its associated attributes and corresponding ratings;

allowing (207) adjustment of the ratings of any one of the displayed associated attributes;

selecting (209) at least one item similar to one of said selected at least one first item based on said rating of at least one of the displayed attributes.

2. A method according to claim 1, wherein the method further comprising the step of:

determining the rating of each attribute associated with each selected at least one first item based on a user profile and/or based on adjustment of rating during display of said selected at least one first item.

3. A method according to claim 2, further comprising the step of:

updating the user profile based on adjustment of rating during display of said selected at least one first item; and

wherein the step of determining the rating of each attribute associated with each selected at least one first item comprises the step of:

determining the rating of each attribute associated with each selected at least one first item based on said updated user profile.

4. A method according to claim 1, wherein the step of displaying said selected at least one content item and its associated attributes and corresponding ratings comprises the steps of:

selecting (203) at least one of the associated attributes and corresponding rating; and

displaying (205) said selected at least one attribute and corresponding rating.

5. A method according to claim 4, wherein the step of selecting (203) at least one of the associated attributes and corresponding rating comprises the step of:

selecting the most relevant attribute.

6. A method according to claim 5, wherein the step of selecting the most relevant attribute comprises the step of:

selecting the most relevant attribute based on user preferences and/or a user profile.

7. A method according to claim 1, wherein the step of selecting (209) at least one item similar to said selected at least one first item based on said rating of at least of one of displayed attributes comprises the step of:

selecting at least one item having at least one attribute corresponding to an attribute of at least one of the selected at least one first item having a score of a rating above a predetermined threshold.

8. A computer program product comprising a plurality of program code portions for carrying out the method according to any one of the preceding claims.

9. Apparatus (100) for selecting at least one item, the apparatus (100) comprising:

a processor (100_5) for selecting at least one first item, each of said selected at least one first item having a plurality of attributes associated therewith, each of said associated attributes having a rating, the rating indicating the importance of the attribute to the user;

a controller (100_1) for controlling a display (105) for displaying each of said selected at least one first item and its associated attributes and corresponding ratings;

an interface (100_2) for communicating with a user interface device (101) for allowing adjustment of the ratings of any one of the displayed associated attributes;

said processor (100_5) selecting at least one item similar to one of said selected at least one first item based on said rating of at least one of the displayed attributes.

10. Apparatus according to claim 9 comprising an interface (100_2) for communicating with a storage device (107) for storing a user profile, the user profile determining the rating of each attribute associated with each selected at least one first item.

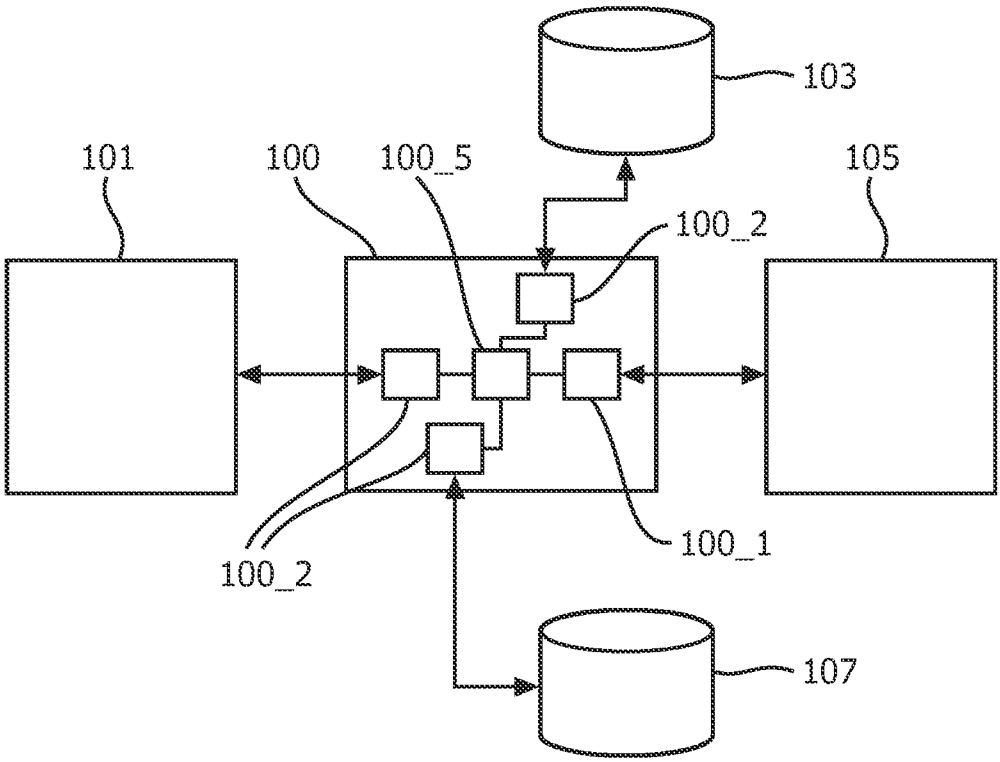


FIG. 1

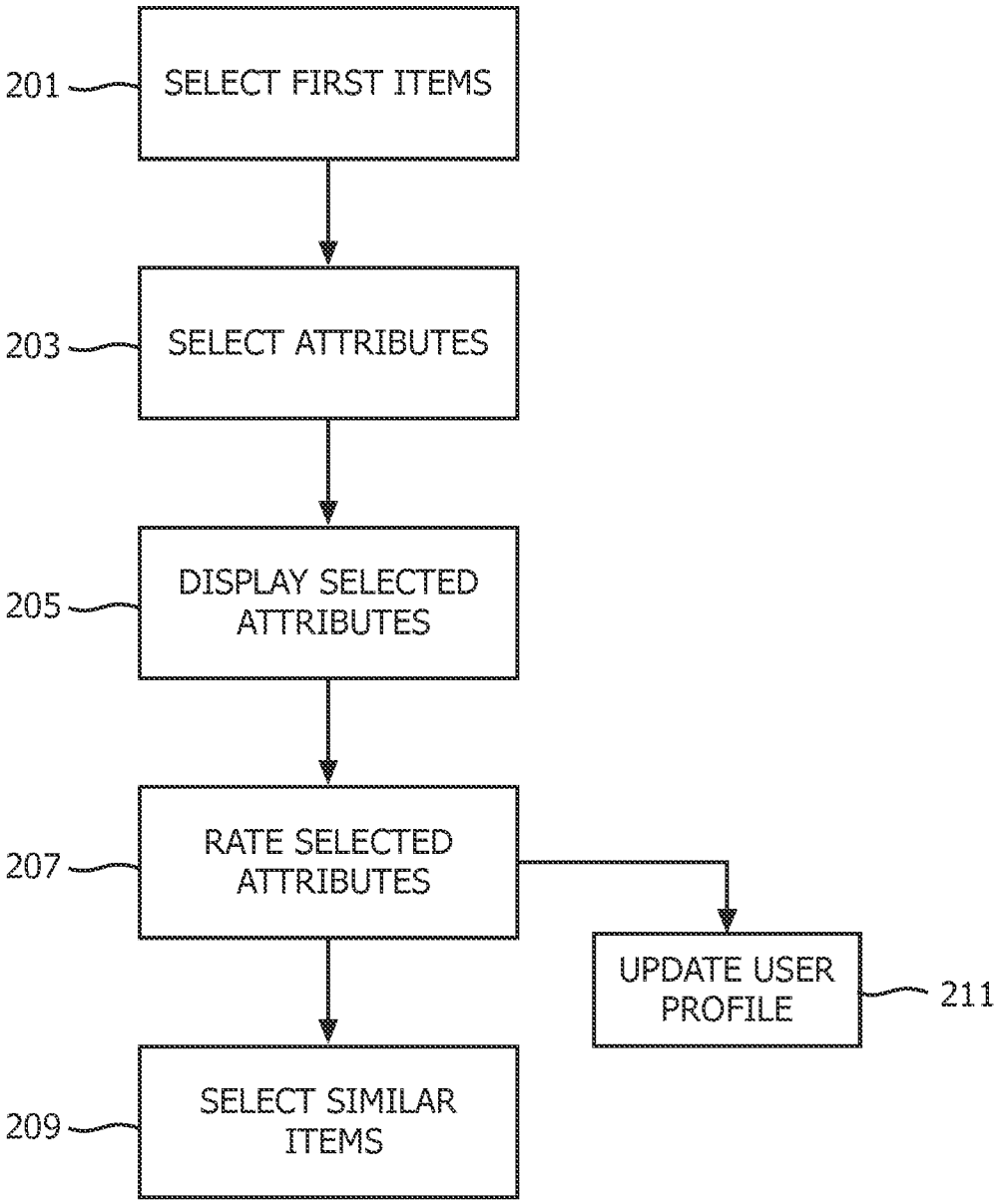

201
SELECT FIRST ITEMS
203
SELECT ATTRIBUTES
205
DISPLAY SELECTED ATTRIBUTES
207
RATE SELECTED ATTRIBUTES
UPDATE USER PROFILE
211
209
SELECT SIMILAR ITEMS

FIG. 2

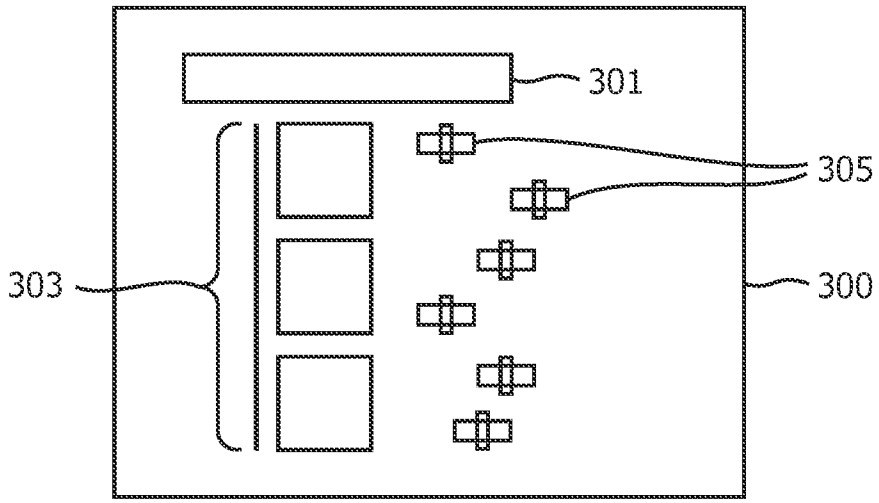


FIG. 3

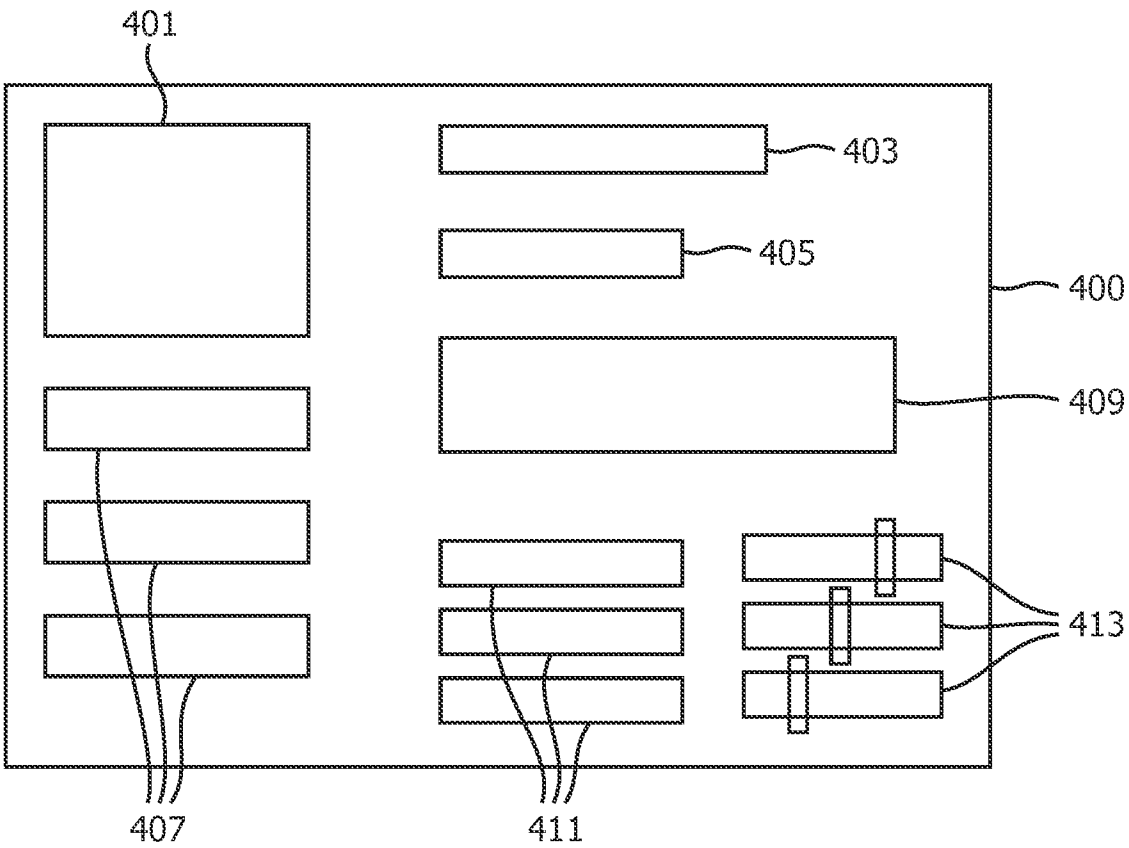


FIG. 4

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2011/053582

A. CLASSIFICATION OF SUBJECT MATTER
INV. G06F17/30 H04N21/482
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)
G06F 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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2007/022440 A1 (GUTTA SRINIVAS [US]) 25 January 2007 (2007-01-25) abstract figures 3,4 paragraphs [0001] - [0003] paragraphs [0006] - [0008] paragraphs [0029] - [0030] paragraph [0033] paragraphs [0035] - [0037] -----	1-10
A	US 2006/212900 A1 (ISMAIL LABEEB K [US] ET AL) 21 September 2006 (2006-09-21) abstract figure 7 figures 9a-9c paragraphs [0109] - [0114] paragraphs [0120] - [0123] -----	1-10

☐ 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
11 November 2011	28/11/2011

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	Naci, Suphi Umut

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/IB2011/053582

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2007022440 A1	25-01-2007	NONE	
US 2006212900 A1	21-09-2006	NONE	