(12) UK Patent Application (19) GB (11) 2 317 796 (13) A

(43) Date of A Publication 01.04.1998

(21) Application No 9620247.8

(22) Date of Filing 26.09.1996

(71) Applicant(s)
Sony Electronic Publishing Limited

(Incorporated in the United Kingdom)

25 Golden Square, LONDON, W1R 6LU, United Kingdom

(72) Inventor(s)
Philip R Harrison

(74) Agent and/or Address for Service
Urquhart-Dykes & Lord
91 Wimpole Street, LONDON, W1M 8AH, United Kingdom

(51) INT CL^6
H04N 7/16

(52) UK CL (Edition P)
H4R RCSS R17D

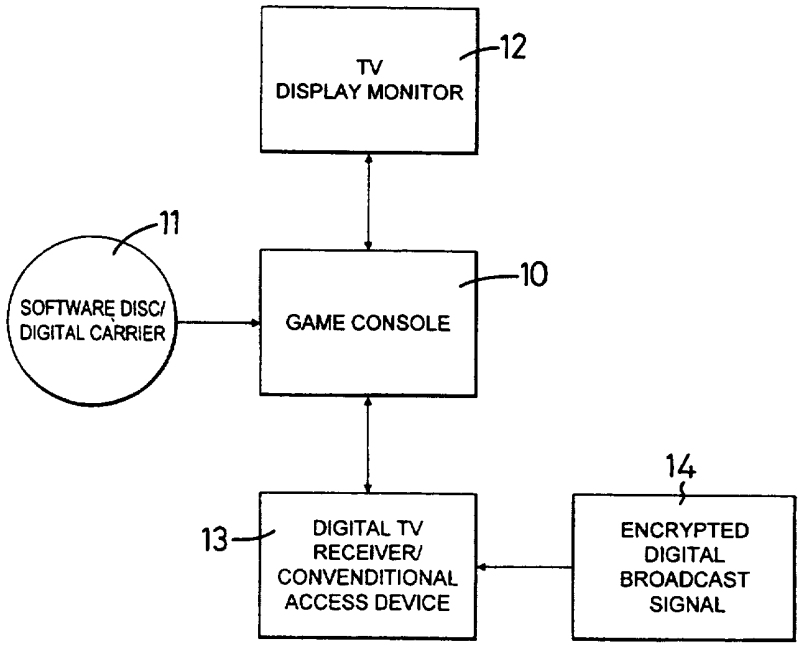
(56) Documents Cited
GB 2067871 A **WO 91/06160 A1**

(58) Field of Search
UK CL (Edition O) **H4F FDE , H4R RCC RCS RCSC RCSS RCST RCT RCX**
INT CL^6 **G11B 31/00 , H04N 5/445 5/775 7/16 7/173**
Online : WPI

(54) Digital information display eg for video games

(57) A digital information display apparatus comprises a control console 10 adapted to accept compact discs 11 bearing encoded information. The console 10 is connected through an access device 13 to a communications channel 14 which provides a menu signal enabling the console to display on a TV monitor 12 a menu of the information on the disc 11. The user selects from the menu which information from the disc 10 to access and the console checks the user's available credit. If the user has sufficient credit to access the selected information on the disc 11 the access device 13 provides a release signal allowing the encoded information to be accessed. The user pays in accordance with their actual usage of the digital information held on the disc.

FIG.1



GB 2 317 796 A

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

FIG.1

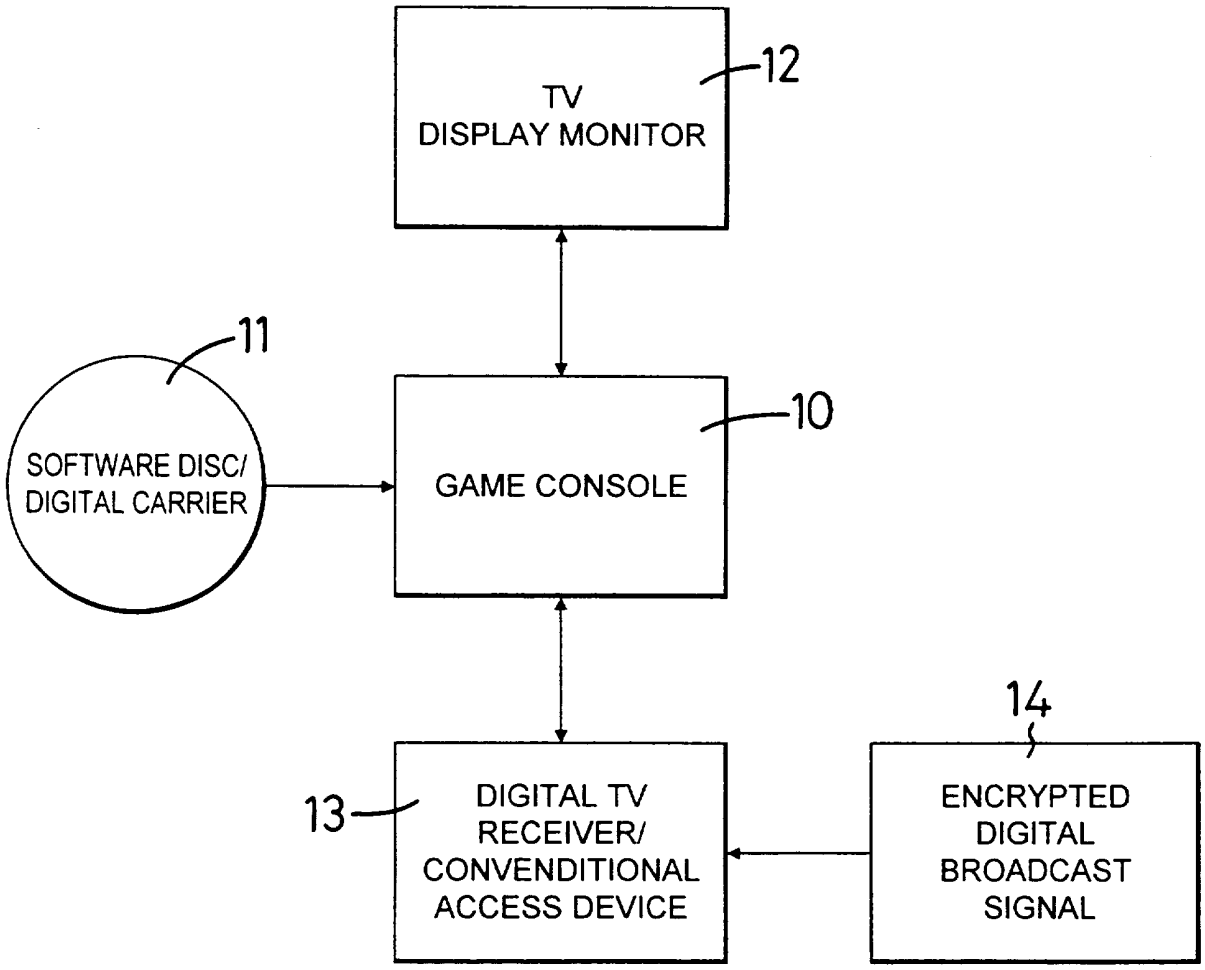
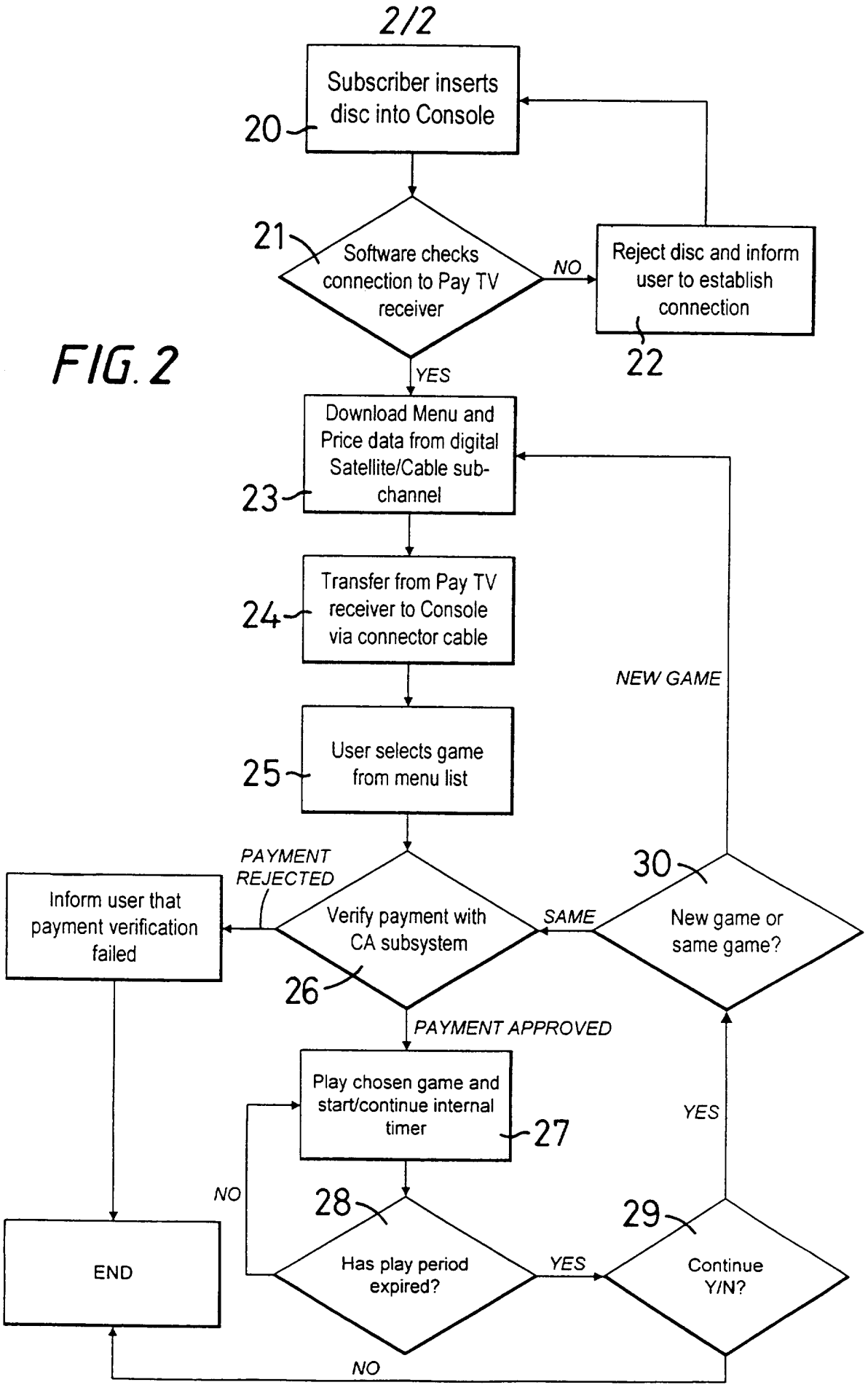

TV
DISPLAY MONITOR
12
SOFTWARE DISC/
DIGITAL CARRIER
11
GAME CONSOLE
10
13
DIGITAL TV
RECEIVER/
CONVENDITIONAL
ACCESS DEVICE
14
ENCRYPTED
DIGITAL
BROADCAST
SIGNAL

FIG. 2


Subscriber inserts disc into Console
20
Software checks connection to Pay TV receiver
21
NO
Reject disc and inform user to establish connection
22
YES
Download Menu and Price data from digital Satellite/Cable sub-channel
23
Transfer from Pay TV receiver to Console via connector cable
24
User selects game from menu list
25
NEW GAME
PAYMENT REJECTED
Verify payment with CA subsystem
26
SAME
New game or same game?
30
Inform user that payment verification failed
PAYMENT APPROVED
Play chosen game and start/continue internal timer
27
YES
NO
Has play period expired?
28
YES
Continue Y/N?
29
END
NO

2317796

DIGITAL INFORMATION DISPLAY APPARATUS AND METHODS

This invention relates to digital information display apparatus and methods, for example to video game consoles adapted for playing games held in digital form on a compact disc (CD) and displayed on a TV receiver or video monitor. The Sony PLAYSTATION (Trade Mark) is currently a best-selling CD-based video game system.

A disadvantage of this system is that the compact discs holding the game software are primarily sold through traditional retail or mail order channels which are fairly slow and expensive and tend to give the potential purchaser little opportunity to assess whether or not they will enjoy a new game before paying the full price up-front for the CD. In principle, this disadvantage applies to any set of digital information sold on a data carrier for unrestricted use by a purchaser.

An object of the invention is to provide apparatus and method making it possible for a user to pay in accordance with their actual usage of the digital information held on a data carrier.

In relation to video games, a particular object of the invention is to provide a pay-per-play apparatus and method. Thus, if the user is highly pleased with a new game, they would be prepared to pay a significant amount for repeat play sessions, whereas if they are displeased they would pay relatively very little, for example for a single short time period sample or preview usage.

A further object is to provide apparatus and methods permitting greater flexibility in the release, availability and pricing structure for sets of digital information, for example video games and other entertainment software.

According to the present invention, there is provided digital information display apparatus comprising means for displaying decoded information from encoded information held on a local data carrier in response to a release signal provided upon selection by a user from a displayed menu, the menu display being permitted in response to a signal received from a remote source through a communications channel.

In another aspect, the invention provides digital information display apparatus comprising:

a control console adapted to accept a data carrier holding encoded digital information and to selectively download information from a said data carrier in response to a release signal;

digital video display means adapted to receive digital information and display an image represented by such digital information; and

conditional access means for connection to said console, to said display means, and to an external communications channel;

said access means being adapted to receive a menu signal from said channel, said menu signal permitting the display means to display data relating to the encoded digital information on a said data carrier currently in the control console, said access means being further adapted to provide said release signal to the control console upon selection by a user from the displayed menu whereby to permit the display means to display a decoded set of

information from the data carrier, and said access means being further adapted to monitor such selected usage.

In a further aspect, the invention provides a method of controlling the decoding and display of information, wherein the information is held in encoded form on a local data carrier and is released for decoded display in response to a release signal provided upon selection by a user from a displayed menu, the menu display being permitted in response to a signal received from a remote source through a communications channel.

The term "encoded" is used herein in its broadest sense to include arrangements whereby the digital information on the data carrier cannot efficiently or effectively be downloaded for display in an intelligible manner without the release signal. For example, the digital information on the data carrier may be encrypted with the release signal providing a key for decryption, or it may be deficient in certain aspects with the release signal providing data to make good the deficiency.

The data carrier preferably carries no humanly-readable, for example printed, information regarding its detailed data content.

The menu signal may itself be encoded, for example encrypted, for decoding by the conditional access means.

It will be appreciated that the invention permits establishment of a video game pay-per-play system without the need for a broadband communications channel. This is because the data embodying the game content itself is wholly or substantially wholly resident on the data

carrier, for example a CD, which is physically present on site within the control console.

The communications channel therefore merely requires sufficient bandwidth to carry the menu signal and optionally also decoding data and payment data signals.

The digital video display means and the conditional access means can comprise a conventional pay TV receiver as presently available for connection to Cable or Satellite communications channels, with the conditional access means adapted to further interface with the video game control console. The decoding data and payment data signals for such pay TV receivers can be provided on-line through the communications channel, for example by polling subscribers' equipment via modem, or by telephone line, or by smart card, or other means suited to the circumstances. The smart cards can be of the pre-paid type, for example to enable the conditional access means for a month, or adapted to accrue charging for invoicing purposes. The invention is thus adapted to interface efficiently with existing apparatus, communications infrastructure, encryption and payment systems.

An embodiment of the invention will now be described, by way of example, with reference to the accompanying Drawings, in which:-

Figure 1 is a block diagram of a digital information display apparatus according to the invention, and

Figure 2 is a flow diagram of steps of a method according to the invention.

With reference to Figure 1 there is shown a control console exemplified as a video game console 10 adapted to accept data carriers in the form of a compact disc 11 and to selectively download the encoded digital information from the disc in response to a release signal. A video display means is provided in the form of a TV display monitor 12. A digital TV receiver and conditional access means 13 is connected by data bus lines of appropriate capacity to the console 10 and to the monitor 12. An external communications channel 14 is also connected to the access means 13. The channel 14 may be a cable or satellite TV communications link. A telephone line (not shown) may also be connected by modem to the access means 13.

Operation of the apparatus of Figure 1 is suitably described with reference to the flow diagram of Figure 2. The description will refer for convenience to selection and usage of video games, but the invention is applicable to any set of digital information provided on a data carrier.

The video game user connects and switches on the apparatus shown in Figure 1. They are also a subscriber to the satellite or cable pay TV organization and will thus have established credit. The facts of subscription and credit can for example be established by smart card, which is inserted into and read by the access means 13 to enable the apparatus for use. Within their subscription, the user includes a subscription to a predetermined broadcast channel or sub-channel associated with a particular supplier of video games.

In association with the video game channel subscription, the user receives a compact disc 11. For

a regular basis, for example once a month, with a subscriber magazine. Each compact disc holds the software for at least one video game, preferably upto about ten. The subscriber can thus collect a library with a large choice of games. The software to play a video game - generally 10-100 Mb or more - is thus physically present locally at the video game console, thereby rendering it unnecessary to utilize a broad band communications channel.

The compact discs hold the video game software in encoded form. As stated above, the term "encoded" is used herein to include any arrangement whereby the digital information on the data carrier cannot efficiently or effectively be downloaded for display in an intelligible manner without the release signal. The compact discs also preferably carry no humanly-readable information regarding their detailed data content, but perhaps merely a printed statement that it is "SONY Game Disc No. 15 of July 1996", for example.

The user/subscriber has thus received an encoded compact disc, inserted it into the console 10, and tuned their receiver 13 to the relevant channel as shown by step 20 in Figure 2. The receiver software checks conection of the apparatus at steps 21 and 22. The access means thereby receives a menu signal from the channel to which the receiver is tuned, and downloads the menu and transfers it to the console at steps 23 and 24. The control console generates a digital video signal representative of the menu and transmits it to the monitor 12 for display. Alternatively, the menu signal can pass directly from the access means to the monitor for display.

The menu signal is generated, stored and broadcast by

a central server at the remote terminal of the communications channel 14. The menu signal provides data relating to the encoded digital video game information on the subscriber's compact discs. The displayed menu tells the user/viewer what games are currently available and their price, for example per play session or per unit time. The control software for the menu causes the displayed menu to list games and prices, if any, available currently from the compact disc currently inserted in the control console, and preferably also includes catalogue listings for games and prices available on previously-issued game discs.

It will be appreciated that the menu signal from the central server can be changed at any time, for example on a daily basis. Because it is downloaded dynamically at the start of a session, at steps 23 and 24 in Figure 2, this allows the menu to reveal new games from time to time to keep the list fresh and exciting. For example, if a new CD is issued each month and each holds ten games, then the centrally-generated menu signal can cause the displayed menu to list merely one or two games on the first day, while adding the remainder to the list over the course of the month.

The on-line menu signal also enables the pricing to be changed at any time. Newly-released games would likely carry much higher prices than catalogue games from previously-issued discs, and special offers can be made from time to time. Dynamic market-sensitive pricing can thereby be achieved. Hints and trailers concerning future releases and other information can be carried if desired either by the on-line menu signal or by the monthly magazine or in both. The on-line menu signal may also permit the access means to provide a preview signal upon

request by a user to preview a portion of a selected game without charge, preferably for a limited time period.

The user views the displayed game menu and pricing and makes a selection at step 25 by the controls on the video game console. The credit status of the user/subscriber can be checked or re-checked at this point by step 26 if desired. The selection also initiates monitoring and recordal of payment data. Once the game is selected and payment is confirmed, the access means provides a release signal to the game console so that the selected game is downloaded from the compact disc into the game console. The console then generates the digital video signals representative of the game and transmits them to the receiver 12 for display and to permit the game to be played at step 27.

A timer is preferably provided to limit the duration of game playing. The length of time can be changed from game to game in response to information carried by the menu signal. In Figure 2, the timer is also set at step 27, the game played at 27, and the predetermined time duration for playing indicated at step 28. Continued play would require a fresh payment. The payment may be per game, in which case step 24 is sufficient. Alternatively, the duration of play can be monitored and payment made at step 29 in accordance with the extent or duration of play.

It will therefore be appreciated that the apparatus and method as described in relation to Figures 1 and 2 effectively provides the user/subscriber/game player with the advantages of on-line game availability without the necessity for a broadband communications channel.

CLAIMS

1. Digital information display apparatus comprising means for displaying decoded information from encoded information held on a local data carrier in response to a release signal provided upon selection by a user from a displayed menu, the menu display being permitted in response to a signal received from a remote source through a communications channel.

2. Digital information display apparatus comprising:

a control console adapted to accept a data carrier holding encoded digital information and to selectively download information from a said data carrier in response to a release signal;

digital video display means adapted to receive digital information and display an image represented by such digital information; and

conditional access means for connection to said console, to said display means, and to an external communications channel;

said access means being adapted to receive a menu signal from said channel, said menu signal permitting the display means to display data relating to the encoded digital information on a said data carrier currently in the control console, said access means being further adapted to provide said release signal to the control console upon selection by a user from the displayed menu whereby to permit the display means to display a decoded set of information from the data carrier, and said access means being further adapted to monitor such selected usage.

3. Apparatus according to Claim 2, wherein said control console comprises a video game control console adapted to accept the data carrier in the form of a compact disc holding the software for at least one video game.

4. Apparatus according to Claim 2 or Claim 3, wherein said menu signal permits the display means to display data relating to distinct sets of the encoded digital information together with current pricing data relating to each such distinct set, said pricing data being carried by said menu signal whereby to permit the pricing to be changed from time to time.

5. Apparatus according to Claim 4, wherein said menu signal also carries information controlling selection and presentation for display of the data relating to distinct sets of the encoded digital information, whereby to permit the selection and presentation to be changed from time to time.

6. Apparatus according to any one of Claims 2 to 5, including a timer adapted to time the duration of display of a selected set of information.

7. Apparatus according to any one of Claims 2 to 6, wherein said access means is further adapted to provide a preview signal upon request by a user to preview a portion of a selected data set, said control console being responsive to said preview signal to selectively download preview information from the data carrier for display by said display means.

8. Apparatus according to any one of Claims 2 to 7, wherein said access means is adapted to store current credit information relating to the credit status of the user, said access means being disabled from providing said release signal in the event said stored current credit information does not meet predetermined criteria.

9. Apparatus according to any one of Claims 2 to 8, wherein said digital video display means comprises a digital TV receiver.

10. A method of controlling the decoding and display of information, wherein the information is held in encoded form on a local data carrier and is released for decoded display in response to a release signal provided upon selection by a user from a displayed menu, the menu display being permitted in response to a signal received from a remote source through a communications channel.

11. A method according to Claim 10, including displaying current pricing data in association with the displayed menu, the current pricing data being carried by said signal from the remote source.

12. A method according to Claim 10 or Claim 11, including controlling selection and presentation of the displayed menu by control information carried by said signal from the remote source.

13. A method according to any one of Claims 10 to 12, including monitoring the selective usage of the displayed decoded data and charging the user a usage fee in response to said monitoring.

14. A control console adapted for use in digital information display apparatus according to any one of Claims 2 to 9.

15. A data carrier holding encoded digital information and adapted for acceptance in a control console according to Claim 14.

16. A server adapted to generate, for transmission through a predetermined communications channel, a menu signal for use by said access means in a digital information display apparatus according to any one of Claims 2 to 9.

17. Digital information display apparatus substantially as described herein with reference to the accompanying Drawings.

18. A method according to Claim 10 and substantially as described herein with reference to the accompanying Drawings.

The Patent Office

13

Application No: GB 9620247.8
Claims searched: 1-18

Examiner: Keith Williams
Date of search: 20 December 1996

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): H4F (FDE); H4R (RCC, RCS, RCSC, RCSS, RCST, RCT, RCX)

Int Cl (Ed.6): G11B 31/00; H04N 5/445, 5/775, 7/16, 7/173

Other: online WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	GB 2067871 A	Marconi Co. - see Fig. 1	1,10
X	WO 91/06160 A1	Rhoades - see page 4, line 8 to page 5, line 16 (and equivalent US 5051822)	1,10

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.