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(54) Title: METHOD AND APPARATUS FOR DISPLAYING A PROGRESS INDICATOR FOR A CONTENT ITEM
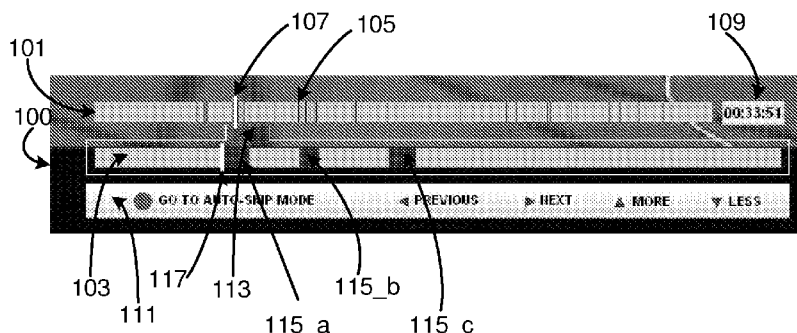
FIG. 1

(57) Abstract: A progress indicator for a content item is provided. The content item includes at least one highlight. A first progress bar (101) for a content item is displayed, the first progress bar (101) indicating the occurrence (105), without indicating the duration, of at least one highlight. A second progress bar (103) for a portion (113) of the first progress bar (101) is displayed, the second progress bar (103) indicating the occurrence and duration (115_a, 115_b, 115_c) of at least one highlight included within the portion (113) of the first progress bar (101).

Method and apparatus for displaying a progress indicator for a content item

FIELD OF THE INVENTION

The present invention relates to a method and apparatus for displaying a progress indicator for a content item.

5   BACKGROUND OF THE INVENTION

With the penetration of digital video into the consumer domain, many new and exciting applications are becoming possible. No longer are consumers limited to watch broadcasts and recordings from start to end. New and innovative features make it possible to watch video in a non-linear fashion: video-on-demand applications are gaining more and

10   more momentum, and video-sharing services like YouTube and Google Video already have become increasingly popular.

Moreover, the rise of digital video opens up a huge application area for content analysis techniques. Unfortunately, consumer-level recording devices such as Personal Video Recorders and Hard Disk Recorders have so far not seen many applications

15   in this domain. Although some basic applications such as commercial block detection are becoming available in hard disk recorders now, the opportunities for more advanced applications seem numerous.

One of such possible applications is highlight detection for sports. Sports programmes are very popular on television, and numerous broadcasts are available every day.

20   In fact, there are so many sports broadcasts that a modern user probably does not have enough time to watch all of them. Automatic detection of the highlights of sports games might therefore appeal to many consumers. Algorithms have been developed to detect the highlights in soccer games or tennis matches.

The highlights detected during sports events consist typically of a time

25   interval, defined by a start time (corresponding to the beginning of the play that leads to the highlighted event) and a duration (typically comprising the entire play, the highlighted event and some reaction of the players/audience/commentator to that event).

These highlights are very useful to provide navigation cues which allow the user to simply skip to the next important event and also in an auto-skip (summarization)

mode where the user is offered a short version of the match, comprising only the most exciting events: the highlights.

In order to provide visual feedback to the user of where, in time, the highlights are located, these can be displayed in a time/progress bar. The length of the progress bar corresponds to the total duration of the broadcast sports event (TV program or content item) from which the highlights have been taken. The occurrence and duration of the highlights is illustrated at appropriate locations along the progress bar. A marker is provided which moves along the progress bar to indicate the current position of playback of the content item or playback of the highlights. The user can use an input device to move the marker to navigate the content items or highlights such that the user uses the progress bar as a navigation tool to skip to the next highlight etc.

However, such a progress bar becomes very cluttered, as the number of highlights increases. Moreover, since the resolution of the screens is limited and the duration of each highlight is typically of the order of 0.1% of the length of an entire content item, the information about the length of the highlights is very hard to convey on the screen.
For example, the duration of a typical content item may be 2 hours and each highlight may have a duration of the order of 10s, making each highlight less than a single pixel wide.

This has been overcome by providing a zoom bar which represents only a portion of the entire content item, as disclosed, for example, by WO02/21530. However, if the user wishes to navigate through the entire content item, the progress bar is very cluttered, making navigation and selection of a particular highlight very difficult.

SUMMARY OF THE INVENTION

The present invention seeks to provide a progress indicator for a content item which is less cluttered and easier to navigate.

This is achieved according to a first aspect by a method for displaying a progress indicator for a content item, the content item including at least one highlight, the method comprising the steps of: displaying a first progress bar for a content item, the first progress bar indicating the occurrence, without indicating the duration, of at least one highlight; displaying a second progress bar for a portion of the first progress bar, the second progress bar indicating occurrence and duration of at least one highlight included within the portion of the first progress bar.

This is also achieved by a second aspect by apparatus for displayed a progress indicator for a content item, the content item including at least one highlight, the apparatus

comprising: a display for displaying a first progress bar for a content item, the first progress bar indicating the occurrence, without indicating the duration, of at least one highlight and displaying a second progress bar for a portion of the first progress bar, the second progress bar indicating the occurrence and duration of at least one highlight included within the

5   portion of the first progress bar.

Thus a visual feature is provided that allows the user not only to have a clearer view of the highlights surrounding the current playing time as the duration of the highlight is not shown, making the first progress bar less cluttered and providing the user with information of the duration of each highlight in a less cluttered view in a second progress bar.

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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:

Fig. 1 illustrates a part of a display according to an embodiment of the present

15   invention; and

Fig. 2 illustrates a simple schematic of apparatus according to an embodiment of the present invention.

DETAILED DESCRIPTION OF AN EMBODIMENT OF THE INVENTION

20   With reference to Figure 1, part of a display for playback of a recording of a content item such as a sporting event is illustrated. The display 100 comprises a first and second progress bar 101, 103 extending across the lower part of the display. The remainder of the display above the first and second progress bar 101, 103 shows the playback of a recording of a content item such as a sporting event. This portion of the display is not

25   illustrated in Figure 1. The content comprises a plurality of segments. Interesting segments are selected to form highlights.

The first progress bar comprises a marker 107 which moves from left to right as time progresses to indicate the current segment of the content being displayed in the remainder of the display above the first and second progress bar 101, 103. Occurrence of the

30   start of a plurality of highlights is indicated on the first progress bar by vertical bars, 105 having the same width. The time of the currently played segment (marker location) may also be displayed separately in a digital format, 109.

The second progress bar 103 is displayed below the first progress bar, extending from left to right and substantially the same length of the first progress bar. The

second progress bar displays a portion 113 of the first progress bar. As the second progress bar 103 represents only a portion of the first progress bar 101, The time span of the second progress bar 103 is of the order of minutes, while the full progress/highlight bar will represent the entire sequence (typically in the order of hours).

5   The portion 113 shown in the second progress bar 103 is centred approximately around the current playing time (location of the first marker 107).

The highlights within the portion 113 are displayed in the second progress bar. The highlights of the portion 113 are represented by vertical bars 115_a, 115_b, 115_c having variable widths. The widths of the vertical bars 115_a, 115_b, 115_c correspond to

10   the duration of the highlights.

The second progress bar 103 also comprises a second marker 117 which moves from left to right as time progresses to indicate the current segment of the content item being displayed in the remainder of the display above the first and second progress bar 101, 103.

15   The width of the vertical bars 115_a, 115_b, 115_c of the second progress bar 103 will be such that when the time interval corresponding to the highlight is considered to be finished, the second marker 117 will be represented at the right of the bar, outside the highlight segment.

When the time interval corresponding to the second progress bar 103 is

20   finished, the second progress bar 103 is refreshed for a corresponding next portion of the first progress bar 101 and prefixed with the end part of the previous portion, in order to give users enough time to process cognitive recognition.

The display 100 also comprises a user interface 111 extending across the display below the second progress bar. The user interface comprises a plurality of icons, such

25   as auto-skip mode; skip to previous, next so that the user can navigate through the content item as required. The user may, alternatively use an input device to slide the first marker 107 or the second marker 117 along the first progress bar 101 or the second progress bar 103 to the desired part of the content item.

Apparatus according to an embodiment of the present invention is shown in

30   Figure 2. The apparatus 200 comprises a user input device 207, such as a mouse, infra red pointer or touch-sensitive screen or the like. The input device 207 is connected to a display driver 203. The display driver 203 is connected to a display 201. The display driver is connected to a storage device 205. The apparatus 200 may be a digital video recorder or a network-connected Television, for example.

The storage device (205) stores a recording of a content item. The content item comprises a plurality of segments; at least one of segments has been selected as a highlight. Details of the occurrence and duration of each highlight is stored within the storage device 205. The display driver 203 retrieves the content item and its highlight data from the storage device 205 and plays it back on the display 201. The occurrence of the highlight and progress of the playback of the content item being displayed on the display 201 by the progress bars as shown in Figure 1 and described above.

The user can easily navigate the content item being played back by using the input device 207 as described above with reference to Figure 1.

Although an embodiment of the present invention has 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 embodiment disclosed, but is capable of numerous modifications without departing from the scope of the invention as set out in the following claims.

'Means', as will be apparent to a person skilled in the art, 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.

CLAIMS:

1.   A method for displaying a progress indicator for a content item, said content item including at least one highlight, the method comprising the steps of:

displaying a first progress bar (101) for a content item, said first progress bar (101) indicating the occurrence (105), without indicating the duration, of at least one highlight;

displaying a second progress bar (103) for a portion (113) of said first progress bar (101), said second progress bar (103) indicating the occurrence and duration (115_a, 115_b, 115_c) of at least one highlight included within said portion (113) of said first progress bar (101).

2.   A method according to claim 1, wherein said first and second progress bars (101, 103) are substantially the same length.

3.   A method according to claim 1, wherein the step of displaying a first progress bar (101) comprises the step of:

displaying a first progress bar (101) for a content item, said first progress bar (101) indicating the occurrence (105) of the start of at least one highlight.

4.   A method according to claim 1, wherein the method further comprises the steps of:

displaying a first marker (107) to indicate the current position with respect to said first progress bar (101); and

displaying a second marker (117) to indicate the current position with respect to said second progress bar (103).

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

playing back said content item during display of said first and second progress bars (101, 103).

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

7.   Apparatus (200) for displaying a progress indicator for a content item, said content item including at least one of highlight, the apparatus comprising:

a display (201) for displaying a first progress bar (101) for a content item, said first progress bar (101) indicating the occurrence (105), without indicating the duration, of at least one highlight and displaying a second progress bar (103) for a portion (113) of said first progress bar (101), said second progress bar (103) indicating the occurrence and duration (115_a, 115_b, 115_c) of at least one highlight included within said portion (113) of said first progress bar (101).

8.   Apparatus (200) according to claim 7, wherein said display (201) displays a first marker (107) to indicate the current position with respect to said first progress bar (101) and a second marker (117) to indicate the current position with respect to said second progress bar (103).

9.   Apparatus (200) according to claim 8, further comprising

input device (207) adapted to allow user input to move said first or second marker (107, 117).

10.   Apparatus (200) according to claim 8, further comprising

rendering means for playing back said content item, said rendering means including said display (201).
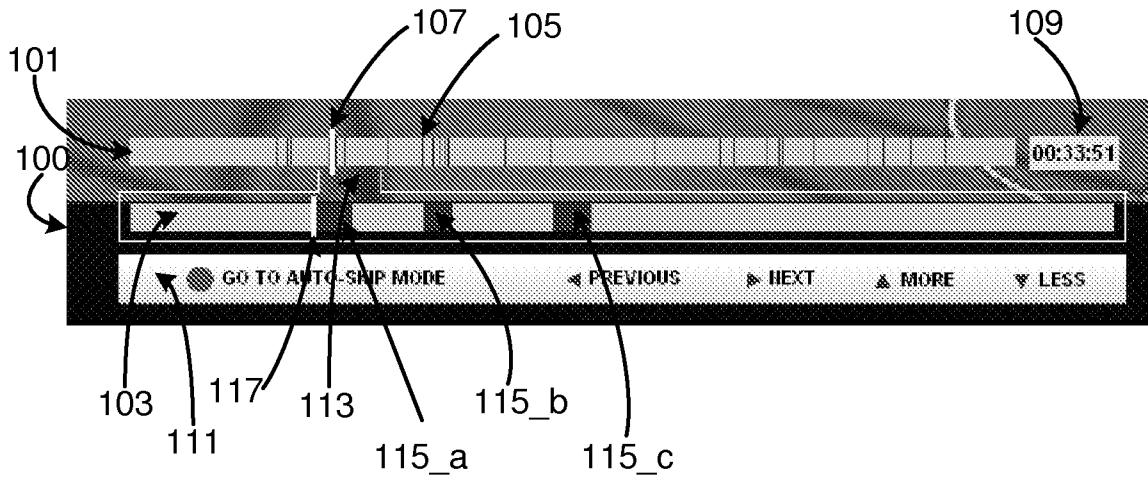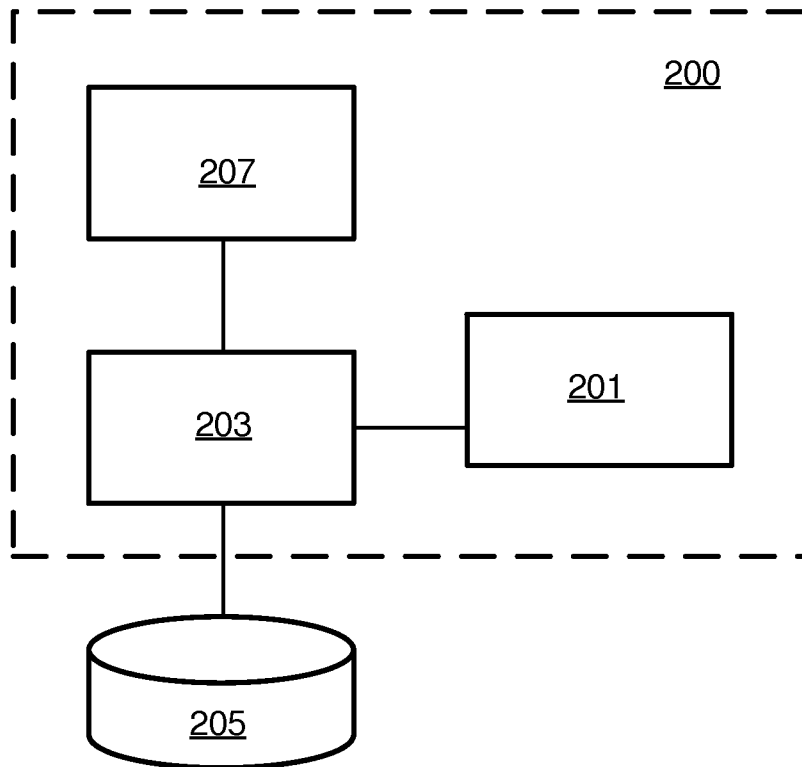
1/1

FIG. 1

FIG. 2

INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

INV. G11B27/34   G06F3/048
ADD. G11B27/28   G06F17/30   H04N5/14

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)

G11B   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, 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 2006/013556 A1 (POSLINSKI THOMAS [US]) 19 January 2006 (2006-01-19)	1-2,4-8, 10
Y	figures 18-20 paragraph [0152] paragraph [0153] – paragraph [0156]	3,9
Y	US 2002/012526 A1 (SAI KAIRI [JP] ET AL) 31 January 2002 (2002-01-31)	3
A	figures 4-14 paragraph [0016] paragraph [0058] – paragraph [0059]	1-2,4-10
Y	US 2007/198111 A1 (OETZEL KENNETH [US] ET AL) 23 August 2007 (2007-08-23)	9
A	figures 10,11 paragraph [0094] – paragraph [0111] paragraph [0220]	1-8,10

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[X] Further documents are listed in the continuation of Box C.   [X] 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
9 December 2009	28/12/2009

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 02/21530 A1 (KONINKL PHILIPS ELECTRONICS NV [NL]; BARBIERI MAURO [NL]; NESVADBA JAN) 14 March 2002 (2002-03-14) cited in the application abstract; figure 5 page 2, line 15 - line 24 page 8, line 20 - page 9, line 5 page 13, line 6 - line 9 page 14, line 14 - line 23	1-10

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