960926-9

IP03

PROCESS FOR DISPLAYING AND HANDLING VIDEOTEXT OR TELEPHONE DATA AND DEVICE

The present invention relates to a process for displaying videotext or telephone data, as well as to an enhancement of this process which makes it possible to monitor, on the basis of these displayed data, the programmes received by a television. The present invention also relates to a device for implementing this process and its enhancement.

The teletext service and its equivalents outside Europe, make it possible to display, on a television screen, videotext pages, that is to say a collection of lines of alphanumeric characters generally in colour, giving a large amount of diverse information, such as for example information relating to news, the weather or the telebroadcast programmes. The signals corresponding to the videotext are transmitted at the same time as the video and audio signals on the various channels. A number of pages can be displayed and the information contained therein is regularly updated. An example of videotext and of its specifications is described in the C.C.E.T.T. "Videotex viewing and coding specifications" in the D.A.I.I. publications.

There are currently several options for displaying videotext pages, either full-screen or overlaid on the images of the transmission in progress, these latter then being partly masked. Moreover, with this service the television viewer is afforded a very large amount of information although without using it other than as straightforward information to be read.

The present invention makes it possible to offer the television viewer greater comfort in the use of videotext by allowing him to have sight of the televised pictures and the videotext pages without the former and the latter interfering with one another.

The process according to the invention makes it possible to view the information contained in the videotext pages without having to be facing the

television, thus eliminating all the distance constraints which exist in the prior art relating to the reading of this information.

Furthermore, the television viewer is able to view the videotext pages without the television being on.

An enhancement of the present invention enables the viewer to monitor the television programmes on the basis of the name of the programmes displayed by the teletext rather than, as before, on the basis of numerical keys.

In general, the present invention offers the viewer greater convenience in the reading of the pages of the videotext and in the control of the programmes of his television.

The present invention can also be used to display information received via the telephone. These data may be of the sound type or of the "minitel" type, and they are handled in the same way as the videotext data and therefore offer the same advantages as those mentioned above.

Indeed, the present invention relates to a process for displaying videotext data or data transmitted via the telephone, which is characterized in that it includes the following steps:

. reception and decoding of the said data by a receiver/decoder device situated in the television or connected to the latter,

. transmission of the data to a control device of the television and/or of a video recorder,

. reception and display of the said data on a display device of the control device.

It can also include a further step of encoding in a format optimizing the display on a screen of the videotext data, once the latter have been received and decoded, and the signals obtained can be modulated before being transmitted. All or a part of the videotext data of one or more channels is stored in memory (preferably situated in the control panel) and

displayed, on command from the user.

Moreover, an enhancement of the process according to the invention is that the data are displayed on a touch screen and are handled by a microprocessor which includes software for recognizing syntax or an associated code making it possible, by selecting a line by pressure from the user on the area (in general a line) of the touch screen, to program a television or a video recorder.

The present invention also relates to a system for displaying videotext data or sound or minitel type data received by the telephone, implementing the process according to the invention. It includes at least one receiver/decoder of videotext signals, a device for transmitting these data destined for a control panel which includes a device for receiving these transmitted data as well as a device for displaying these signals. This display device can be a touch screen. In this case, it is controlled by a microprocessor which includes a function for recognizing syntax or identification codes of the characters displayed on the display device and makes it possible to program a transmission automatically on the television or on the video recorder by straightforward pressure on the area of the screen of the control panel corresponding to the characters identifying the transmission in question.

The present invention will be better understood and further advantages will emerge on reading the description which will follow, illustrated by Figure 1 which represents an embodiment of the invention.

Represented in Figure 1 is a television 1 including at least one tuner 2 and possibly a teletext decoder 3 enabling the television to receive, store in memory and display videotext data. The description which will follow relates to teletext data, but the process according to the invention can also handle data received by telephone.

In the case of teletext, which is the type of

videotext used in Europe, the tuner is preferably a tuner of the PIP (standing for "Picture In Picture") tuner type which scans the spectrum of channels so as to have recurrent access to each of the videotext services of the various channels and which transmits signals of the CVBS type (standing for "Colour Video Burst Signal", an international standard) to the reception and decoding device adapted for example to the CEEFAX format. This latter device can for example be of the type TPU3040 from ITT or SDA5273 from Siemens.

In the remainder of the description, the relevant data are teletext data, but the invention can also be applied to the handling of all types of videotext, as well as data transmitted by telephone, whether it be alphanumeric of the "minitel" type or sound. In the case of signals received by telephone, it is necessary to use a corresponding modem, such as for example the device LOTTI from ITT which receives telephone data and yields data in ASCII ("American Code for Information Interchange" [sic]). This device can be connected to the television, built into it or included within a modem/transmitter box transmitting directly to the remote control. It can also be built into the remote control, the latter also possibly acting as control device for the television and/or for the video recorder, as telephone and even as cordless telephone.

Advantageously, the teletext data are next encoded by an encoder 4 into a particular format for transmitting digital data which makes it possible, if so desired, to circumvent the CEEFAX format, in order to be modulated and transmitted by way of a transmitter 5. This transmitter is preferably a radio wave (RF) transmitter, but can also be an infrared wave (IR) transmitter or can transmit the signals via the mains. An example of such a device can be the RCT8000 "Black Quarz" IR remote control from Thomson or the M34230 from Mitsubishi. Advantageously, this forwarding of

the data can be done even when the television is on "standby", that is to say when the PIP tuner, the teletext decoder, the transmitter and the microprocessor are still supplied with power. This represents a further advantage of the invention, as is described below.

The control device 6 of the television 1, of the remote control type, includes a receiver 7 composed of at least one antenna and one demodulator of the signals transmitted by the television 1. An example of such a device is the GP1U58XY IR receiver from Sharp used in the ICC10 chassis. The control panel 6 includes, moreover, a memory in which all the formatted teletext data received by the receiver 7 are stored. This memory is of the DRAM type and can for example receive and send ASCII data. Every time new teletext data are received, they are decoded by the teletext decoder 3, possibly encoded into the relevant format, transmitted by the transmitter 5, received by the receiver 7 and the content of the memory 8 is updated.

This memory for storing the teletext data can be situated between the encoder 4 and the transmitter 5 of the television, however it is preferable to place the memory in the control device so as to limit the amount of data transmitted between the television and the control device so as to permit better comfort of use.

The memory 8 makes it possible to store all or some of the pages (such as for example about twenty pages corresponding to all of the news information) of one or more teletext services. It can also load only the few pages which follow and/or precede the page selected by the user.

The control device includes a microprocessor 9 associated with the memory 8, and which controls a display device 10 of the flat screen type. This microprocessor displays the formatted data on the screen 10. The format into which the teletext data were encoded is chosen so as to optimize the display

which must at least be alphanumeric (preferably 24 lines and 40 characters per line).

Furthermore, the control device is conventionally furnished with a power supply, a transmitter of control signals, generally IR, and control keys making it possible to control the parameters of the television and those of the screen of the control panel displaying the teletext pages. The screen of the control panel can be a liquid crystal screen or a plasma panel.

This device according to the invention implements the following process:

. the teletext data are received and decoded by a receiver/decoder device situated in the television or in a video recorder, or connected to the latter,

. possibly encoded into a certain format adapted to the type of display desired,

. modulated and transmitted from the television to the control device,

. received by the latter and stored in memory,

. then displayed on a display device.

Thus, the television viewer can at the same time watch the picture on his television and see the teletext pages on his remote control. A preferential mode of displaying the videotext pages can be for example to display on one side of the screen the page corresponding to the summary of the service, this page being displayed permanently, and on the other the pages which the user can scroll. Another mode of display can be a display of two pages at once enabling the user to scroll the pages one by one in the manner of the pages of a book being turned. In the case of this latter mode of display and for greater convenience, the scrolling of the pages can be controlled by way of a scroll button, that is to say a "caterpillar" type control button which, when the user slides it along, enables one or more following or preceding pages to be displayed.

A further advantage of the present invention is

that the user can display the television programme and thus watch a programme whilst having sight of the programme for the other stations.

Through the use of a straightforward microprocessor which uses an algorithm able to recognize the characters displayed on the screen or an associated identification code, the process according to the invention can display on the screen of the control device, a selection of programmes by processing the dates, times and categories of the transmissions of the programme. Such an algorithm is within the scope of those skilled in the art.

It can, for example, display the list of transmissions showing on the other stations, highlighting the line on which is displayed the transmission being shown at that moment on the screen of the television. It can also display the list of programmes to come on the station screened on the television at that moment. Another advantageous application of the invention can be the selection, through software, of a certain category of transmission, for example, the topic "sport" bringing together sports news and programmes to come dealing with sport. In this case, the words which allow recognition by the software, or the data corresponding to the codes associated with each transmission, are stored in memory.

Another item of software can enable the user to preselect, by virtue of the keypad of his remote control, a transmission so as to watch it selected on the screen of the television, or a type of programme, the screen of the device displaying the transmission [sic] corresponding to this programme which are stored by virtue of the teletext. Another enhancement of this process can consist in recording in memory the user's commands, either when he enters them into the device or when he selects them by pressure on the touch screen, and, after for example a certain recurrence, in displaying them automatically on the screen of the

control panel and/or on the screen of the television when the user switches on his television via the remote control.

In the case in which the television and the remote control communicate by radio waves or via the mains, it is observed that another advantage of the present invention is that the user can consult his control panel and all the information displayed there while being in a different room from the television, it being possible for the latter to be off, or more precisely in "standby" mode, that is to say the screen is not on. The function of the remote control is then that of a straightforward book whose content is that of the teletexts.

In the case in which the control device receives data via the telephone, this control device can also serve as telephone.

The various elements of the device according to the present invention (encoder 4, transmitter 5, control panel 6, receiver 7, memory 8, microprocessor 9 and screen 10) are elements which present those skilled in the art with no difficulties of design and manufacture.

An enhancement of the present invention is the use as display device 10 of a touch screen and of software for handling the displayed data.

On the basis, for example, of the preferential mode of display mentioned earlier and of a touch screen, by pressing on the area of the screen displaying one of the titles of the summary page, the user can see displayed on the other page the information corresponding to the selected title by virtue of the microprocessor which displays the corresponding page, recognizing it from the page number displayed opposite the title. The title in question being for example highlighted on the other page still displayed.

This type of character/syntax recognition function of the microprocessor is a function commonly

used in microprocessors by those skilled in the art.

In the case in which an identification code ("showview" type) for a transmission is transmitted at the same time as the videotext signals, the user can program his television or his video recorder automatically by pressing on the area of the screen displaying the name and possibly the identification code of the selected transmission.

If no identification code is sent with the videotext, the microprocessor can, by recognizing the time and date associated with the transmission and displayed in the same area as the latter, reconstruct by virtue of the appropriate algorithm an identification code and can permit automatic programming of the television or of the video recorder.

Another application of the invention is the option, by virtue of the touch screen, to select a transmission and to display automatically in parallel the list of programmes in progress on the other channels.

As may be seen, by virtue of the process according to the invention and of its enhancements, the remote control can actually become interactive books which can be browsed by the user, the latter being able in a very straightforward manner to control the programmes displayed on the television and the programming of the television and of the video recorder.

The present invention applies to all type [sic] of televisions able to receive at least one videotext service or data via telephone directly or by way of an independent remote control.

This Sheet Has Been Replaced



THIS SHEET HAS BEEN REPLACED

CLAIMS



1. Process for displaying videotext data or data transmitted via the telephone, characterized in that it includes the following steps:

. reception and decoding of the said data by a receiver/decoder device (2) situated in the television (1) or a video recorder, or connected to the latter,

. transmission of the data to a control device (6) of the television (1) and/or of the video recorder,

. reception and display of the said data on a display device (10) of the said control device (6).

2. Process according to Claim 1, characterized in that it includes a further step of encoding in a format optimizing the display on a screen (10) of the said data, once the latter have been received and decoded.

3. Process according to either one of the preceding claims, characterized in that the data are modulated before being transmitted to the control device (6).

4. Process according to any one of the preceding claims, characterized in that all the data or a part of these data are stored in memory (8) and displayed on command from the user.

5. Process according to any one of the preceding claims, characterized in that the microprocessor controlling the screen (10) of the control device (6) is furnished with software which makes it possible to select, either by automatic recognition of the associated code corresponding to the category of the transmission, or by recognition of the syntax of the characters transmitted to the display device (10), the data corresponding to the programme of the transmissions received by the television (1) and to display them by category.

6. Process according to any one of the preceding claims, characterized in that the data are displayed on a touch screen (10) of the control device (6) and are handled by a microprocessor which includes software for

recognizing the characters displayed on the display device (10), making it possible, by selecting a line, to program the television (1) and/or the video recorder.

7. System allowing the display of videotext data or data transmitted via the telephone on a television screen, characterized in that it includes a receiver/decoder device (2, 3) for these data, a device (5) for transmitting these data destined for a control device (6) which includes a device (7) for receiving these transmitted data as well as a display device (10).

8. Display system according to Claim 7, characterized in that the display device (10) is a flat screen of the liquid crystal or plasma type.

9. Display system according to Claim 8, characterized in that the display device (10) is a touch screen.

10. Display system according to Claim 9, characterized in that it is controlled by a microprocessor (9) which includes a function for recognizing the syntax or the identification code of the characters displayed on the display device (10).

11. Display system according to Claim 7 or 8, characterized in that it implements the process according to any one of Claims 1 to 5.

12. Display system according to either one of Claims 9 and 10, characterized in that it implements the process according to Claim 6.