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(71) Applicant (for all designated States except US): **GENERAL INSTRUMENT CORPORATION** [US/US]; 101 Tournament Drive, Horsham, Pennsylvania 19044 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **SUVOROV, Denis Sergeyevich** [RU/RU]; Rikharda Zorge 4/2-188, St.Petersburg, 198328 (RU). **SPIRINA, Irina Valentinovna** [RU/RU]; 139, 19-3, Utchitelskaya Str., St.Petersburg, 195269 (RU). **KORCHAZHINSKIY, Anton Sergeyevich** [RU/RU]; Komendantsky av. 13/1-700, St. Petersburg, 197371 (RU).(74) Agent: **LAW FIRM "GORODISKY & PARTNERS" LTD.**; MITS Alexander Vladimirovich, B. Spasskaya str., 25, stroenie 3, Moscow, 129090 (RU).

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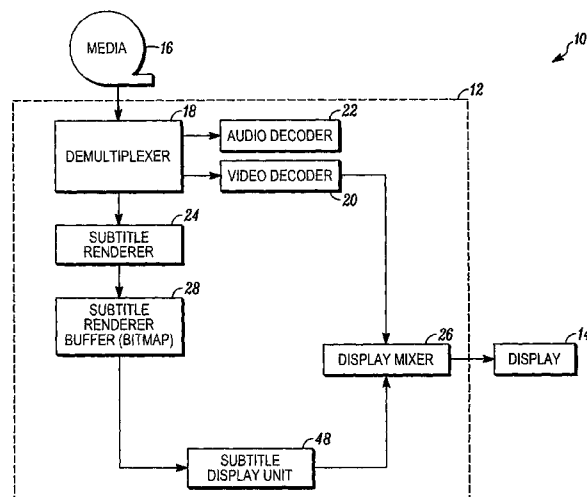


FIG. 1

(57) Abstract: Methods and apparatus for processing and displaying caption information associated with a video program are provided. The caption information is extracted from a video signal and different captions are rendered in sequence for different segments of the video program. A plurality of the different captions is blended in a form for simultaneous display superimposed on video images during one of the different segments of the video program. The different captions may be the latest caption corresponding to the current segment of video and a previous caption corresponding to a previous video segment. These different captions can be displayed such that they overlies each other and such that their opacity is different. In this manner, a viewer is able to have a prolonged period of time to read captions and can readily distinguish the current caption from the previous caption.

METHOD AND APPARATUS FOR PROCESSING AND DISPLAYING MULTIPLE CAPTIONS SUPERIMPOSED ON VIDEO IMAGES

FIELD

[0001] Displaying subtitles, closed captions, or other text or content superimposed on video images in a predetermined sequence during playing of an audiovisual program or media file is described and, more particularly, the manner in which the subtitling, closed captioning, or other text or content is processed and displayed is described.

BACKGROUND

[0002] Closed captions and/or subtitles are captions, typically in text form, that are contained in a video signal such as a video signal of a television program, movie, media file, or other audiovisual program. For example, text corresponding to dialogue, sound effects, and the like of an audiovisual program are transmitted with the video and audio information from a broadcaster or like content provider. Recovery of closed captions and subtitles for display along with the video typically requires a decoder or like device that enables the captions to be displayed in proper sequence on the display screen with the video of the program such that the captions or subtitles are temporarily superimposed on the video. The apparatus in which the decoder or like device is implemented, for instance, may include a set-top box, a television, a computer (desktop, laptop, tablet, pad, etc.), a video recorder or player, a hand held cellular telephone, or like electronic media player or device associated with a display.

[0003] There are various industry standards and specifications with respect to transmitting and rendering caption and subtitle information for being superimposed on a video. The standards and specifications typically specify how the subtitle/caption information is parsed, synchronized with the video, and positioned on the display screen.

[0004] By way of example, the EIA-608 standard is a standard for the delivery of closed captions developed by the Federal Communications Commission (FCC) with assistance from the Electronic Industries Association (EIA) Television Data Systems Subcommittee and is based on the Line 21 system utilizing the DVS-157 standard for carriage format in digital cable systems. The DVS-157 standard is a standard established for the cable industry by the Digital Video Subcommittee (DVS) of the Society of Cable Telecommunications Engineers ("SCTE").

[0005] The more recently developed EIA-708 standard utilizes the carriage format specified in the Advanced Television System Committee's (ATSC) A/53 standard for digital video. The EIA-708 standard provides advanced closed caption features for digital television signals at the closed captioning origination device. The EIA-708 features include, but are not limited to, the ability to change certain closed caption features, such as the location of the closed caption display and the size and color of the closed caption text. With respect to standards for subtitles, DVB Subtitle rendering is specified in ETSI 300 743 and ARIB Subtitle rendering is specified in ARIB STD-B24. Similar specifications are provided for various other video formats including DVD and DivX formats.

[0006] A problem often experienced by a viewer of a video having subtitles or closed captions is that the subtitles/captions are not always provided in a manner

that is convenient to the viewer with respect to readability of the subtitles/captions. For instance, the amount of subtitle/caption text displayed on a screen in a given amount of time varies greatly due to the variation in amount and rate of dialogue in the video and the pace and tempo of the dialogue in any particular scene or segment of the video. Subtitles and captions are displayed only for a limited amount of time before being removed and replaced with the next subtitle/caption in sequence. This is true regardless of the amount and/or rate of dialogue in a given segment of the video and may limit the viewer's ability to fully read each subtitle or closed caption, particularly when the dialogue of a particular segment of the video is intensive. By way of example, a first video segment may contain several long sentences of text in which the caption momentarily flashes on the screen and may be followed by another video segment that may contain very little dialogue, such as a single word. In this case, a viewer may be unable to read the entire caption with respect to the first video segment while having spare time in the following video segment.

SUMMARY

[0007] This disclosure describes a method for processing caption information provided with a video program. A caption synchronized for display with a predetermined video segment of the video program is blended with a previous iteration of at least one caption displayed with at least one previous video segment of the video program to form a blend of captions for being superimposed on video images of the predetermined video segment of the video program.

[0008] This disclosure also describes a method in which a caption synchronized for display with a predetermined segment of the video program is blended with one or more previous captions synchronized to be displayed with one or more previous segments in sequence of the video program to form a blend of captions. The blend of captions is displayed on a display screen superimposed on video images of the predetermined segment of the video program so that one or more older captions associated with the previous segment or segments of the video program remains on the display screen with a newer caption associated with the video segment being displayed.

[0009] This disclosure further describes apparatus, such as a decoder, for processing caption information associated with a video program. The apparatus has a caption display unit for blending a caption synchronized for display with a predetermined segment of the video program with one or more previous captions synchronized to be displayed with one or more previous segments in sequence of the video program to thereby form a blend of captions. The apparatus also includes a display mixer for receiving the blend of captions from the caption display unit and video corresponding to the predetermined segment and for mixing the blend of captions and the video such that the blend of captions is superimposed on the video when displayed. In this manner, the one or more previous captions can be displayed for a prolonged period of time, such as during both the one or more previous segments and predetermined segment of the video program.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] Various features of the embodiments described in the following detailed description can be more fully appreciated when considered with reference to the accompanying figures, wherein the same numbers refer to the same elements.

[0011] FIG. 1 is a block diagram of a decoder for displaying captions/subtitles superimposed on a video image;

[0012] FIG. 2 is an example of a media time line showing various media subtitles or captions that are to be displayed in sequence and synchronized with a video image;

[0013] FIG. 3 shows the subtitles/captions in the example of FIG. 2 as displayed during a first segment of video;

[0014] FIG. 4 shows the subtitles/captions in the example of FIG. 2 as displayed during a second segment of video;

[0015] FIG. 5 shows the subtitles/captions in the example of FIG. 2 as displayed during a third segment of video; and

[0016] FIG. 6 shows the subtitles/captions in the example of FIG. 2 as displayed during a fourth segment of video.

DETAILED DESCRIPTION

[0017] For simplicity and illustrative purposes, the principles of the embodiments are described by referring mainly to examples thereof. In the following description, numerous specific details are set forth in order to provide a thorough understanding of the embodiments. It will be apparent however, to one of ordinary skill in the art, that the embodiments may be practiced without limitation to these

specific details. In some instances, well known methods and structures have not been described in detail so as not to unnecessarily obscure the embodiments.

[0018] The following embodiment is described below in connection with enhancing and improving the readability of subtitle/closed caption information for a viewer of a video. The subtitles/captions can be rendered according to any of the standards and/or specifications discussed above in compliance with these pre-existing standards and specifications. In addition, this development is not limited to displaying only text, but also may include any other information necessary for the display of closed captions and subtitles including, but not limited to, contextual and graphical information. Further, the embodiment discussed herein is not limited to rendering only traditional closed caption or subtitle information and can be implemented for the display of any type of textual information or other content contained within or associated with a video signal, such as, but not limited to, stock tickers, advertising banners, emergency alert signals, and the like. For purposes of this disclosure, the terms “caption”, “captions”, “subtitle” and “subtitles” are used generically and interchangeably to refer to closed captions, subtitles and any other type of caption.

[0019] FIG. 1 is a block diagram of a decoder 10 for receiving, extracting, processing, and rendering subtitles or captions such that the subtitles or captions may be superimposed on a video when displayed. The decoder 10 includes a device 12 or portion of a device for receiving a video, audiovisual, media, multimedia or like signal 16 and for rendering caption or subtitle information provided by the signal 16 on an associated display 14 on which a video also provided by the signal 16 can be displayed. For purposes of example, the device 12 can be implemented as part of a

set-top box, digital television, personal computer (desktop, laptop, pad or tablet), video recorder, video disk player, cellular telephone, media player, or any other suitable electronic device having or connected to a display on which video can be played and viewed. As an alternative, the device 12 can be implemented as a stand-alone device which receives a television, media or other video signal 16 and is coupled to a separate display 14.

[0020] The media signal 16 contains closed caption or subtitle information and an associated video or audiovisual program. The media signal 16 can be provided by a broadcaster or content provider over a network such as a cable, optical, or satellite network, the Internet, or Wi-Fi connection, or can be provided from a stored media file such as from a DVD, video recorder, video player, computer file, or the like. By way of example, the signal 16 can provide any type of video program such as a television show, movie, or the like.

[0021] As best shown in FIG. 1, the device 12 for rendering the captions/subtitles can include a demultiplexer 18 or like component able to parse or separate audio and video information provided by the media signal 16 from the caption/subtitle information. The video information can be provided to a video decoder 20 or like component for purposes of displaying or playing the video on the display 14, and the audio can be provided to an audio decoder 22 or like component to enable the audio to be played, if desired, in a manner synchronized with the video.

[0022] Likewise, the caption/subtitle information can be provided from the demultiplexer 18 to a caption/subtitle renderer 24 or like component for ultimately providing the desired caption/subtitle to be synchronized and displayed with a particular segment of video. The caption/subtitle desired to be displayed with a

particular segment of video is ultimately provided to a display mixer 26 or like component which receives and mixes the decoded video from the video decoder 20 with the synchronized rendered caption/subtitle and forwards this to the display 14 in a manner which enables the desired caption/subtitle to be superimposed on the video image during a segment of the video.

[0023] In the embodiment shown in FIG. 1, the device 12 includes a caption/subtitle renderer buffer 28 or like component that receives the latest rendered captions/subtitles from the subtitle renderer 24 and may store a selected number of the latest rendered captions/subtitles in sequence and in a form to be displayed. This may include the current or next caption/subtitle to be displayed and at least one or more captions/subtitles previously displayed in sequence. For purposes of example, see FIG. 2.

[0024] In FIG. 2, a media time line 30 is shown relative to the playing or playback of a video in which first, second, third and fourth video segments 32, 34, 36 and 38 are defined and played in sequence. There is a different subtitle or caption associated with each segment to be separately and sequentially displayed during each of the video segments 32, 34, 36 and 38. For example, based on conventional practice, the “First sub” text shown in subtitle box 40 in FIG. 2 would be displayed and superimposed on the video image during the playing of the first video segment 32; the “next” text shown in subtitle box 42 would be displayed and superimposed on the video image during the second video segment 34; no caption/subtitle shown in empty subtitle box 44 would be displayed on the video image during the third video segment 36; and the “Last sub” text shown in subtitle box 46 would be displayed and superimposed on the video image during the fourth video segment 38. It should be

understood that the words “First sub”, “next” and “Last sub” used in the example of FIG. 2 are for explanation purposes only and that this text would likely correspond to the actual words of the dialogue occurring in each of the video segments and, for instance, could include several relatively-long sentences with numerous words. Further, it should be understood that based on conventional practice, the caption/subtitle in each subtitle box 40, 42, 44 and 46 would no longer be displayed at the end of its corresponding video segment 32, 34, 36 and 38 and would be replaced by the caption/subtitle in the next subtitle box in sequence. Thus, none of the subtitle boxes 40, 42, 44 and 46 would appear on the display 14 at the same time based on conventional practice.

[0025] The purpose of the buffer 28 is to enable the device 12 to permit the appearance of captions/subtitles, such as those shown in subtitle boxes 40, 42, 44 and 46 of FIG. 2, to be prolonged on the display 14 for a period of time greater than the media or “play” time duration of its corresponding video segment. For example, the caption/subtitle of one video segment can be permitted to remain superimposed on the video during the duration of the next following video segment in sequence.

Alternatively, this prolonged appearance of the caption/subtitle can be limited to only a portion of the next video segment, such as the first half of the next video segment, or can be extended for the next two, three, or more video segments. In this manner, the readability of a particularly long subtitle or caption with many words is improved because the viewer is given an extended amount of time to read and/or re-read and obtain a better understanding of the caption without needing to stop and “re-wind” the video.

[0026] Accordingly, the device 12 shown in FIG. 1 includes a caption/subtitle display unit 48 or like component that can receive and blend together more than one caption/subtitle corresponding to more than one video segment to be provided to the display mixer 26 for being superimposed on the video image displayed on display 14. By way of example, see the subtitle boxes illustrated in FIGs. 3-6.

[0027] The subtitle box 50 shown in FIG. 3 is displayed during the first video segment 32 of the video as described above in connection with the media time line 30 in FIG. 2. Thus, the subtitle display unit 48 provides the caption/subtitle as shown in the subtitle box 50 to the display mixer 26 so that the text “First sub” is superimposed on the video during playing of the first video segment 32. However, during the second video segment 34, the subtitle display unit 32 provides the subtitle box 52 as shown in FIG. 4 to the display mixer 26 so that the text “First sub” of the previous video segment and the text “next” corresponding to the second video segment 34 are simultaneously displayed and superimposed on the video during the second video segment 34. As shown in FIG. 1, the buffer 28 provides the newer or latest caption to be blended with one or more of the older or previous captions currently stored in the subtitle display unit 48.

[0028] Accordingly, if a viewer was unable to completely read or desires to re-read the caption/subtitle corresponding to the first video segment 32 due to the length, amount or complexity of the text or limited amount of time of display of the text, the viewer is able to complete reading or re-read the caption/subtitle corresponding to the first video segment 32 during the playing of the second video segment 34. This may be particularly useful when the dialogue in the first video

segment 32 is intensive, complex, and/or occurs at a relatively fast pace. Still further, if the dialogue occurring during the second video segment is not as intensive and/or is relatively brief, this provides the viewer with ample time to finish reading and/or re-read the caption/subtitle corresponding to the first video segment during the second video segment since little or no time is needed to read the caption/subtitle associated solely with the second video segment.

[0029] In FIG. 5, the captions/subtitles corresponding to the second and third video segments, 34 and 36, are displayed as shown in subtitle box 54. Here, the subtitle/caption “First sub” from the first video segment 32 has been deleted and, since there is no subtitle/caption needed for the third video segment 36, only the “next” subtitle/caption corresponding to the second video segment 34 is superimposed on the video image by the display mixer 26 during the third video segment 34. Finally, in FIG. 6, the captions/subtitles corresponding to the third and fourth video segments, 36 and 38, are displayed as shown in subtitle box 56. Here, the subtitle/caption “next” from the second video segment 34 has been deleted and, since there is no subtitle/caption needed for the third video segment 36, only the “Last sub” subtitle/caption corresponding to the fourth video segment 38 is superimposed on the video image during the fourth video segment 38.

[0030] Variations of the above referenced example are possible. For example, during the current video segment, the subtitle/caption for the current video segment can be displayed with the subtitle/caption of the previous two or three video segments. As an alternative, the device 12 may determine whether or not the display of a subtitle/caption from a previous video segment in sequence is prolonged based on the length, size or amount of letters, words, etc. of the previous subtitle/caption.

Thus, only particularly long subtitle or caption would have the above referenced prolonged display while shorter subtitles or captions may not. Of course, all of the above could be selected and adjusted by way of settings selected by the user.

[0031] In addition to the prolonged appearance of subtitles and captions, the buffer 28 and subtitle display unit 48 of device 12 can be used to determine the characteristics of the subtitles and captions as displayed on display 14. For example, the subtitle display unit 48 may display the current subtitle/caption corresponding to the current video segment differently than the subtitle/captions of previous video segments being simultaneously displayed with the current subtitle/caption. In this manner, the viewer can readily appreciate which text being displayed is for dialogue occurring in the current video segment and which text being displayed is for dialogue that occurred in a previous video segment. This difference in appearance could be set or applied in various manners. For instance, any of the font size, font type, font color, caption window position, caption window size, text opacity, background opacity, text justification, background color, and the like could be altered between the different subtitles/captions.

[0032] By way of example and according to one contemplated embodiment, the subtitle display unit 48 blends the subtitle/caption display or box of the latest or current subtitle/caption provided by the buffer 28 with at least one older or previous subtitle/caption display or box of the previous video segment in sequence. In this example, the end result is that the blended subtitle/caption box requires only a minimum of display space on the display screen. In addition, the text of the current subtitle/caption can directly or at least partially overlies the text of the previous subtitle/caption. For instance, see FIG. 4 in which the subtitle/caption text “next” and

“First sub” overlies each other in subtitle box 52. In this example, the opacity of the subtitle/caption text “next” for the current video segment is greater than the opacity of the subtitle/caption text “First sub” corresponding to the previous video segment. In this manner, the viewer readily appreciates that the darker text “next” corresponds to current dialogue in the video and that the more transparent or lighter text “First sub” corresponds to a subtitle/caption from the previous video segment. Also, see FIG. 5, in which the subtitle/caption text “next” corresponds to dialogue prolonged on the display screen and corresponding to the previous video segment. Here, “next” is shown with reduced opacity in comparison to how it was displayed in FIG. 4 as the current subtitle/caption.

[0033] By way of further example, and not by way of limitation, the opacity of the current subtitle or caption can be set to about “1” meaning that it is substantially opaque. In contrast, the opacity of the subtitle or caption having a prolonged display on the next video segment in sequence could have reduced opacity set between about 0.9375 and 0.0625 or between about 0.8 and 0.25, meaning that it appears lighter to the viewer and the underlying video image is viewable through the text. Of course, other settings are possible. For instance, the current or newest subtitle may have opacity of 1, the first previous or older subtitle in sequence may have opacity of 0.5, and the second previous or oldest subtitle in sequence may have opacity of 0.25. To the viewer, the subtitles/captions have prolonged appearance on the video and slowly fade away as they age before completely disappearing from the display.

[0034] The above described example is particularly useful when the lengths of the subtitles/captions vary between adjacent video segments. For instance, if there

is no current dialogue or subtitle or text, the dialogue from a previous video segment can be easily read and its opacity provides an indication that it relates to past dialogue. In addition, if the current dialogue consists of a short phrase or one word, there is very little overlap between the current and previous subtitles/captions enabling the previous subtitle/caption to be easily read.

[0035] The above referenced device 12 and method of displaying subtitles and captions enhances the readability of subtitles and captions since it permits subtitles and captions from one or more previous video segments to be read and/or re-read for greater understanding during a subsequent video segment. This extends and prolongs the display of subtitles and captions on the display screen and a characteristic of the different subtitles and captions can be altered based on the age of the subtitle/caption. When opacity is the characteristic altered, this permits the subtitle/caption box to essentially remain the same size and assume the same position on the display screen thereby covering no more of the image than conventional displays of subtitles/captions. Of course, other arrangements of simultaneously displayed subtitles/captions or characteristics could be used to readily distinguish the age of a subtitle/caption relative to another subtitle/caption being displayed.

[0036] The device 12 and components thereof discussed above can physically be provided on a circuit board or within an electronic device and can include various modules, processors, microprocessors, controllers, chips, units and the like. It will be apparent to one of ordinary skill in the art that the modules, processors, controllers, units and the like may be implemented as electronic components, software, hardware or a combination of hardware and software.

[0037] While the principles of the invention have been described above in connection with specific devices, systems, and methods, it is to be clearly understood that this description is made only by way of example and not as limitation on the scope of the invention as defined in the appended claims.

We claim:

1. A method for processing caption information associated with a video program, comprising the step of blending a caption synchronized for display with a predetermined video segment of the video program with a previous iteration of at least one caption displayed with at least one previous video segment of the video program to form a blend of captions for simultaneous display superimposed on video images of the predetermined video segment of the video program.

2. A method according to claim 1, further comprising the step of extracting and rendering caption information contained in a video signal including extracting and rendering different captions for different segments of the video program including the caption synchronized for display with the predetermined video segment of the video program and the at least one caption displayed with the at least one previous video segment of the video program.

3. A method according to claim 2, further comprising the step of receiving the video signal before said extracting, rendering and blending steps, and mixing the blend of captions with video of the predetermined video segment of the video program after said blending step.

4. A method according to claim 1, wherein said blending step includes combining a caption synchronized for display with the predetermined segment of the video program with a previous caption synchronized to be displayed with a previous segment in sequence of the video program such that said caption and said previous

caption are simultaneously displayed superimposed on video images of said predetermined segment of the video program.

5. A method according to claim 1, wherein said blending step includes blending together a plurality of different captions such that said plurality of said different captions overlies each other when simultaneously displayed.

6. A method according to claim 5, wherein said blending step includes formatting an appearance characteristic of at least one of the captions forming the blend of captions to be different from at least one other of the captions forming the blend of captions to be simultaneously displayed.

7. A method according to claim 6, wherein said appearance characteristic formatted is opacity such that the opacity of the at least one of the captions forming the blend of captions is formatted to be different than the opacity of the at least one other of the captions forming the blend of captions to be simultaneously displayed.

8. A method according to claim 1, wherein said blending step includes blending different captions together from at least two different segments in sequence of the video program to form the blend of captions for simultaneous display such that said blend of captions includes captions that overlies each other when simultaneously displayed, and further comprising formatting an appearance of said blend of captions such that opacity of one of said captions in said blend of captions is different from opacity of other of said captions in said blend of captions.

9. A method according to claim 8, wherein said at least two different segments in sequence of the video program includes a current segment and a previous segment, and wherein said caption corresponding to said previous segment is formatted to have a lower opacity than said caption corresponding to said current segment.

10. A method according to claim 9, wherein said opacity corresponding to said previous segment is within a range of 0.9375 to 0.0625.

11. A method according to claim 1, further comprising the step of at least temporarily storing at least one of the captions forming the blend of captions in a buffer before said blending step.

12. A method according to claim 1, wherein the captions are closed captions or subtitles of the video program.

13. A method for displaying captions superimposed on a video, comprising the steps of:

blending a latest caption synchronized for display with a predetermined segment of the video program with at least one previous caption synchronized to be displayed with at one previous segment in sequence of the video program to form a blend of captions; and

simultaneously displaying said blend of captions on a display screen
superimposed on video images of said predetermined segment
of the video program.

14. A method according to claim 13, wherein, during said displaying step, said latest caption and said at least one previous caption overlies each other as displayed, and further comprising the step of formatting an appearance characteristic of said blend of captions such that said at least one previous caption appears differently than said latest caption as displayed.

15. A method according to claim 14, wherein said appearance characteristic formatted is opacity such that the opacity of said at least one previous caption is less than said latest caption.

16. A method according to claim 12, wherein said latest caption and at least one previous caption are closed captions or subtitles of the video program.

17. Apparatus for processing caption information associated with a video program, comprising:

a caption display unit for blending a caption synchronized for display
with a predetermined segment of the video program with a
previous caption synchronized to be displayed with a previous
segment in sequence of the video program to form a blend of
captions; and

a display mixer for receiving the blend of captions from said caption display unit and video corresponding to said predetermined segment and for mixing the blend of captions and the video such that the blend of captions is superimposed on the video when displayed.

18. Apparatus according to claim 17, wherein said blend of captions includes said caption overlying said previous caption with an opacity of said previous caption being set less than an opacity of said caption.

19. Apparatus according to claim 17, further comprising:

a demultiplexer for receiving a video signal and for separating the caption information from the video signal; and
a renderer for rendering the caption from the caption information and for providing the caption to said caption display unit so that the caption can be blended with the previous caption.

20. Apparatus according to claim 17, wherein the apparatus is selected from a group consisting of a set-top box, a digital television, a personal computer, a desktop computer, a laptop computer, a pad or tablet computer, a video recorder, a video disk player, a cellular telephone, and a media player, and wherein the caption information is closed captions or subtitles of the video program.

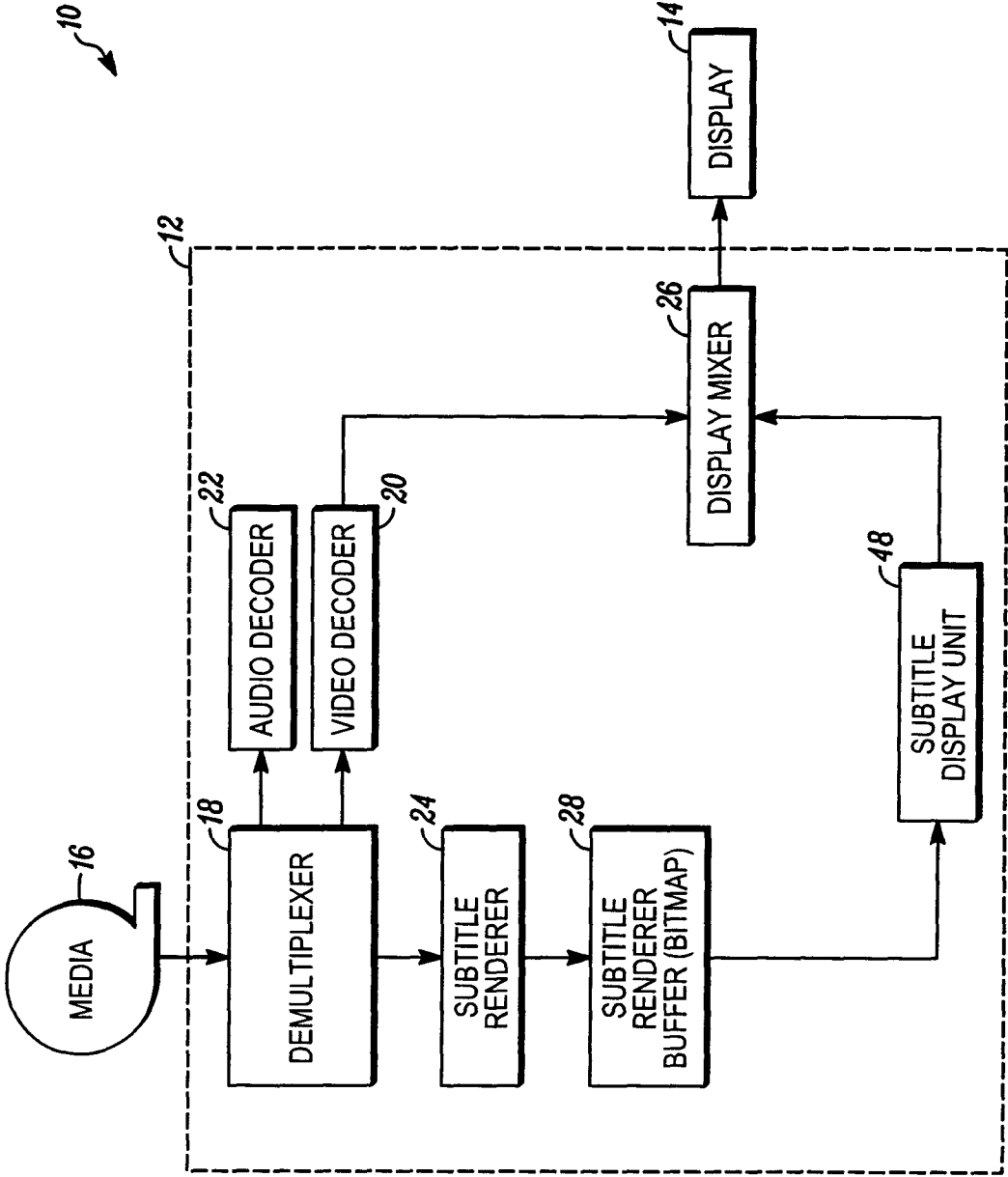
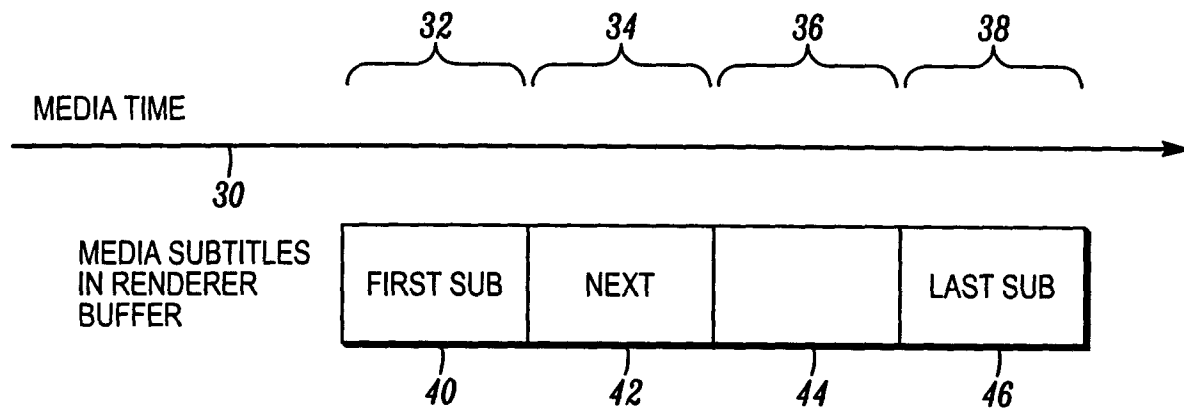
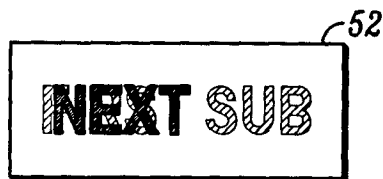


FIG. 1

2/3*FIG. 2**FIG. 3**FIG. 4*

3/3

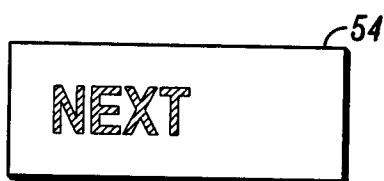


FIG. 5

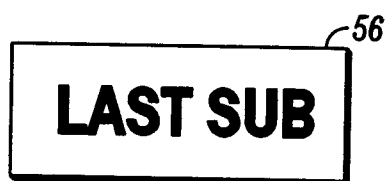


FIG. 6

INTERNATIONAL SEARCH REPORT

International application No

PCT/RU2011/000435

A. CLASSIFICATION OF SUBJECT MATTER

INV. H04N21/488

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)

EP0-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 2010/259676 A1 (SWAN PHILIP [CA]) 14 October 2010 (2010-10-14)	1-6, 11-14, 16,17, 19,20
Y	figures 8,11 paragraphs [0002], [0005], [0026], [2738], [0039]	7-10,15, 18
X	JP 2002 232798 A (TOSHIBA CORP) 16 August 2002 (2002-08-16)	1,2,4, 11-13, 16,17, 19,20
A	figures 1,2 paragraphs [0007], [0008], [0024] - [0026], [0037], [0045] ----- -/--	6-9,14



Further documents are listed in the continuation of Box C.



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Date of the actual completion of the international search

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Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

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Keck, Wolfram

INTERNATIONAL SEARCH REPORT

International application No
PCT/RU2011/000435

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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A	WO 2007/142648 A1 (THOMSON LICENSING [FR]; KENDALL SCOTT ALLAN [US]; SAHASRABUDHE RAJEEV) 13 December 2007 (2007-12-13) figures 1-3 paragraphs [0026], [0049], [0031] - [0039] -----	1,2,4, 12,13, 16,17,20
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Information on patent family members

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