

TITLE

Providing information while rendering content

5 FIELD OF THE INVENTION

Embodiments of the present invention relate to providing information while rendering content. In particular, they relate to an apparatus, a method, a graphical user interface and a computer program for providing information while rendering content.

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BACKGROUND TO THE INVENTION

Applications that render content, such as for example, music players, video players etc may stand alone within an apparatus and not be integrated with other aspects of the apparatus.

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BRIEF DESCRIPTION OF THE INVENTION

According to one embodiment of the invention there is provided a method comprising: rendering content while displaying at least a first screen; detecting that the rendered content is linked to data; and interrupting the first screen to display an additional screen that is dependent upon the linked data.

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According to another embodiment of the invention there is provided a computer program comprising computer program instructions for: detecting that content being rendered is linked to data; interrupting a first screen for display, while the content is being rendered, to display an additional screen that is dependent upon the linked data.

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According to another embodiment of the invention there is provided a graphical user interface comprising: a first screen for display while content is being rendered; and an additional screen that is dependent upon data linked to content being rendered for interrupting the first screen.

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According to another embodiment of the invention there is provided an apparatus comprising: an output device for rendering content; a display for presenting at least a first screen while content is being rendered; a processor arranged to detect that the content being rendered is linked to data and arranged to control the display to
5 interrupt the first screen to display an additional screen that is dependent upon the linked data.

According to another embodiment of the invention there is provided a method comprising: rendering content using content data; obtaining first information from the
10 content data; and using the first information to access data linked to the first information.

According to another embodiment of the invention there is provided an apparatus comprising: an output device for rendering content defined by content data; a
15 processor arranged to obtain first information from the content data and, using the first information, to access data linked to the first information.

According to another embodiment of the invention there is provided a computer program comprising computer program instructions for: obtaining first information
20 from the content data; and using the first information to access data linked to the first information.

BRIEF DESCRIPTION OF THE DRAWINGS

25 For a better understanding of the present invention reference will now be made by way of example only to the accompanying drawings in which:

Fig 1 schematically illustrates an apparatus for rendering content;

Figs 2A and 2B schematically illustrate alternative methods for interrupting a rendering screen with a data screen;

30 Fig 3 schematically illustrates a graphical user interface (GUI) for a music player embodiment;

Figs 4A illustrates a graphical user interface for user creation of a link between a content item and a data structure;

35 Figs 4B illustrates a method for explicitly defining a link between a content item and a data structure;

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Fig 5 schematically illustrates a database for storing links between content items and data structures.

DETAILED DESCRIPTION OF EMBODIMENTS OF THE INVENTION

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Fig. 1 schematically illustrates an apparatus 10 comprising: an output device 16 for rendering content 4 1; a display 18 for presenting at least a first rendering screen 42 while content 4 1 is being rendered; a processor 2 arranged to detect 34 (Figs 2A, 2B) that the content 4 1 being rendered is linked to data and arranged to control the display 18 to interrupt the first rendering screen 42 to display an additional screen 44 that is dependent upon the linked data 48.

The apparatus 10 may operate as, for example, a music player, a gaming device, a video player, a computer device such as a personal digital assistant or portable computer, a mobile cellular telephone, a home entertainment system or any other electronic device or system that is capable of rendering content.

The apparatus 10 comprises: processing circuitry 2; a user input interface 4; a user output interface 16; an input/output interface 6; and a memory 12.

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The processing circuitry 2 is connected to read from and write to the memory 12, to provide commands to the user output interface 16, to receive commands from the user input interface 4 and to receive data from and, possibly, send data to the input/output interface 6.

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The processing circuitry 2 may in one implementation be provided by one or more processors 2 such as microprocessors. In other implementations the processing circuitry 2 may be provided by dedicated circuitry such as, for example, application specific integrated circuits (ASICs) or field programmable gate arrays (FPGA).

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The user input interface 4 enables a user to control the apparatus 10 by for example touch and/or audio. Touch control may be provided via a keypad, joystick, touch screen display or similar. Audio control may be provided via a combination of microphone and speech recognition software.

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The input/output interface 6 enables the apparatus 10 to receive data 8, such as content items 17. The input/output interface may be, for example, a device for reading a record medium such as cd-rom, secure digital card or similar or a network adapter for connecting to a network e.g. the Internet or a private network or a cellular radio transceiver for communicating in a cellular telecommunications network.

The user output interface 16 enables information to be presented to a user. It includes a display 18 for rendering visual content and, in this example, an audio output device 20 for rendering audio content. The display 18 may be any suitable display such as, for example, a liquid crystal display or thin film transistor display. The audio output device 20 may, for example, include one or more loudspeakers and/or a jack for headphones.

The memory 12 may be a single memory device (monolithic structure) or comprise multiple memory devices. If the memory 12 comprises multiple memory devices, some or all of the memory devices may be local that is housed in the apparatus. If the memory 12 comprises multiple memory devices, one or more of the memory devices may be remote that is housed externally to the apparatus for example in an external memory device or a remote server.

The memory 12 stores a library of content items 17, data 19 including data structures 48 that are linked to content items, a computer program 14 and, possibly, a database 15 for recording the links between content items 17 and data structures 48.

A content item 17 is a data structure that may be processed by the processor 2 to produce content 41 rendered via the user output interface 16. The content item 17 may be used from storage in the memory 12 or used as streaming data received via the input/output interface 6 without being permanently stored in the memory 12.

For example, a content item may be a broadcast radio programme, an MP3 file, an image, a video, a message, a calendar note, a web-page etc.

Content 41 may comprise primary content 41C and secondary, metadata content 41A, 41B.

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In the example of a MP3 music file, the content is multimedia. The primary content 41C is a music track 41C rendered via the audio output device 20. The secondary metadata content is information about the music track such as the artist name 41A and the music track title 41B that is rendered as text via the display 18. The MP3
5 format enables the inclusion of metadata such as artist name, title track and genre via ID3.

In the example of a broadcast radio programme, the content is multimedia. The primary content 41C is an audio track rendered via the audio output device 20. The
10 secondary metadata content 41A, 41B is information provided via the radio data system (RDS) radio text (RT) that is rendered as text via the display 18. This may include the name of the radio programme or the title of a music track that is being played.

15 The data 19 includes separate data structures 48. At least some of these data structures 48 are application data used by applications other than that used to render the content 41 and may not be capable of being rendered by that content rendering application. For example, some of the data structures 48 may comprise user data
20 such as images and text whereas the rendering application may be a music player application. The user data may include data structures that are associated with specific persons such as personal contacts information (address book) which may have separate contact cards associated with different persons, personal messages (Inbox, Outbox) which includes messages received from or sent to specific persons, personal calendar items which include appointments with specific persons, and a
25 personal communication log which includes a record of communications such as telephone calls made to and received from specific persons.

The user data structures may include addresses for communication. A contact card from an address book typically includes a number of addresses for communication
30 such as telephone numbers, email addresses, street addresses. Messages typically include an address for communication such as a mobile telephone number for an SMS or MMS or an email address for an email. A communications log typically includes addresses for communication such as mobile telephone numbers.

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The computer program 14 comprises computer program instructions that control the operation of the apparatus 10 when loaded into the processor 2. The computer program instructions 14 provide the logic and routines that enables the electronic device to perform the methods illustrated in Figs 2A, 2B and 4B and the graphical user interfaces illustrated in Figs 3 and 4A.

The computer program instructions may arrive at the apparatus 10 via an electromagnetic carrier signal or be copied from a physical entity 22 such as a computer program product, a memory device or a record medium such as a CD-ROM or DVD.

The database 15 (Fig 5) is used to store links 70 between content items 17 and data structures 48. A link 70 may be created by a user (Fig 4A) and then stored in the database 15. Alternatively, a link 70 may be created automatically after the linked data structure is discovered by searching the data 19 using a portion of the content 41 (Fig 4B).

Referring to Fig 4A, a user is able to create a link 70 as a predetermined user specified relationship between a content item and a user selected data structure.

A music application is being used to play a music track 41C via the audio output device 20 while simultaneously presenting the artist name 41A and track title 41B within a rendering screen 42 on the display 18. The rendering screen 42 includes a user selectable button 51 labelled 'Options'. When this is selected, an options menu screen 53 is displayed. The options menu includes an entry 50 labelled 'link to contact'. In other embodiments a more generic 'create link' option may be provided with a sub-menu of possible data structure types e.g. contact cards, messages, etc

If the user selects the entry 50 a list screen 52 provides a list of contact names from which the user is able to select a contact entry 55.

Selecting a contact entry creates a link 70 between the content item being played (the music track 'Not that kind' by Anastacia) and the contact card 48 for the selected contact name (Anne Adams). The link is stored in the database 15 as an association between an identifier of the content item 17 (the music track 'Not that kind' by

Anastacia) such as the MP3 file name or memory address and an identifier of the linked data structure (contact card for Anne Adams) such as an identification of the application 'contacts'.

5 Fig 4B schematically illustrates a method 60 for automatically or semi-automatically defining a link between a content item 17 and a data structure 48. The method 60 includes a series of blocks which may represent steps in a method and/or sections of code in the computer program 14.

10 At block 61 the content item 17 is parsed. Typically, the textual metadata 41A, 41B is parsed. Parsing divides the metadata into separate information structures.

At block 62 a particular information structure is identified as a search key. The identification may occur automatically e.g. the same information structure is always
15 used or a user may be invited to make a selection.

At block 64, the data 19 is searched using the search key and one or more data structures are discovered.

20 At block 64, the content item 17 is explicitly linked 70 to one or ore of the discovered data structures. The selection of the discovered data structures to which a link is defined may be automatic or may involve user selection.

It should be appreciated that a link may be implicit (undiscovered) or explicit
25 (explicitly defined). For example, there is an implicit link between a content item that includes as metadata a search key shared with a data structure even if that fact is unknown. Once the relationship is known, the link becomes explicit. The database 15 stores explicit links 70.

30 Once an explicit link 70 is discovered it may be used and/or stored in database 15.

For example, the method 60 may be performed contemporaneously with rendering and the resultant link to a data structure 48 may be immediately used to temporarily interrupt the rendering screen 42 with a data screen 44 dependent upon the linked
35 data structure 48. The interruption will occur after the rendering screen 42 has been

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displayed for a period of time because the contemporaneous processing takes time (Fig 2B).

5 For example, the method 60 may be performed prior to rendering content such as when the content item is initially stored in the memory 12. The resultant link 70 to a data structure 48 may be stored in database 15 and subsequently used to temporarily interrupt the rendering screen 42 with a data screen 44 dependent upon the linked data structure. The interrupt will occur immediately perhaps without the rendering screen 42 having been displayed (Fig 2A) or only very briefly displayed
10 (Fig 2B).

Figs 2A and 2B schematically illustrate a method 30A, 30B comprising: rendering content while displaying at least a first screen (block 33, 37); detecting that the rendered content is linked to data (block 34); interrupting the first screen to display an
15 additional screen that is dependent upon the linked data (block 35).

The method 30 includes a series of blocks which may represent steps in a method and/or sections of code in the computer program 14. Reference will be made without loss of generality to Fig 3 in which the content item is a music track.
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Fig 3 schematically illustrates a graphical user interface 40 comprising: a first rendering screen 42 for display while content 41 is being rendered; and an additional screen 44 that is dependent upon a data structure 48 linked to content 41 being rendered that is for interrupting the first screen 42.
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At block 32, there is an initiation of rendering a content item 17 comprising content components 41.

At block 33 (not present in Fig 2A), the primary content 41C is rendered and a
30 rendering screen 42 is displayed. The rendering screen 42 includes rendered metadata content 41A, 41B. In the music track example, the rendered metadata includes text 41A identifying the artist of the music track being rendered via the audio output device 20 and includes text 41B identifying the title of the music track being rendered via the audio output device 20
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At block 34, a link between the rendered content item 17 and a data structure 48 is detected. An implicit link may be contemporaneously detected as an explicit link or alternatively an explicit link may be detected in the database 15.

5 At block 35, the rendering screen 42 is interrupted by the display of an additional data screen 44. In this example, the additional data screen replaces the rendering screen. However different forms of interruption may be used. For example, the additional data screen 44 may only partly overlie the rendering screen, for example it may be a pop-up screen, or the rendering screen may be re-sized and/or re-
10 positioned to enable the rendering screen 42 and the additional data screen to be simultaneously displayed without overlap. The additional screen 44 may have a solid background so that it obscures the rendering screen if it overlies the rendering screen or could have a transparent background such that it appears to overwrite the rendering screen if it overlies the rendering screen.

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The additional data screen 44 in the example of Fig 3 does not, in this example, comprise the linked data structure 48 but provides a user selectable path 47 to the linked data structure. If the user selects this path the linked data structure 48 is displayed and a user selectable option 43 may be provided to use the data structure
20 48. In the example of Fig 3, the user selectable option 43 is to communicate (send a message) using a telephone number included in the linked data structure (a contact card) 48.

If multiple data structures were linked to the rendered content item 17 then a menu
25 of multiple separately selectable paths, each of which leads to a linked data structure, could be displayed.

In other implementations, the additional data screen 44 may comprise the linked data structure 48.

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The data screen 44 is, in this implementation, only displayed for a predetermined timeout period which is tested at block 36. If the user does not select the path 47 to the linked data structure 48 or select an option 49 to return to the rendering screen 42 then, after the timeout period, the data screen is no longer displayed and the
35 original rendering screen 42 is displayed at block 37.

It will therefore be appreciated that the rendering screen 42 is only temporarily interrupted.

- 5 An number of example uses cases will now be given which should not be considered to limit the generality of the invention:

10 Music may be linked with a data structure such as a contact card. The music is rendered while displaying at least a first screen. This screen is interrupted, while the music is rendered, to display an additional contact screen that is dependent upon the linked contact card.

15 Music may be linked with a data structure such as a contact card. An option to play the linked music may be presented in a an interrupt screen while the contact card is displayed.

20 Music may be linked with a data structure such as a call log because it is the same music used as a ring tone. The music is rendered while displaying at least a first screen. This screen is interrupted, while the music is rendered, to display an additional call log screen that is dependent upon the linked call log.

25 Music may be linked with a data structure such as a calendar note. The link may be made manually or alternatively automatically because the alarm tone for that calendar reminder is the same as a music track being played. The music is rendered while displaying at least a first screen. This screen is interrupted, while the music is rendered, to display an additional calendar note screen that is dependent upon the linked calendar log.

30 Music may be linked with a data structure such as an image. The music is rendered while displaying at least a first screen and this first screen is interrupted, while the music is rendered, to display an additional screen that is dependent upon the linked image. For example a thumbnail image may be displayed.

5 Music may be linked with a data structure such as an image. The image is rendered in a first screen and this first screen is interrupted to display an additional screen that is dependent upon the linked music. For example, an option to play the linked music may be presented or the music may be played automatically and an option to stop or control the playing of the music may be presented.

10 An internet bookmark/web-page may be linked with a data structure such as a music track. The web-page is rendered while displaying at least a first browser screen and this first screen is interrupted to display an additional screen that is dependent upon the linked music. For example, an option to play the linked music may be presented or the music may be played automatically and an option to stop or control the playing of the music may be presented.

15 Music may be linked with a data structure such as an internet bookmark/web-page. The music is rendered while displaying at least a first screen and this first screen is interrupted to display an additional screen that is dependent upon the linked bookmark/web-page. For example, an option to view the web-page may be presented.

20 Although embodiments of the present invention have been described in the preceding paragraphs with reference to various examples, it should be appreciated that modifications to the examples given can be made without departing from the scope of the invention as claimed.

25 Whilst endeavoring in the foregoing specification to draw attention to those features of the invention believed to be of particular importance it should be understood that the Applicant claims protection in respect of any patentable feature or combination of features hereinbefore referred to and/or shown in the drawings whether or not particular emphasis has been placed thereon.

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I/we claim:

CLAIMS

1. A method comprising:
rendering content while displaying at least a first screen;
5 detecting that the rendered content is linked to data; and
interrupting the first screen to display an additional screen that is dependent upon the
linked data.
- 10 2. A method as claimed in claim 1, wherein interruption of the first screen is
temporary.
3. A method as claimed in any preceding claim, wherein the additional screen
enables access to the linked data.
- 15 4. A method as claimed in any preceding claim, wherein the additional screen
enables performance of a function using the linked data.
5. A method as claimed in claim 4, wherein the function is telecommunication.
- 20 6. A method as claimed in any preceding claim, wherein the linked data is user data.
7. A method as claimed in any preceding claim, wherein the linked data is a data
structure associated with a person.
- 25 8. A method as claimed in any preceding claim, wherein the linked data comprises
data for communication.
9. A method as claimed in any preceding claim, wherein the link between the
rendered content and the linked data is a predetermined relationship.
- 30 10. A method as claimed in claim 9, wherein the predetermined relationship is a user
specified relationship.

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11. A method as claimed in any one of claims 1 to 8, wherein the link between the content and the data is a relationship determined contemporaneously with the rendering of the content.

5 12. A method as claimed in claim 11, wherein the link is determined automatically.

13. A method as claimed in any preceding claim, further comprising:

parsing content to extract an information structure;

searching data to identify data structures that include the information structure; and

10 defining a link between a data structure that contains the information structure and the content from which the information structure is extracted.

14. A method as claimed in any preceding claim, wherein the content includes primary content and metadata for primary content.

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15. A method as claimed in any preceding claim, wherein the metadata comprises text.

16. A method as claimed in any preceding claim, wherein the first screen includes rendered content.

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17. An apparatus comprising:

an output device for rendering content;

a display for presenting at least a first screen while content is being rendered; and

25 a processor arranged to detect that the content being rendered is linked to data and arranged to control the display to interrupt the first screen to display an additional screen that is dependent upon the linked data.

18. An apparatus as claimed in claim 17, wherein interruption of the first screen is temporary.

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19. An apparatus as claimed in any one of claims 17 to 18, wherein the additional screen enables access to the linked data.

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20. An apparatus as claimed in any one of claims 17 to 19, wherein the additional screen enables performance of a function using the linked data.

21. An apparatus as claimed in claim 20, wherein the function is telecommunication.

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22. An apparatus as claimed in any one of claims 17 to 21, wherein the linked data is user data.

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23. An apparatus as claimed in any one of claims 17 to 22, wherein the linked data is a data structure associated with a person.

24. An apparatus as claimed in any one of claims 17 to 23, wherein the linked data comprises data for communication.

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25. An apparatus as claimed in any one of claims 17 to 24, wherein the link between content and data is a user specified relationship.

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26. An apparatus as claimed in any one of claims 17 to 25, wherein the processor is arranged to determine a link relationship between content and data while enabling rendering the content.

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27. A computer program comprising computer program instructions for:
detecting that content being rendered is linked to data; and
interrupting a first screen for display while the content is being rendered to display an additional screen that is dependent upon the linked data.

28. A computer program comprising program instructions for causing a computer to perform the method of any one of claims 1 to 16.

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29. A physical entity embodying the computer program as claimed in claim 27 or 28.

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30. A graphical user interface comprising:
a first screen for display while content is being rendered; and
an additional screen that is dependent upon data linked to content being rendered for interrupting the first screen.

31. A method comprising:

rendering content using content data;

obtaining first information from the content data; and

5 using the first information to access data linked to the first information

32. An apparatus comprising:

an output device for rendering content defined by content data

a processor arranged to obtain first information from the content data; and,

10 using the first information, to access data linked to the first information.

33. A computer program comprising computer program instructions for:

obtaining first information from the content data; and

using the first information to access data linked to the first information.

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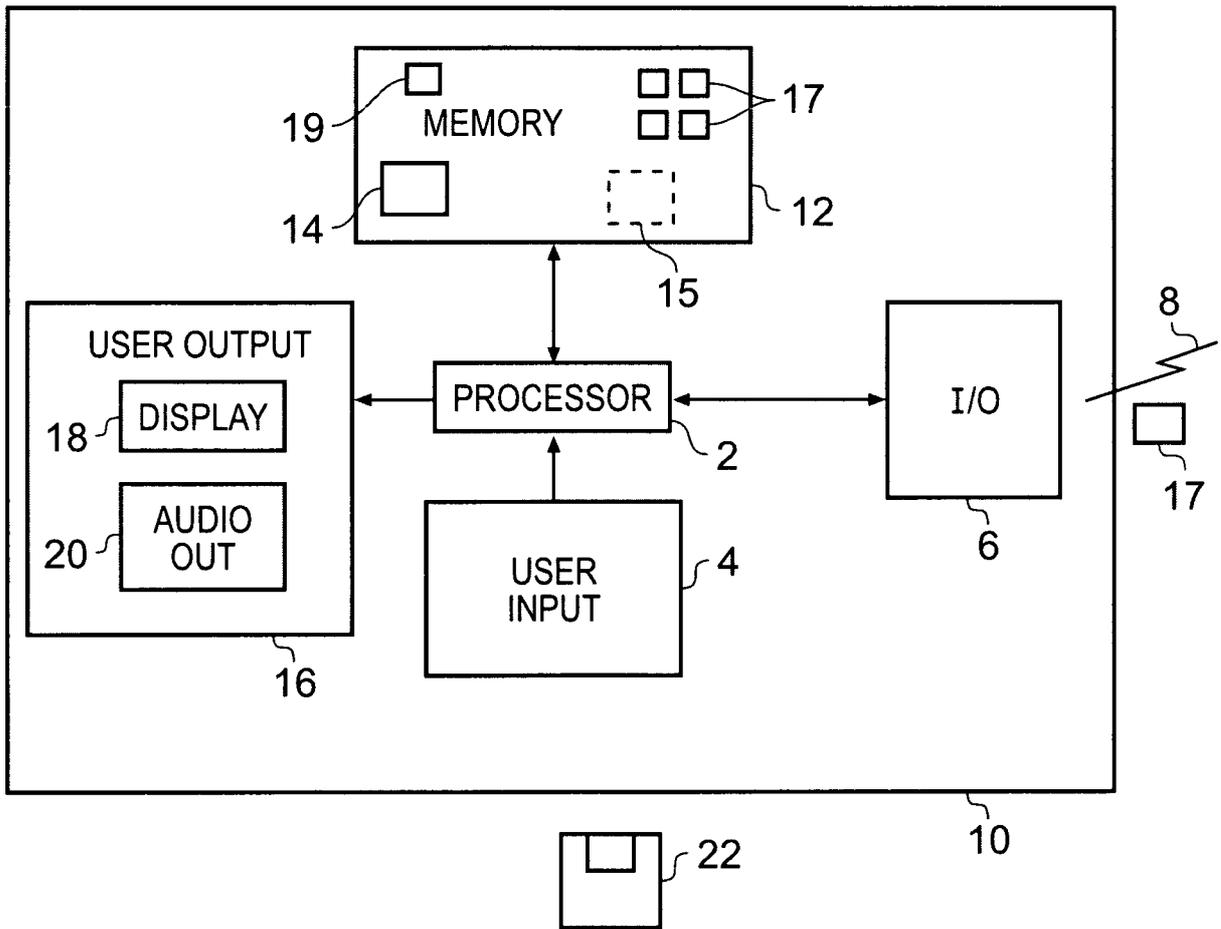


Fig. 1

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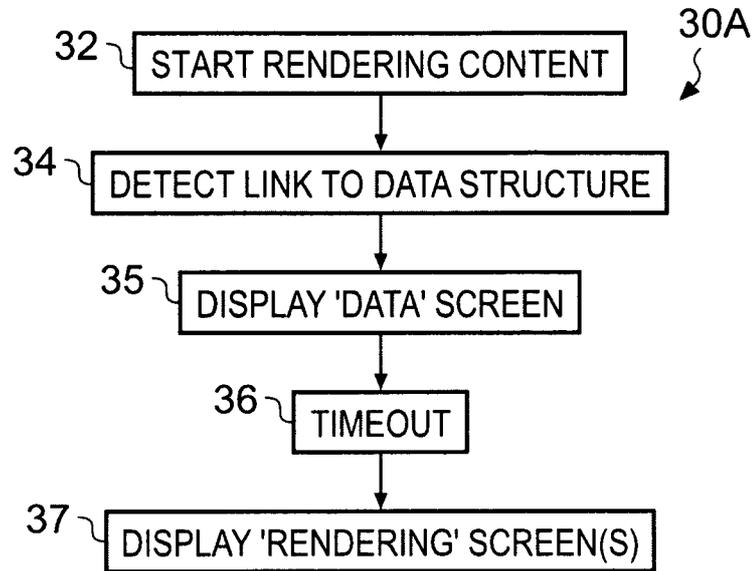


Fig. 2A

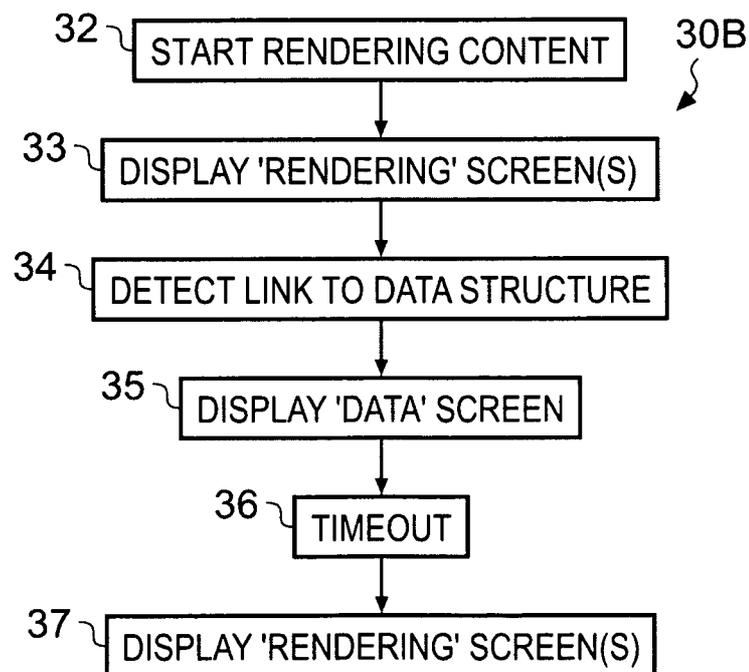


Fig. 2B

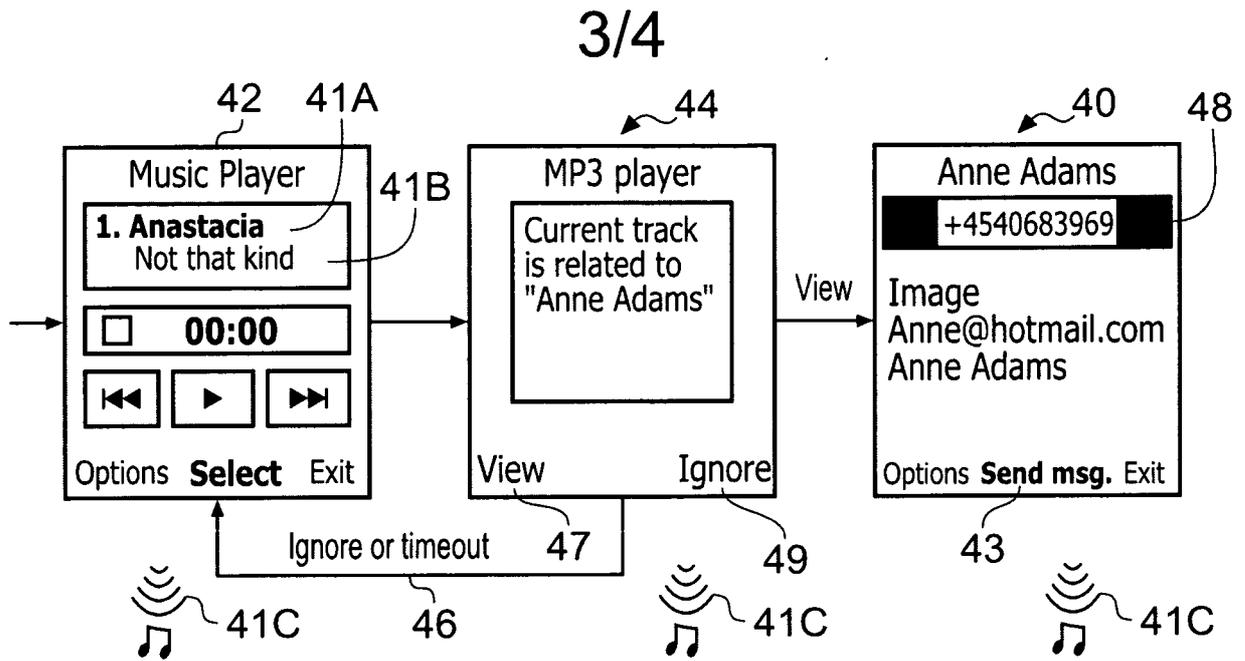


Fig. 3

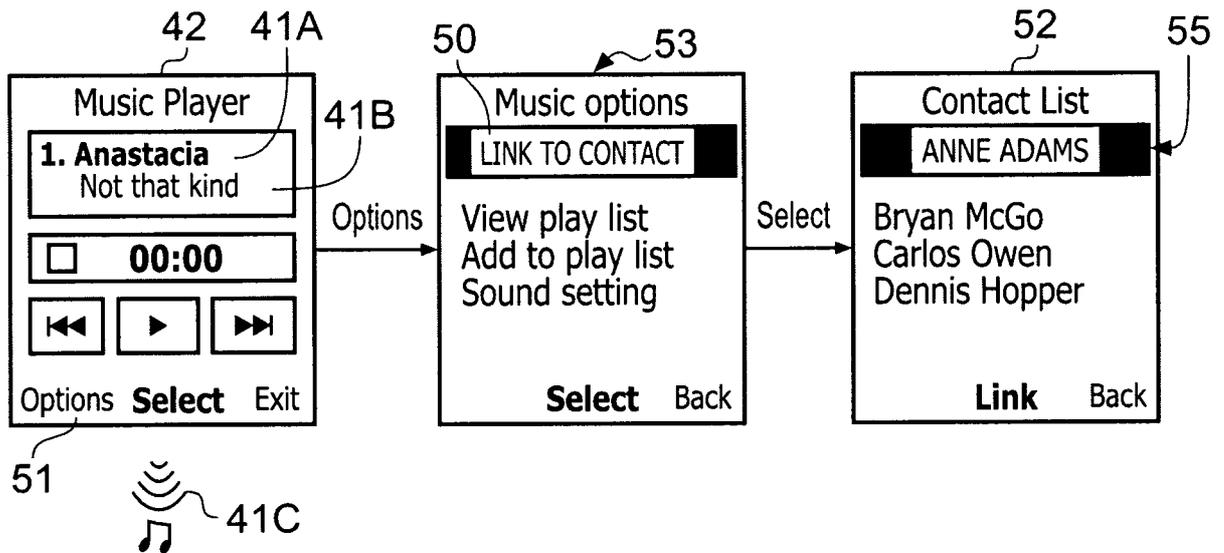


Fig. 4A

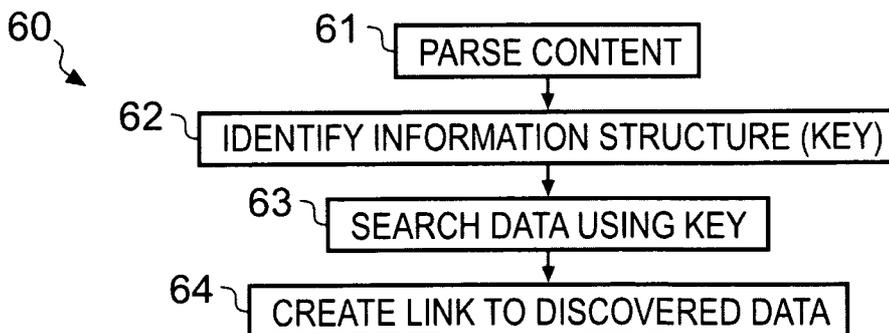


Fig. 4B

CONTENT IDENTIFIER	DATA STRUCTURE IDENTIFIER
C_A	D_3
C_D	D_104
C_F	D_71
⋮	⋮

15
 ↙
 70₁
 ↙
 70₂
 ↙
 70₃

17 ↗
 ↗ 48

Fig. 5

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2007/009553

A. CLASSIFICATION OF SUBJECT MATTER
 INV. H04N7/24 G06F17/30

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 G06F

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
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Y	WO 02/058399 A (THOMSON LICENSING SA [FR]; ADOLPH DIRK [DE]; CHEVTSOV ANDREI [DE]; DRE) 25 July 2002 (2002-07-25) the whole document -----	1-33
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Y	WO 98/17064 A (GEMSTAR DEV CORP [US]; MACRAE DOUGLAS B [US]; YUEN HENRY C [US]; MANKO) 23 April 1998 (1998-04-23) the whole document ----- -/--	1-33

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.
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Date of the actual completion of the international search

3 April 2008

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INTERNATIONAL SEARCH REPORT

International application No PCT/EP2007/009553

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>LEPLEY K: "WEBTV NETWORKS INTRODUCES REVOLUTIONARY NEXT-GENERATION SYSTEM" INTERNET CITATION, [Online] 16 September 1997 (1997-09-16), XP002101851 Retrieved from the Internet: URL :http://webtv.net/company/media_center/webtvplus.html> [retrieved on 1999-04-29] the whole document</p> <p style="text-align: center;">-----</p>	1-33

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2007/009553

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