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WO 2002/025610 A1 **WO 2001/057617 A2**
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US 5959945 A

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(54) Abstract Title: **Entertainment system**

(57) An entertainment system for storing and playing music tracks comprises a first unit (1) for controlling distribution of music tracks in an encrypted format to at least one second unit (2) remote from the first unit. The second unit (2) stores the encrypted music and permits a user local to the second unit (2) restricted access to one or more tracks. Management functions can be accessed using a key such as a personal identification number.

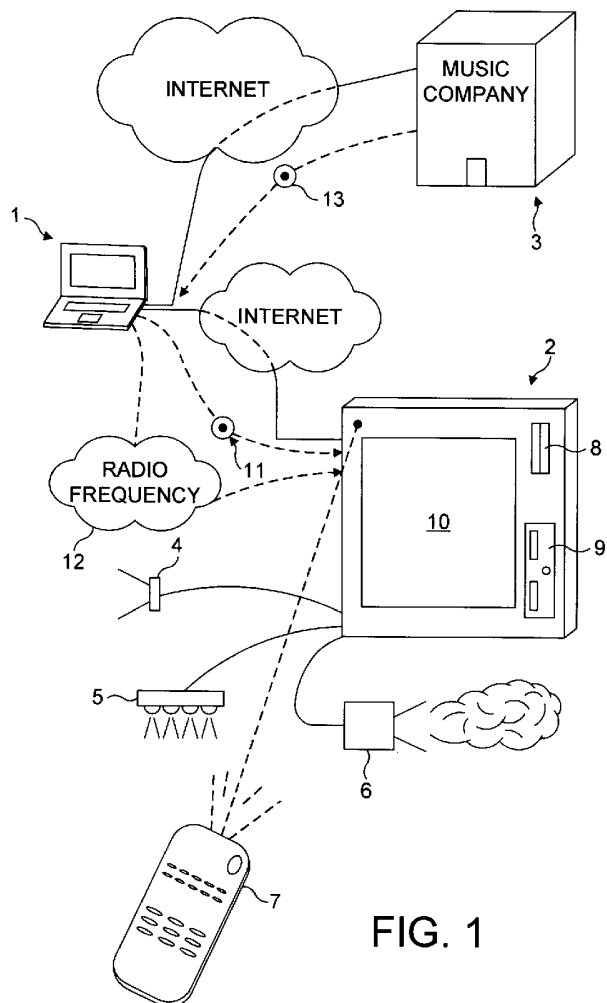


FIG. 1

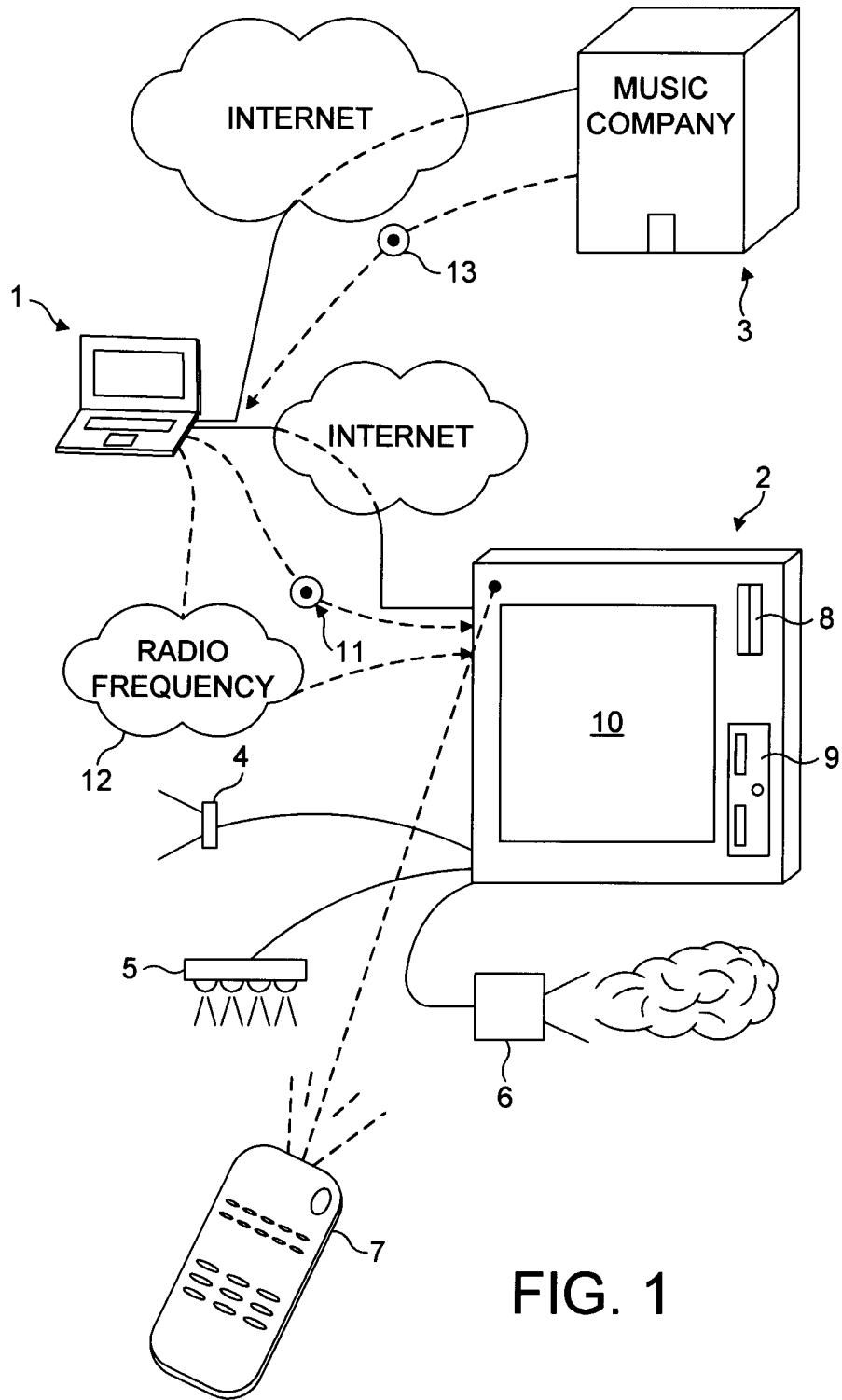
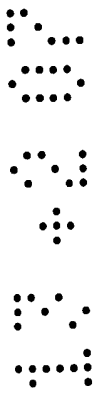
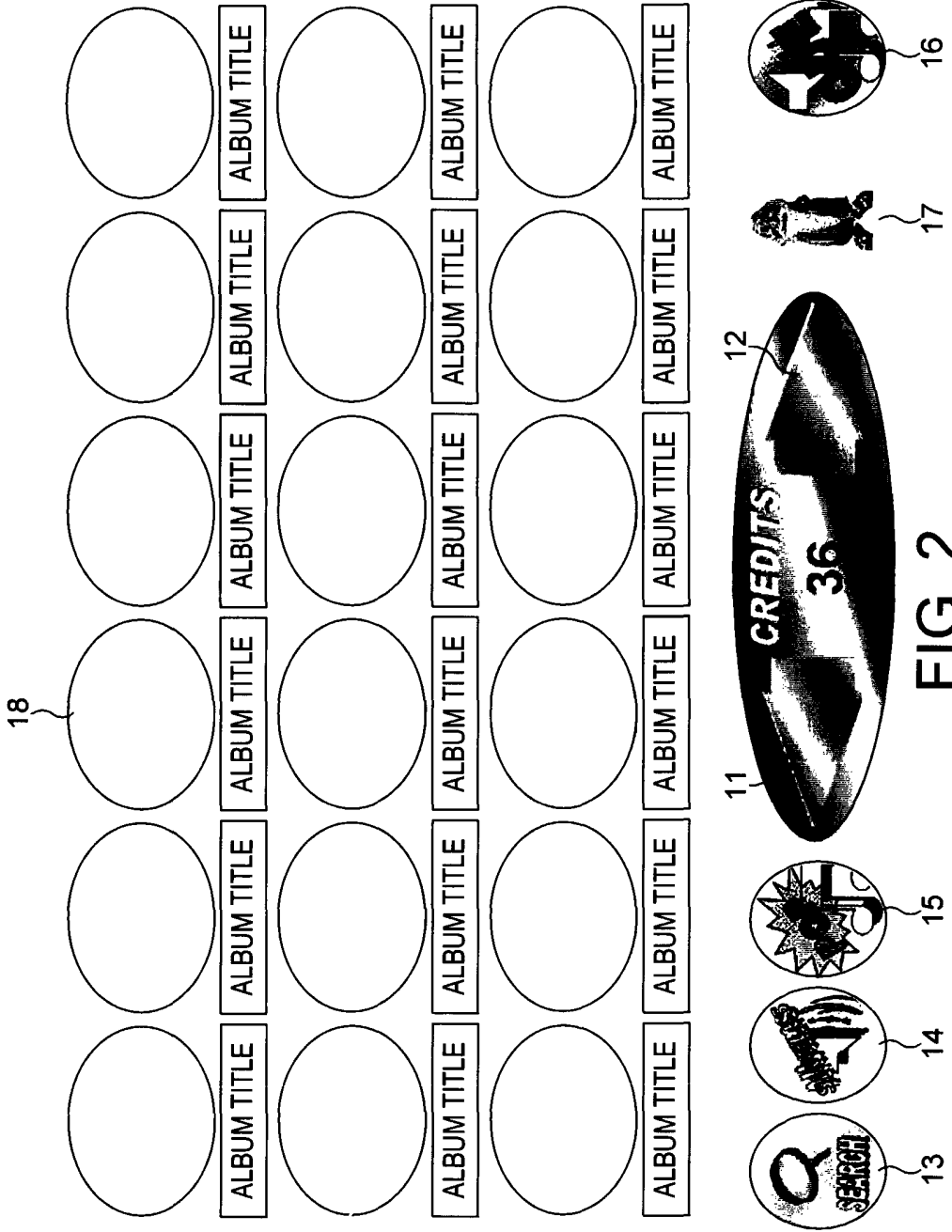


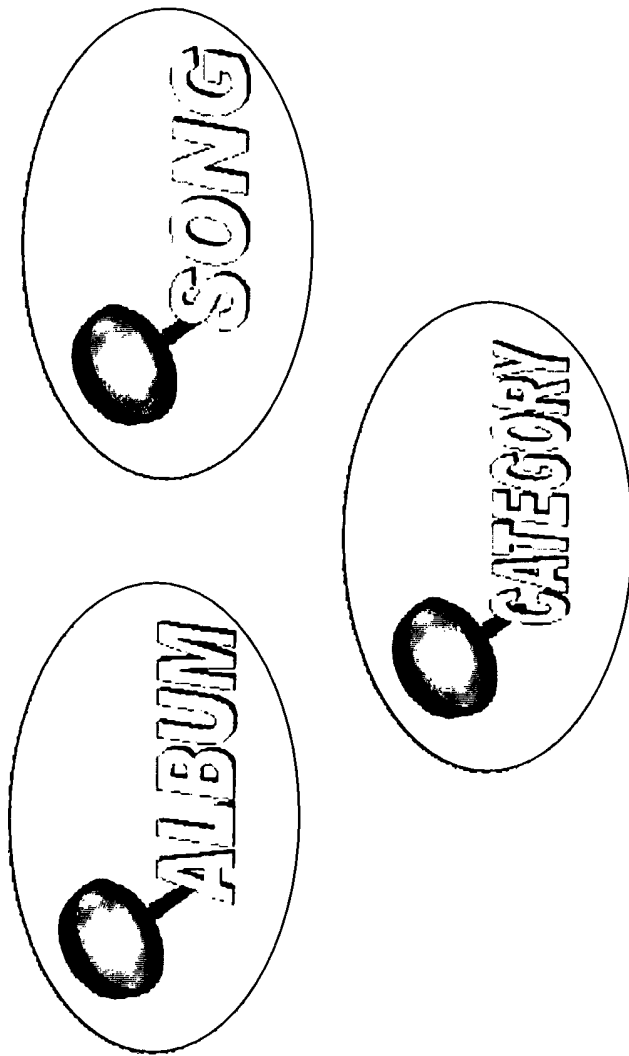
FIG. 1



13 14 15 16



13 42 07



3 / 13



FIG. 3

SEARCH

TYPE AN ARTIST / ALBUM OR SONG

1 2 3 4 5 6 7 8 9 0 ←

A B C D E F G H I J K L M N

O P Q R S T U V W X Y Z

(SPACE)

EXIT

Use the letters

FIG. 4

50 Cent

53 CREDITS

IN DA CLUB
50 CENT

21 QUESTIONS (ALBUM VERSION)
50 CENT

IN DA CLUB (CLEAN)
50 CENT

PIMP (EXPLICIT)
50 CENT

CANDY SHOP
50 CENT



ALREADY QUEUED POPULAR SEARCH RESULTS

FIG. 5

1 2 3 4 5 6 7 8 9 0

THE SEARCH WILL BEGIN 3 SECONDS AFTER THE LAST LETTER PRESSED



A B C D E F G H I J K L
M N O P Q R S T U V W X
Y Z
1 2 3 4 5 6 7 8 9 0



FIG. 6

17 43 07

SEARCH BY CATEGORY

Select a category to view associated albums

CATEGORIES

- 1940'S
- 1950'S
- 1960'S
- 1970'S
- 1980'S
- 1990'S
- 2000'S
- CLASSICAL
- COUNTRY
- DANCE
- DISCO
- EASY LISTENING
- FEEL GOOD
- FILM AND SOUNDTRAC

NO CATEGORY SELECTED



FIG. 7



POPULAR MUSIC

BELOW IS A LIST OF THE MOST POPULAR SONGS ON THIS JUKEBOX

<input type="checkbox"/>	WAITING FOR TONIGHT Jennifer Lopez	PLAYED 15
<input type="checkbox"/>	TOMORROWS (JUST ANOTHER DAY) Madness	PLAYED 12
<input type="checkbox"/>	IT MUST BE LOVE Madness	PLAYED 7
<input type="checkbox"/>	PEOPLE ARE STRANGE The Doors	PLAYED 6
<input type="checkbox"/>	ANGEL EYES (RADIO EDIT) Reginey Featuring Frenkey Maxx	PLAYED 6
<input type="checkbox"/>	CARELESS WHISPER George Michael	PLAYED 5
<input type="checkbox"/>	(IS THIS THE WAY TO) AMARILLO Tony Christie Featuring Peter	PLAYED 5
<input type="checkbox"/>	PARKLIFE Blur	PLAYED 5

<input type="checkbox"/>	SUNRISE Pulp	PLAYED 4
<input type="checkbox"/>	DREAMS Fleetwood Mac	PLAYED 4
<input type="checkbox"/>	BATDANCE Prince	PLAYED 4
<input type="checkbox"/>	GET RIGHT Jennifer Lopez	PLAYED 4
<input type="checkbox"/>	STUCK ON YOU Lionel Richie	PLAYED 4
<input type="checkbox"/>	LA ISLA BONITA Madonna	PLAYED 4
<input type="checkbox"/>	CRAZY FOR YOU Madonna	PLAYED 4

Touch a song for more
Touch



FIG. 8



<input type="checkbox"/>	ANOTHER BRICK IN THE WALL (PAR) Pink Floyd <i>PLAYING NOW</i>
<input type="checkbox"/>	THE GREAT ROCK 'N' ROLL SWINDL Sex Pistols <i>PLAYING NEXT</i>



FIG. 9

13 03 07

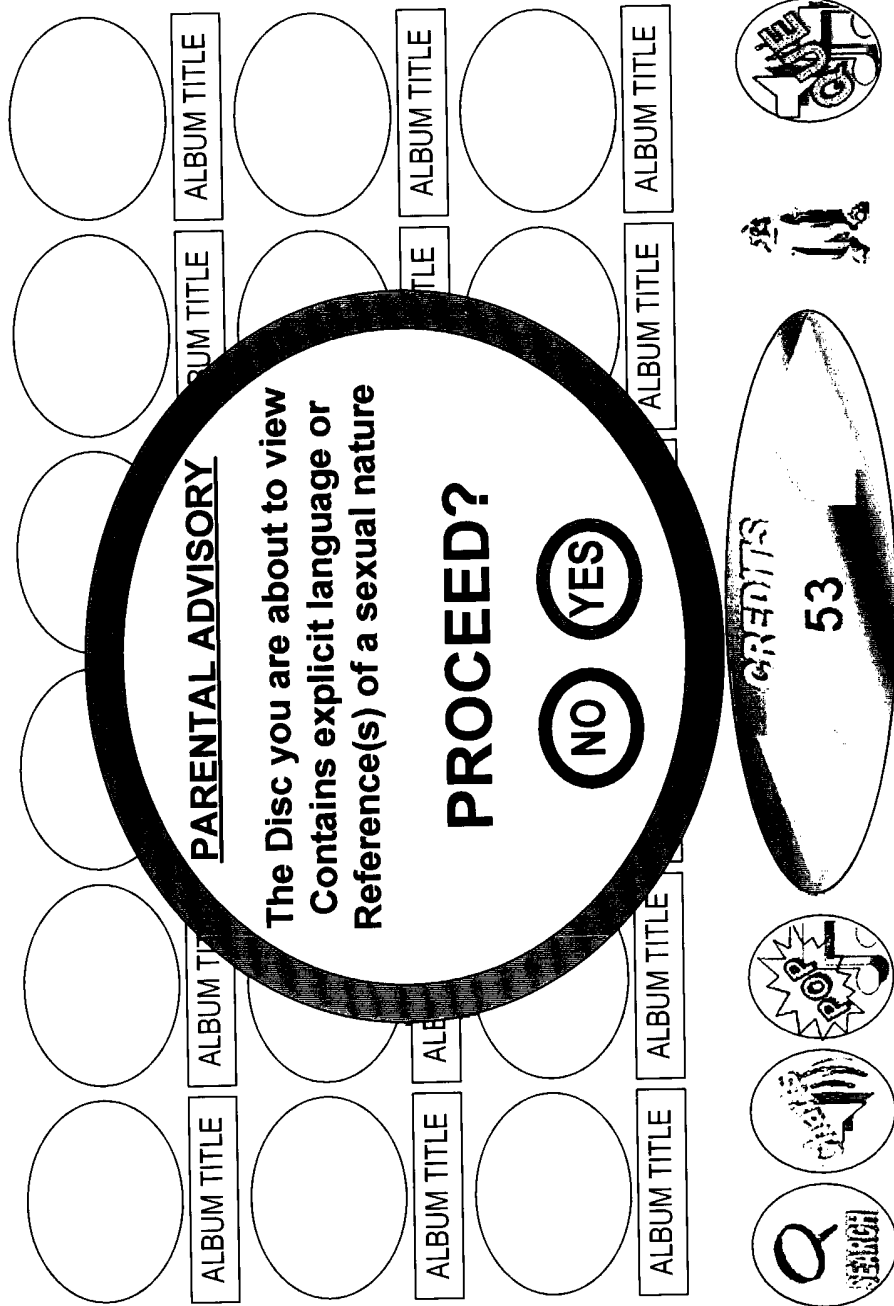


FIG. 10

13 4 07

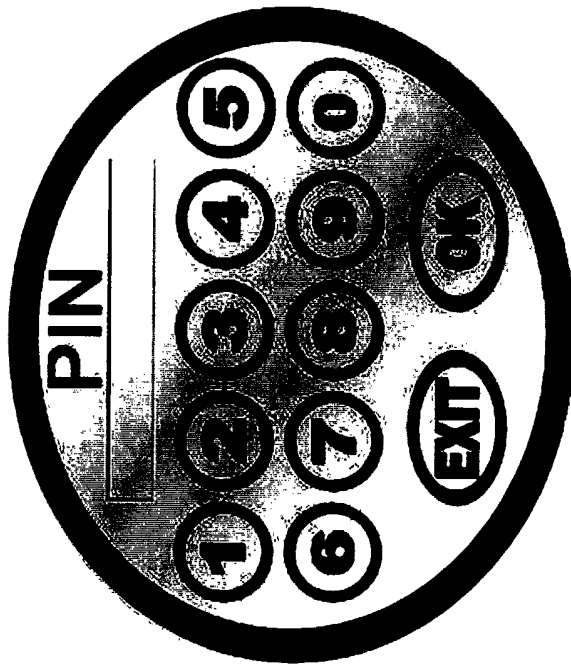
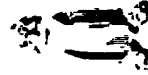


FIG. 11



INFORMATION

NUMBER OF QUEUED SONGS : 001
NUMBER OF ERROR : 000

VOLUME CONTROL

BASS TREBLE V.MTH TPE MAIN

AUDIO MONITOR

CONTROLS

REFLECT SONG

REJECT ALL

REMOTE

ZERO CREDITS

+1

EXIT

TRACKLENGTHEDITOR

ENABLE FEATURE

TRACKLENGTH 25% 100%

OPTIONS

- ENABLE FREE PLAY SONGS WHEN IDLE EVERY ...
- ALLOW AUDIO LEVEL CORRECTION
- PLAY SEGEWAYS TO MIX SLOW TRACKS
- ALLOW CREDIT REFUND FOR TRACKS WITH ERROR
- ALLOW EXPLICIT CONTENT BEFORE 9pm SHOW WARNING
- ALLOW EXPLICIT CONTENT AFTER 9pm SHOW WARNING
- PLAY QUE IN ORDER SELECTED
- ALLOW SMART MIXING (VIRTUAL DJ)

VIEW QUE

TAKINGS CONTROL

SILENCE DETECTION

AUTO KILL

AUTO SHUTDOWN

0 HOURS (15 MINS)

ADVANCED

Firmware Version 5.01 (2000)
AC STATUS 1 (BATTERY STATUS 128 (255))
EMX LICENCE DOUBLE NOT FOUND

ERRORS

Configure ACA

THE GREAT ROCK 'N' ROLL SOUND

FIG. 12

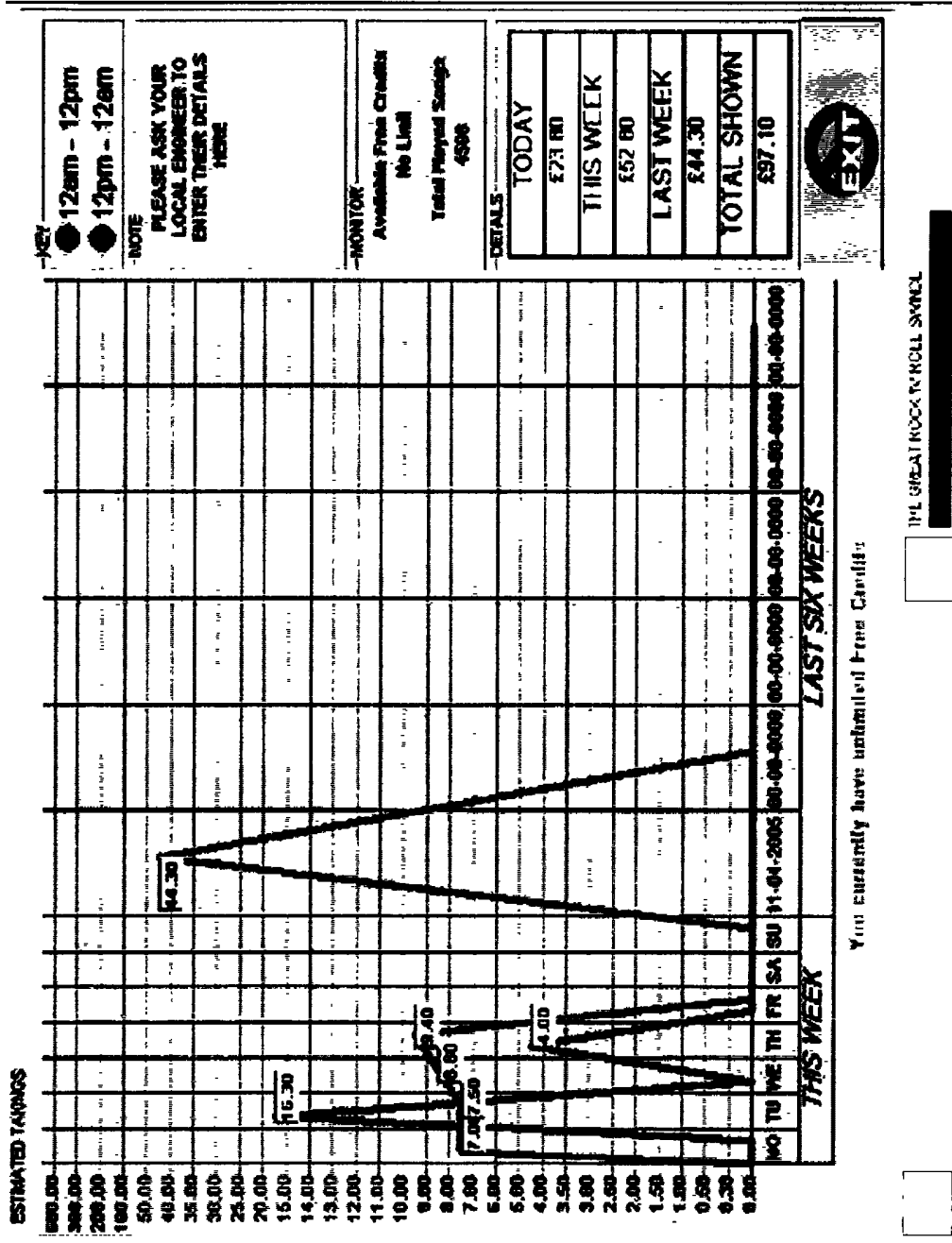


FIG. 13

Entertainment System

The present invention relates to an entertainment system for storing and playing music tracks, which music tracks may be in the form of music videos. More particularly, but not exclusively, the invention relates to a jukebox system where a user pays for a track to be played.

Traditionally, jukeboxes have stored music tracks on records or compact discs (CDs). More recently, the availability of large volume low cost memory, either solid state electronic memory or hard drive magnetic memory, has made it possible to store music electronically or magnetically within devices and there are a number of jukeboxes on the market which store music in electronic or magnetic format. These devices typically download music by an operator inserting a CD into the device from which the music is read and stored for subsequent playback. The present distribution network is therefore fairly inflexible and limited in the services that can be provided. There is also a risk that the music can be copied without authorisation.

It is an object of the present invention to provide an improved entertainment system.

According to the present invention there is provided an entertainment system for storing and playing music tracks, the system comprising: a first unit for controlling distribution of the music tracks in an encrypted format to at least one second unit separate from the first unit and for configuring the second unit, the at least one second unit being arranged to receive and store said encrypted music and to permit a user local to the second

unit restricted access to one or more tracks stored within the second unit. By 'configuring' it is meant performing any operation on the second unit which determines functions that the second unit can perform, including permitting operation of the second unit.

- 5 An entertainment system in accordance with the present invention may comprise a second unit which is intended to function as a jukebox in a public premises. However, the second unit could alternatively be a unit to be located in a private dwelling, for in either application the system permits music tracks, which may be music videos, to be distributed in an encrypted format so that the music can only be played by the intended second unit.
- 10 This provides a distributor with control of the music ensuring that it cannot be further distributed or copied unless specifically authorised.

 At least one of the second units preferably has a number of management functions which can be controlled by a local operator using a key recognised by the second unit. In

15 the case of a second unit in a public environment, a local operator, for example the owner or operator of a public premises such as a bar, may control management functions such as the setting of threshold values relating to the operation of the second unit (examples being volume, bass and treble controls). Where the second unit accepts payment for the playing of tracks, the system may also permit an operator to view a chart displaying the takings of

20 the second unit. The system may also permit an operator to review data relating to use of the second unit or permit a local operator to select a particular mode of operation for the second unit. For example, to select a background music mode or disco music mode if it is desired that the second unit play such music without payment or displays a specific genre of music for use with or without payment.

Preferably, the key used by the local operator is a personal identification number (PIN) but could be a magnetic card used in conjunction with a card reader on the second unit, a physical key or any equivalent means, which for the purpose of this specification, 5 will be referred to as a key.

The system may require a user to pay for a selected track to be played. In which case it is preferable that the at least one second unit comprises payment acceptance means. This may be a conventional coin, banknote or token acceptor or alternatively may be by 10 means of charging payment to a credit card or detecting credits from a prepaid card or any similar means.

Where the second unit requires a user of pay for a selected track to be played, a management function may permits a local operator to set pricing codes for tracks depending 15 on one of either the track to be played, the popularity of the track or the time the track is played. This provides an operator with pricing flexibility, for example the operator can then have “happy hours” to encourage use of the second unit at off-peak times.

A system in accordance with the present invention may be arranged to store a 20 number of tracks but only permit track selection from a limited number of the tracks stored. Thus, the second unit may have downloaded to it and stored within a large number of tracks, but only present a limited number of tracks to a user for selection. More preferably,

the number of tracks stored in the at least one second unit available for selection is controlled by the first unit, this providing a means of tailoring the second unit by the distributor operating the first unit to the requirements of the operator of the second unit. Thus, the number of tracks available may be dependent on a licence fee paid to the

5 distributor.

The second unit may determine the tracks which are available for selection by substituting the least popular tracks with tracks stored but not previously available for selection, thus maximising the probability that the tracks desired by a user are available for

10 selection, the second unit “learning” what are the most popular tracks. The tracks available for selection will thus be determined locally by the users and therefore reflect the preferences of the users.

Advantageously, the second unit is arranged to accept a code which, if correct,

15 enables tracks having a specific classification to be selected from those tracks that would not normally be selectable. This may be related to the management code, whereby a local operator entering the correct code is permitted access to all tracks having a specific classification for a limited period of time. Thus, if the local operator wishes to have a “70’s Night” he may, for a limited period, only have all tracks categorised as “70s”.

20

The second unit may permit a track to be downloaded to a mobile data storage device of a user, for example a mobile phone.

Advantageously, the second unit is arranged to permit the user to select a track by first presenting to the user albums or artists that may be selected. Then, on selection of album or artist, presenting that user with tracks on the album or the tracks by the selected artist. This permits a user, who may not be able to remember a specific track, to quickly
5 peruse the tracks on an album or by an artist to enable him to identify the particular desired track or to remind him of the tracks on a particular album or by a particular artist.

Preferably, the second unit displays on a touch screen a graphic representing an album cover. The associated tracks may then correspond to those on the album or
10 alternatively those by the artist or group associated with the album, in the latter case the album cover merely providing a convenient identifier for that artist or group.

Preferably, the second unit only permits tracks from a number of albums or artists to be selected, only presents those albums or artists for a user to select and rotates groups of
15 tracks corresponding to the tracks of an album or artist from a background memory. Thus a certain album and tracks associated with that album may be removed from those selectable, with a similar groups of tracks, corresponding to a different album or artist, then being made available for selection. It is also possible for the first unit to do these same functions with or without user intervention.

20

Advantageously, the second unit provides a user with a display of tracks that are already queued for playing to avoid them requesting a track which is already about to be played.

Preferably, the system includes a keypad from which a user may identify a track by entering a word from the title, which can be word other than the first word. Thus, if the user cannot remember the full title, but can remember part of a lyric which may be in the title, then by entering that lyric he is likely to identify the track he desires.

5

The system may comprise a display which identifies tracks in different colours to indicate that a particular track is either queued to be played, has been regularly requested, is playing or is the track that has been identified by a search, each of these providing additional information to the user. More preferably, the display preferably identifies all tracks in respective different colours which are queued, playing, regularly requested or the result of the search such that these are all clearly identified.

Advantageously, the second unit is arranged to avoid playing tracks consecutively which musically clash with each other. The second unit may monitor (by pre-playing) the beat of consecutive tracks and change the order of tracks if the tempo of each is significantly different. Alternatively, or in addition to, the stored tracks may be categorised and this data may be compared to identify tracks that musically clash. Classifications may be type, for example punk or classical, the year for example 60s or modern, rock or vocal or any other category by which the tracks may be classified. Where tracks clash, the second unit may be arranged to insert a short promotional clip between potentially clashing tracks.

The second unit may be arranged to change the order of queued tracks to avoid clashes if there is a significant number of tracks queued. The second unit may be arranged

to occasionally insert promotional material between tracks, this possibly being controlled by a management function.

5 Preferably, the second unit: is capable of displaying a screen identifying the most popular tracks currently available; may monitor the output level and where a peak threshold value is or will be exceeded gradually reduce the volume level; play tracks if no track is playing or queued; and shut down if the second unit has been on in excess of a predetermined period. This later function encourages staff to switch the unit off at night, for if they do not the unit may switch off automatically the following day.

10

Preferably, the second unit comprises a touch screen display and the background display is arranged to change depending on the time of year. For example, the background display can depict seasonal images or may depict themes peculiar to a particular day of the year, for examples images of Ireland on St Patrick's day or of presents on Christmas day.

15

Preferably, the second unit comprises a display which displays graphics representing albums on which graphics icons are overlaid indicating a category associated with the respective album. For example, an icon with "pop" on it may be overlaid over a graphic representing an album of popular music.

20

A system in accordance with the invention may be arranged such that the second unit stores a number of tracks which can be played and wherein the first unit contains a number of further tracks that are periodically exchanged with the tracks stored in the second unit, thus permitting the number of tracks available at the second unit to be set by

the distributor controlling the first unit. The number of tracks available could then be made dependent on a licence fee paid by the operator of the second unit.

Preferably, the second unit comprises a touch screen display whereby each graphic
5 or icon on the display links to a further selection of icons in the same way as a WINDOWS
™ display functions on a computer screen.

Preferably, with the system of the present invention each track is categorised and
one category is parental control, wherein the second unit is programmed to only permit
10 tracks categorised as parental control to be played at selected predetermined times
(watershed) or to show a visual warning dependant on the manager's setting..

The second unit may have a DMX output to control lights and/or a smoke machine.

15 The first unit may be arranged to recognise certificates from record companies
encoded with the tracks and to add a location code relating to a particular second unit to
which the tracks is to be downloaded, which code permits only that second unit to play the
tracks, the second unit comprising an appropriate decryption unit and code. This system
ensures that the music once downloaded to a particular second unit cannot be subsequently
20 retrieved/copied or downloaded to a further unit, ensuring that the record company through
the distributor operating the first unit can retain control of the music.

The first unit may perform other functions such as controlling the pricing of tracks
offered by the second unit and performance characteristics of the second unit (for example

availability of tracks and the free background music available). Another function the first unit may control is the upgrading of the second unit as new operating systems become available, such as new graphic user interfaces (gui).

5 The second unit is preferably arranged to receive a code from an authorised distributor via the first unit or a manufacturer via the first unit. The second unit is arranged to prevent the playing of tracks if the code has not been received, thus if licence fee is not paid by an operator, even if the operator subsequently disconnects the second unit from all links to the manufacturer or authorised distributor, which may typically be over the Internet
10 or via the first unit, then after his licence expires the second unit will no longer function. Similarly, if the second unit is itself stolen then it will only remain operational for a limited period.

One embodiment of the present invention will now be described, by way of example
15 only, with reference to the accompanying figures, of which:

Figure 1 schematically illustrates an entertainment system incorporating the present invention; and

Figures 2 to 13 illustrate various displays provided at the second unit of an entertainment system in accordance with the present invention.

20

Referring to Figure 1, there is shown an entertainment system in accordance with the present invention comprising the first unit 1 and a second unit 2. The first unit 1 has a link, via the Internet, to music company 3 and a second link, also via the Internet, to the second unit 2. The music company 3 may alternately send music to the second unit by

means of a CD/DVD 13 created on the first unit 1. The second unit 2 is connected to one or more speakers 4 and optionally may be connected by DMX to a light unit 5 (or light controller) and/or a smoke machine 6. The first unit 1 may also be linked to the second unit by means of a physical cable 11 or radio frequency link 12.

5

The second unit 2 has a remote control unit 7, a card reader 8, a coin/token acceptor 9 and touch screen 10.

Unit 1 may be any appropriate computer capable of receiving, encrypting, storing and distributing music files or tracks. Unit 1 will typically be operated by a music distributor who obtains music files under licence from music company 3. The first unit contains encryption software and ensures that any music file distributed to a second unit 2, only one of which is shown, is appropriately encrypted with an encryption code which can only be read by software specific to unit 2 or by software in combination with a code specific to unit 2. Furthermore, first unit 1 periodically transmits an authorisation code to second unit 2, second unit 2 comprising software which deactivates the second unit if an authorisation code is not received after a predetermined period of time. Second unit 2, in the embodiment shown, is in the form of a jukebox comprising a flat screen display 10 through which a user may select tracks, as described below, and comprises payment acceptance means 8 and 9 through which a user can pay for selected tracks. In this embodiment, second unit 2 will typically be located in public premises such as a bar and an operator of the unit will pay a licence fee to the distributor associated with the unit 1.

In accordance with any agreement between the distributor and the operator, encrypted music files or tracks are stored in the second unit 2. The memory of second unit 2 is sufficient to store a large number of tracks and typically a 1,000 tracks or more and stored in second unit 2.

5

The first unit 1 transmits a code to second unit 2 indicating how many of the tracks stored in unit 2 may be available for selection by a user. Again, this number may be determined by the terms of any agreement between the distributor and the operator. The second unit 2 identifies a number of tracks as being selectable and a number of tracks 10 which are not selected by a user. Those tracks which are not selected by a user can be thought of as being stored in a background memory of the unit, however no separate memory exists.

Tracks are periodically rotated by the second unit from the “background memory” 15 so that they can be selected by a user with a corresponding number of tracks, those least selected, being returned to the background memory. Each track stored in the second unit 2 has associated with it data not only indicating whether it is selectable or not, but also identifying the artist or group, an album or albums on which it is featured, whether it is categorised as parental control, the tempo of the track (fast, medium or slow), the mood 20 (moody, heavy or soft), the origin (for example Irish) and any specialist category (for example children’s or Gothic).

In the embodiment disclosed groups of tracks are downloaded corresponding to those of an album and all tracks of an album are together either selectable or are placed in

the background memory. How often tracks of a particular album are selected, determines whether all tracks associated with that album remain selectable or are placed in the background memory.

5 On approaching the second unit 2, a flush mounted wall unit, the user either swipes a card through a reader 8, downloading credits to the machine, or inserts payment through coin/token acceptor 9, which could alternatively be a banknote acceptor or a combination of banknote and coin/token acceptor. By inserting payment, the user is presented with the screen as indicated in Figure 2, identifying the number of credits which he has purchased
10 (36 in the illustrated example) showing graphics representing albums from which tracks can be selected (further albums being available by touching scrolling buttons 11 and 12) and presenting him with a number of options.

 Touching one of the album graphics, for example icon 18, presents the user with a
15 list of tracks (not shown) from which he may select those tracks he wishes to be played. Alternatively, a user can request a search by touching the screen at icon 13, change the screen to show singles by pressing icon 14, select a list of popular music by pressing icon 15 or by reviewing queued tracks by pressing icon 16. There is also icon 17 which will take the user to a help menu. By touching the search icon 13 of Figure 2, the user will be
20 presented with a screen as shown in Figure 3, he may then select to search for “albums”, “songs” or to search by category. Touching the “album” icon will take the user to the screen of Figure 6, where he may type in the title of an album which will reveal the album (not illustrated). By touching the album graphic he confirms this is the correct album and reveals tracks on the album, touching a track then reveals a configuration screen. Touching

the tick (not illustrated) adds it to the list of selected tracks. The user then is returned to Figure 2.

Presented with the first screen illustrated in Figure 2, a user may press the icon 14 to
5 be presented with a screen (not shown) of graphics representing singles, which can each be directly selected.

With reference to Figure 3, if instead of selecting “album” the user selected “song”
he would then be presented with the screen illustrated in Figure 4. The user then types in
10 the title of the song or words from the song that he can recall if he cannot remember the complete title. Three seconds after finishing typing the song would be displayed or a selection of songs which most closely matched the title typed. By touching one of these songs, the relevant collection will be displayed, Figure 5, selecting a track then reveals a configuration screen and (not illustrated) after configuration, the song is added to the user’s
15 selection and the user is again presented with the screen illustrated in Figure 5 showing his selection.

With reference again to Figure 3, if the user selected to search by “category” he
would be presented with the screen illustrated in Figure 7. Selecting one of the categories
20 on the left causes a number of albums to appear in the box on the right, which match the category selected. Selecting one of these albums reveals the tracks of that album and again selecting a track from that album and after confirming the confirmation screen (not illustrated), adds it to the user’s selection. The user is then presented once again with the main screen of Figure 2.

Referring to Figure 2, touching icon 15 presents the user with the screen of Figure 8. This screen identifies the fifteen most popular tracks played and the number of times those tracks have been played over a predetermined period, for example the last seven days.

5 Again, touching any one of the icons illustrated in Figure 8 presents the user with the appropriate collection Figure 5 and, after confirming the confirmation screen (not illustrated) adds the track to the user's selection and the screen of Figure 2 is again presented to the user.

10 Selecting the "queue" icon 16 of Figure 2 takes the user to the page illustrated in Figure 9 which lists the tracks already queued and additionally indicates the track playing and the next track to be played.

When the user has made his last selection, he is shown his selection as illustrated in
15 Figure 5. Each track is on a colour-coded background which indicates whether the track is already queued, is popular or is the result of a search.

If at any time a track is selected which is categorised as parental guidance because of lyrics on the song, graphics on an album cover or words on the album cover or in a song
20 title, then preferably the user will be immediately presented with a screen as illustrated in Figure 10.

On most screens, touching icon 17 (see Figure 2 for example) will take the user a general help menu not illustrated. It will also identify a management menu and touching

the appropriate icon takes the user to the screen illustrated in Figure 11. The operator of the second unit 2, knowing the appropriate PIN code can then enter the appropriate PIN code which takes him to the management function screen, depicted in Figure 12. Here, he may set bass, treble and other threshold levels, restrict the hours in which explicit content is available, authorise the playing of segewav's, to mix slow tracks, set the machine to automatically play tracks if there is no song playing. He may also view the takings by pressing the appropriate icon which will display these on the screen illustrated in Figure 13. The operator may then select the desired displayed format touching one of the illuminated icons. Alternatively, all these functions can be performed through the remote control 7, illustrated in Figure 1.

The screen illustrated in Figure 13 may be available on the first unit when the first unit accesses the second unit. Also, the screen appearing on the second unit could alternatively be a simple counter displaying tracks played, credits given and money taken, or some such similar data relating to the usage of the second unit.

The operator may also use the management screen to determine if promotional clips (defined as a segewav) are to be inserted between potentially clashing tracks and/or whether short promotional clips are to be periodically inserted.

20

Although not shown, the management function menu may also permit an operator to set the second unit 2 to an override mode whereby for a limited period all tracks relating to a certain category, for example music from the 70s, will be played irrespective of whether a

track is designated as being in the background memory or not. This may be utilised if the unit is to function as a disc jockey on a disco night, or similar.

In the embodiment described, second unit 2 has been illustrated as a jukebox for
5 receiving the payment prior to playing a requested track. However, the unit could
alternatively be installed in domestic premises, where the operator and user is a private
individual receiving music from a distributor or in commercial establishments to play music
free of charge. This is only one of many alternative embodiments which will occur to those
skilled in the art and which are within the scope of the appended claims.

CLAIMS

1. An entertainment system for storing and playing music tracks, the system comprising: a first unit for controlling distribution of the music tracks in an encrypted
5 format to at least one second unit separate from the first unit and for configuring the second unit, the at least one second unit being arranged to receive and store said encrypted music and to permit a user local to the second unit restricted access to one or more tracks stored within the second unit.

- 10 2. A system as claimed in Claim 1, wherein at least some of the music tracks comprise the music tracks of music videos and the system stores and distributes and permits restricted access to music videos.

- 15 3. A system as claimed in Claim 1 or 2, wherein the at least one second unit has a number of management function which can be controlled by a local operator using a key recognised by the second unit.

4. A system as claimed in Claim 3, wherein the key is a Personal Identification
20 Number (PIN).

5. A system as claimed in Claim 3 or 4, wherein the management function permits the operator to set one or more threshold values relative to the operation of the second unit.

6. A system as claimed in Claim 5, which permits an operator to view a chart displaying the takings of the second unit.
7. A system as claimed in Claim 3, 4, 5 or 6, wherein the managements function
5 permits an operator to review data relating to use of the second unit.
8. A system as claimed in any of Claims 3 to 7, wherein the management function permits a local operator to select a particular mode of operation for the second unit.
- 10 9. A system as claimed in any preceding claim, wherein a user has to pay for a selected track to be played.
10. A system as claimed in Claim 8, wherein the at least one second unit comprises payment acceptance means.
- 15
11. A system as claimed in any one of Claims 9 or 10 when dependent on any one of Claims 3 to 8, wherein the management function of the at least one second unit permits a local operator to set pricing codes for tracks depending on one of either the particular track, the popularity of the track or the time the track is played.
- 20
12. A system as claimed in any preceding claim, wherein the at least one second unit stores a number of tracks but only permits track selection from a limited number of the tracks stored.

13. A system as claimed in Claim 12, wherein the number of tracks stored in the at least one second unit available for selection is controlled by the first unit.
14. A system as claimed in Claim 12 or 13, wherein the at least one second unit
5 determines the tracks which are available for selection by substituting the least popular tracks with tracks stored but not previously available for selection.
15. A system as claimed in any one of Claims 12, 13 or 14, wherein the at least one second unit is arranged to accept a code to permit tracks having a specific classification to
10 then be selected from those tracks that would not normally be selectable.
16. A system as claimed in any preceding claim, wherein the second unit permits a track to be downloaded to a mobile data storage device of the user.
- 15 17. A system as claimed in any preceding claim, arranged to permit a user to select a tracks from the second unit by the second unit first presenting albums or artists for selection and then presenting a track from that album or artist for selection.
- 20 18. A system as claimed in Claim 17, wherein the second unit displays on a touch screen a graphic representing an album cover.
19. A system as claimed in Claim 17 or 18 when dependent on any one of Claims 12 to 15, wherein the second unit only permits tracks from a number of albums or artists to be selected and only presents those albums or artists for a user to select and rotates blocks of

tracks from a background store, each block corresponding to the tracks of an album or artist.

20. A system as claimed in any preceding claim, wherein the second unit can provide a
5 user with a display of tracks queued for playing.

21. A system as claimed in any preceding claim, including a keypad through which a user may identify a track by entering a word from the title which can be a word other than the first word.

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22. A system as claimed in any preceding claim, comprising a display which identifies tracks in different colours to indicate that a particular track is either: queued to be played; has been regularly requested; is playing; or it is the track that has been identified by a search.

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23. A system as claimed in any one of Claims 1 to 21, comprising a display which identifies all tracks in different colours which are: queued; playing; regularly requested; or the result of a search.

20 24. A system as claimed in any preceding claim, wherein the second unit is arranged to avoid playing tracks consecutively which musically clash with each other.

25. A system as claimed in Claim 24, wherein the beat of consecutive tracks is monitored and the order of tracks is changed if the tempo of each is significantly different.

26. A system as claimed in Claim 24, wherein the stored tracks are categorised and this data is compared to identify tracks that musically clash.

5 27. A system as claimed in any one of Claims 24, 25 or 26, wherein the second unit is arranged to insert a short promotional clip between clashing track.

28. A system as claimed in any one of Claims 24 to 26, wherein the second unit arranged to change the order of queued tracks to avoid clashes.

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29. A system as claimed in any preceding claim, wherein the second unit is arranged to occasionally insert promotional material between tracks.

30. A system as claimed in any preceding claim, wherein the second unit is arranged to
15 determine, and is capable of displaying, a screen identifying the most popular tracks currently available.

31. A system as claimed in any preceding claim, wherein the second unit is arranged to
monitor the output level and, if a peak threshold is, or will be exceeded, to reduce gradually
20 the volume level.

32. A system as claimed in any preceding claim, wherein the second unit is arranged to play tracks if no tracks are playing or queued.

33. A system as claimed in any preceding claim, wherein the second unit is arranged to shut down after it has been on in excess of a predetermined period.

34. A system as claimed in any preceding claim, wherein the second unit comprises a touch screen display, with a background display which changes depending on the time of year.

35. A system as claimed in any preceding claim, wherein the second unit comprises a display which displays graphics representing albums on which graphics icons are overlaid indicating a category associated with the represented album.

36. A system as claimed in any preceding claim, wherein the second unit stores a number of tracks which can be played, wherein the first unit comprises further tracks and wherein a certain number of the further tracks are periodically exchanged with the tracks stored in the second unit.

37. A system as claimed in any preceding claim, wherein the second unit comprises a touch screen display and each icon on the display links to a further selection of icons.

38. A system as claimed in any preceding claim, wherein each track is categorised and one category is parental control, the second unit being programmed to only permit tracks categorised as parental control to be played at selected predetermined times.

39. A system as claimed in any preceding claim, wherein the second unit has a DMX output to control lights and/or a smoke machine.

40. A system as claimed in any preceding claim, wherein the first unit is arranged to
5 recognise certificates from record companies encoded with the tracks and adds a location code relating to the particular second unit to which the track is to be downloaded, which code permits only that second unit to play the tracks, the second unit comprising an appropriate decryption unit and code.

10 41. A system as claimed in any preceding claim, wherein the first unit is arranged to periodically provide a code to the second unit and the second unit is arranged to prevent playing of tracks if that code has not been received for more than a predetermined period.

42. A second unit for an entertainment system as claimed in any preceding claim.

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43. A system as claimed in any preceding claim, wherein the first and second units are arranged to be connected via the Internet.

44. An entertainment system substantially as hereinbefore described, with reference to
20 and/or illustrated in one or more of the accompanying figures.



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Examiner: John Donaldson

Claims searched: 1 to 44

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Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	1 to 5, 8 to 10, 12, 13, 17, 18, 33, 41 to 43	GB 2389928 A (SPERO), see abstract
X	1, 3 to 5, 8 to 10, 12, 13, 16, 42, 43	EP 1280149 A2 (MATSUSHITA), see abstract, paragraph 0040
X	1 to 15, 17, 18, 30, 42, 43	WO 02/25610 A1 (GRABAR), see abstract, page 2, lines 9 to 20, page 6, line 15 to page 8, line 2
X	1 to 5, 8 to 10, 12 to 14, 21, 30, 42, 43	WO 01/57617 A2 (DIEBOLD), see abstract, page 12, line 11 to page 13, line 29
X	1, 3, 5, 12 to 15, 17, 18, 21, 42, 43	WO 01/28222 A2 (PERCEPTION), see abstract, page 18, lines 19 to 25
X	1, 3, 5, 12 to 15, 17, 18, 21, 30, 42, 43	US 5959945 A (KLEIMAN), see abstract
X	1 to 5, 9, 10, 12, 13, 17, 18, 21, 42, 43	CA 2393685 A1 (MUSICRYPT), see abstract, paragraph 0018

Categories:

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



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E Patent document published on or after, but with priority date earlier than, the filing date of this application

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^X :

G4A; G4H

Worldwide search of patent documents classified in the following areas of the IPC⁰⁷

G06F; G07F; G11B

The following online and other databases have been used in the preparation of this search report

WPI, EPODOC