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System for displaying teletext information and television or VCR apparatus comprising such a system.

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The invention relates to a system for displaying teletext information, comprising a video decoder for providing video information, a teletext decoder for providing teletext information, a display for reproducing video information or teletext information, and a control unit for controlling the information to be reproduced by the display, and to a television or VCR apparatus comprising such a system.

In conventional systems of this type, essentially the complete display screen area is occupied by teletext information if the user switches teletext on. Even in systems with a so-called mixed mode, the viewer can barely watch a normal video program with teletext switched on. Therefore, with a conventional system of this type, it is impossible for a viewer to know if specific important information items in certain teletext pages have changed or have been updated when he/she is watching a normal video program.

US-A-3 891 792 discloses a television character crawl display method and apparatus allowing a viewer to superimpose character information on a normal video program. In this manner a viewer can watch the video program and character information simultaneously. In this known apparatus there is provided digital logic circuitry to extract the character signal from the video signal, wherein a video data mixer reinsert the character signal into the video channel. The character signal is transmitted during successive vertical blanking intervals of the television image signal. The known apparatus shows the disadvantage that the viewer can only switch on or off the display of the character information on the display screen, wherein the complete message will be displayed if the character information display is switched on.

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The invention aims to provide an improved system of the above-mentioned type, wherein the above-mentioned disadvantages are overcome.

According to the invention a system of the above-mentioned type is provided, characterized in that the control unit is programmed to allow a user to select teletext



information for reproduction by the display as a teletext information bar in a video image reproduced from the video information.

In this manner a system is obtained, wherein teletext information can be displayed substantially without obstructing the normal video program reproduced simultaneously with the teletext information bar. The teletext decoder is advantageously used to allow the user to select any teletext information for reproduction by the display in the information bar. In this manner a very flexible system for displaying teletext information in a normal video image is obtained.

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The invention will be further explained by reference to the drawings in which an embodiment of the invention is schematically shown.

The drawing shows part of a television apparatus comprising an embodiment of the system of the invention. A tuner 1 receives an antenna or cable signal at an input 2 and provides an output signal to a video decoder 3 and a teletext decoder 4. The video decoder 3 provides video information in RGB format at an output 5, which video information is suitable for reproduction by a display device 6. In the same manner the teletext decoder 4 provides teletext information in RGB format at an output 7 also suitable for reproduction by the display 6. Both outputs 5 and 7 are connected to a device 8 having an output connected to the display 6.

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The system further comprises a control unit 9 which is made as a programmable device. It is noted that in practice the control unit 9 and teletext decoder 4 can be made as a single-chip micro-controller with integrated teletext decoder. The control unit 9 can be controlled by means of a remote control 10 which can be operated by a user.

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In a conventional manner, the user can operate the remote control 10 to watch a normal video program or teletext information by switching on teletext. In this case the complete screen of display 6 is occupied by teletext display. If desired, the control unit 9 may be programmed in such a manner that a mixed mode is possible, in which case teletext information is displayed mixed with the video program. However in such a mixed mode, watching a normal video program is not convenient.

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In the system of the invention however, a more flexible selection of viewing teletext information is possible by a suitable programming of the control unit 9. The teletext decoder 4 can acquire teletext data in the background while the user is watching a normal video program. This teletext data is processed by the control unit in accordance with control



commands provided by the viewer and is then displayed in an information bar 11 schematically shown on the display 6. The area occupied by this information bar 11 is such that the normal video program image is substantially unobstructed.

The selection of teletext information to be reproduced by the display 6 may occur in various manners. As known, each teletext page is uniquely identified by 7 numbers, i.e. page magazine, page tens, page units, hours tens, hours units, hours tens, hours units, minutes tens and minutes units. The user may select the desired pages for reproduction in the information bar 11 by entering this information through a menu control, i.e. a suitable graphic user interface. Programming such user interfaces is well-known to the person skilled in the art and is not further described.

As an alternative, the remote control 10 can be provided with a suitable select button 12 which may be pressed by the user when the user is viewing the desired teletext page. Generally, the user may want to further specify which text from the selected teletext page or pages should be displayed in the information bar 11. For example the user may only be interested in arrival/departure information of specific flights, prices of specific shares, etc. The control unit 9 can be programmed such that the user may select text of a teletext page for display, for example by selecting a region of the teletext page by means of a cursor operated by the arrow keys of the remote control 10. As a further possibility the control unit 9 can be programmed to allow the user to enter certain keywords telling the control unit to display all lines of text of the teletext page with such keywords. As an alternative, text selection can also be based on text colour.

As known, teletext systems may comprise multi-paged text pages. In this case it is possible to select several text regions in different pages at once and the selected text regions may be given an order for display in the information bar 11.

Preferably the teletext information is displayed in the information bar 11 in a scrolling manner. The control unit 9 is programmed to allow the user to choose between several display options. In a first option, the selected text is continuously displayed in the information bar 11 in a scrolling manner. As a second option, the user may select a periodical display of the selected text during a predetermined duration and as a third option the user may choose to display the selected text only in case the teletext page has been updated. In the third option again the selected text is displayed during a predetermined duration. The duration to display the selected text may be controlled by the user through the remote control 10. In particular in the third option, the user can watch a normal video program completely unobstructed by the information bar 11 as long as there is no new information to read. As

soon as new information arrives, the selected text will be displayed in the information bar 11 for the desired duration.

In order to enhance readability of the selected text in the information bar, the scrolling speed can be varied by the user through the remote control 10. As an option, the user may pause the scrolling of the selected text on every new line.

Generally, the information bar 11 is displayed at the bottom of the display 6 as shown in the drawing. However, in a video program with subtitles for example, it may be desirable to move the information bar 11 to a different location on the screen. To this end the control unit 9 is programmed to allow the user to move the information bar 11 by means of the conventional arrow keys of the remote control 10.

Further, the control unit 9 is programmed to allow the user to change the colour of the text and/or background displayed in the information bar 11.

Because of formatting on a normal teletext screen, there are usually quite a few spaces or control characters inserted in between words of the text. This is for example done to align columns. When several lines of a teletext page are displayed in the information bar, such spaces or control characters will make the words in a sentence disjointed. In the system described, this is avoided by programming the control unit 9 such that several consecutive spaces or special control characters are replaced by a single space character. In this manner the words of the selected text of the teletext page are displayed at a normal intermediate spacing.

From the above it will be clear that a system for displaying teletext information is provided allowing a user to select teletext information to be displayed in an information bar displayed in the normal video program. The system comprises a video decoder for providing video information, a teletext decoder for providing teletext information and a display for reproducing video information or teletext information. A control unit for controlling the information to be reproduced by the display is also provided and this control unit is programmed to allow a user to select teletext information for reproduction by the display as a teletext information bar in a video image reproduced from the video information. In this manner teletext information can be displayed substantially without obstructing the normal video program reproduced simultaneously with the teletext information bar. The teletext decoder is advantageously used to allow the user to select any teletext information for reproduction by the display in the information bar in various manners as described above. The system is highly flexible in selecting teletext information to be displayed.



The invention is not restricted to the above described embodiment which can be varied in a number of ways within the scope of the attached claims.

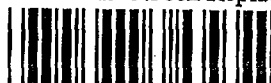
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CLAIMS:



1. System for displaying teletext information, comprising a video decoder for providing video information, a teletext decoder for providing teletext information, a display for reproducing video information or teletext information, and a control unit for controlling the information to be reproduced by the display, characterized in that the control unit is
5 programmed to allow a user to select teletext information for reproduction by the display as a teletext information bar in a video image reproduced from the video information.
2. System according to claim 1, wherein the teletext information is displayed in a
10 scrolling manner in the information bar.
3. System according to claim 2, wherein the control unit is programmed to allow control of the scrolling.
4. System according to claim 1, 2 or 3, wherein the control unit is programmed to
15 allow selection of a teletext page and a part of the selected teletext page for reproduction in the information bar.
5. System according to claim 4, wherein the control unit is programmed to allow selection of a teletext page through a menu control or by means of one or more select buttons, wherein a text part of a selected teletext page can be selected by means of a cursor control or
20 by means of one or more keywords, wherein in case of multi-page teletext information text parts of different pages can be selected and the order of the selected text parts of different pages for displaying in the information bar can be controlled.
6. System according to claim 4 or 5, wherein the control unit is programmed to
25 allow selection of the display of the information bar with the selected teletext information continuously, periodically for a predetermined duration or only at an update of the corresponding teletext information for a predetermined duration, wherein preferably the duration can be controlled.

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7. System according to any one of the preceding claims, wherein the control unit is programmed to replace several consecutive space characters and/or special control characters in the selected teletext information by a single space character.
- 5 8. System according to any one of the preceding claims, wherein the control unit is programmed to allow control of the location of the information bar on the display.
9. System according to any one of the preceding claims, wherein the control unit is programmed to control the background colour of the information bar and/or the colour of
- 10 the teletext information displayed in the information bar.
10. Television apparatus comprising a system according to any one of the preceding claims.
- 15 11. Video recorder comprising a system according to any one of claims 1-9.



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