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INTERACTIVE DIGITAL DISPENSER

Technical Field

This invention relates to an interactive digital dispenser and refers particularly, though
5 not exclusively, to an interactive digital dispenser able to function as a multi-media
kiosk, and a ways of using such an interactive digital dispenser.

Background

There is a currently emerging user group that is considered as needing entertainment
10 anywhere, anytime. They have been termed "transumers". They are a new type of
consumer that is emerging in a consumer-based environment. The trend to date has been
to focus solely on consumers in transition, i.e. travelers. As such there are many
shopping opportunities at airports, train stations and hotels catering to this consumer
group.

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Transumers are consumers driven by:

experiences instead of the fixed,
entertainment,
discovery, and
20 overcoming boredom;

and who increasingly live a transient lifestyle thereby freeing themselves from the
hassles of permanent ownership and possessions. The fixed is replaced by an obsession
with the here and now, an ever-shorter satisfaction span, and a desire to collect as many
experiences and stories as possible

To most consumers, travel equates to temporary freedom and provides detachment, fractional ownership or no ownership at all, trying out new things, escaping commitment and obligations, dropping formality, and endless new experiences. Travel is now a major industry. Some of the pleasures associated with travel are finding their way into daily life. Transumers are adopting a leasing lifestyle by making use of new rental options. As such, transumers with a limited budget can now rent, enjoy, and then dispose of many different objects instead of owning one single expensive object. Status-conscious consumers resort to luxury fractional ownership because it's the only way for them to be able to flaunt (both established and new) status symbols.

There is a proliferation of commercial living-room-like settings in public spaces, where catering and entertainment aren't just the main attraction but are there to facilitate out-of-home, out-of-office activities like watching a movie, reading a book, meeting friends and colleagues, and so forth. They are making it easier than ever for transumers in transit to leave domestic or office hassles behind.

Even though transumerism is still evolving, the transumers trend needs to be expanded to non-travel aspects as consumers are slowly but certainly mirroring travel behavior in daily life.

Summary

According to an exemplary aspect there is provided an interactive digital dispenser comprising a cover, a main shell substantially enclosed by the cover, a display between

the cover and the main shell, at least one array of touch sensors for a plurality of controls adjacent the display and under the cover; and a plurality of electronic components within the main shell; the plurality of electronic components comprising a main processor, an antenna operatively connected to the main processor, an RFID reader operatively connected to the main processor, a Bluetooth module operatively connected to the main processor, and a solid state storage operatively connected to the main processor.

The interactive digital dispenser may further comprise a communications port operatively connected to the main processor; and a main shell plate in the main shell. The main shell plate may comprise an array of openings therethrough for receiving therethrough lock pins of a connector assembly, and a central opening for receiving therethrough a connector of the connector assembly. The connector may be to provide Ethernet and power connections to the interactive digital dispenser. There may be further provided a cradle for receiving therein the interactive digital dispenser. The cradle may comprise a generally planar base with two elongate and opposed, U-shaped retaining strips to releasably hold the interactive digital dispenser in position relative to the cradle. The planar base may further comprise a rectangular opening for releasably receiving therein the connector assembly

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The cover may be a glass cover and touch screen operatively connected to the at least one array of touch sensors. There may be two arrays of touch sensors arranged on each side of the display.

The main processor may comprise one or more of: a bill paying module to allow a user to pay bills; a video and audio streaming module to provide an interface for streaming content from a network to which the interactive digital dispenser is connectable to a mobile telecommunications-enabled device; a customization module that has access to a

5 database with mobile customization files; a tag module to enables the creation of a tag by use of a personal tag generator module; a browsing module to browse the tags; an uploading module to upload a new media file; a communications access module to provide a communication function; a quick dial list stored in a database; a telephone module to make telephone calls using the interactive digital dispenser; a bank account

10 access module to access bank accounts to top up credit, debit or cash card accounts; a call record module to provides a list of all telephone calls made and their cost; a user profile module to create user profiles; a user name module to change user names to an available name; a preference module to store in a database likes and dislikes; an avatar module to change avatars for display in applications; a software installation module to

15 install or reinstall desired or required software in a mobile telecommunications-enabled device; a content update module to automatically update a content database and software when not in use; a public module to access to information stored on a database; and a web browser module to connect to the Internet by at least one selected from the group consisting of: direct WiFi access, via a LAN, and by automatically scanning for

20 nearby interactive digital dispenser that has Internet access.

The content may comprise at least one of: live television broadcasts, television shows that had been broadcast previously, and movie trailers. The mobile customization files may be selected from: wallpapers, ring tones, and themes. The access may be to a

database in at least one of: central storage, over a network to which the interactive digital dispenser is connected, and the Internet. The communication function may comprise access to VOIP functions on a Bluetooth-enabled mobile telecommunications-enabled device.

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According to another exemplary aspect there is provided a system in a building comprising a plurality of interactive digital dispensers as described above, each of the plurality of interactive digital dispensers being connected via at least one server, the at least one server controlling each of the plurality of interactive digital dispensers, each of
10 the plurality of interactive digital dispensers being for a zone of the building.

The zone may be a storey of the building. All connection of each of the interactive digital dispensers to the Internet or telecommunications network may be via the at least one server. The public module of each of the interactive digital dispensers may contain
15 information about at least one of: the building, contents of the building, and the zone of the interactive digital dispenser.

Brief Description of the Drawings

In order that the invention may be fully understood and readily put into practical effect
20 there shall now be described by way of non-limitative example only exemplary embodiments, the description being with reference to the accompanying illustrative drawings.

In the drawings:

Figure 1 is a front perspective view of an exemplary embodiment;

Figure 2 is a side view corresponding to Figure 1;

Figure 3 is an end view corresponding to Figures 1 and 2;

Figure 4 is a top view corresponding to Figures 1 to 3;

5 Figure 5 is an exploded perspective view of the exemplary embodiment of Figures 1 to 4;

Figure 6 is a further exploded perspective view of the exemplary embodiment of Figures 1 to 5;

10 Figure 7 is a perspective view showing the interactive digital dispenser of Figures 1 to 4 being inserted into the cradle of Figure 5;

Figure 8 is a block diagram of the structure of the processor of the interactive digital dispenser; and

Figure 9 is an illustrative architecture diagram of a number of interactive digital dispensers in a building.

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Detailed Description of the Exemplary Embodiments

The interactive digital dispenser 10 is a relatively small but full featured multimedia kiosk. It is able to function as a digital content dispenser, payment terminal, and internet communications gateway. Users can use the interactive digital dispenser to stream live
20 video streams to their mobile device, or download movie trailers, ring tones, call overseas, and pay their utility and other bills.

The interactive digital dispenser 10 has a cradle 12. The cradle 12 has a generally planar base 14 with two elongate and opposed, U-shaped retaining strips 16 to releasably hold

the interactive digital dispenser 10 in position relative to the cradle 12. The planar base 14 may have a plurality of holes 18 therethrough to enable the cradle 12, and thus the interactive digital dispenser 10, to be held in a secure manner relative to a support structure (not shown) such as, for example, a wall or the like. Alternatively, the
5 interactive digital dispenser 10 may be portable.

The planar base 14 also has a rectangular opening 20 for releasably receiving therein a connector assembly 22. The connector assembly 22 has a plurality of upstanding locking pins 24 to releasably engage the interactive digital dispenser 10, as will be
10 understood from the following description. A connector 26 is also provided. The connector 26 is to provide Ethernet and power connections to the interactive digital dispenser 10, with the connector assembly 22 having a source of power such as, for example, a transformer connected to mains power, or a battery; as well as communications connection to a network such as, for example, a local area network
15 ("LAN"), a wireless local area network ("WLAN"), a wide area network ("WAN"), a wireless wide area network ("WWAN"), and/or the Internet.

The interactive digital dispenser 10 has a cover 28 and a main shell 30 enclosed by the cover 28. The cover 28 is preferably a glass cover and touch screen. A display 32 is also
20 provided between the cover 28 and the main shell 30, preferably being located in the main shell 30. The display 32 may be, for example, an LCD screen. Touch sensors 34 for controls 36 are arranged on each side of the display 32, all being arranged under the cover 28. The cover glass 28 may be connected to the touch sensors 34 to become an active component of a multi-touch, touch screen interface.

A main shell plate 36 is also provided that has an array of openings 38 therethrough for receiving therethrough the lock pins 24; as well as a central opening 40 for receiving therethrough the connector 26.

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The electronic components within the main shell 36 include a WiFi antenna 42; a main processor 44 such as a computer-on-module; an RFID reader 46; a Bluetooth module 48; a storage 50 such as, for example, a Flash memory storage; and a communications port 52 such as, for example a USB or IEEE1394 port. All components 32, 34, 42, 46, 48, 50
10 and 52 are operatively connected to the processor 44 in a known manner.

The interactive digital dispenser 10 covers the fasteners through holes 18 that mount the cradle 12 to the wall or other surface, and the glass plate 28 acts as a barrier between a user and the internal components.

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The interactive digital dispenser 10 may also contain a camera (not shown) and/or a printer unit (not shown). The printer unit may be an external printer unit.

The interactive digital dispenser 10 is able to communicate wirelessly with a user's
20 mobile telecommunications-enabled device such as a PDA, mobile telephone, or the like, as is explained below. This may be to send and/or receive data. User input may also be by use of the touch sensors 34 and/or glass touch screen 28. It may operate in two different modes: one mode for registered users after a log-in process; and a separate mode for unregistered users for providing a more limited functionality.

As shown in Figure 8, the processor 44 has a number of modules. It is preferred for the interactive digital dispenser 10 to use an open platform to enable an almost endless number of modules all with differing functionalities. The interactive digital dispenser 10 is, basically, a PC-based platform that can be extended the same way as a normal PC. This list of modules and their functionalities is therefore not exclusionary and can be extended:

1. The processor 44 of the interactive digital dispenser 10 has a bill paying module 801 that allows a user to pay their bills by credit or other card by a method including, but not limited to:
 - (a) scanning a Datamatrix or QR-code barcode;
 - (b) bill number pay by entering the bill's trace number; and
 - (c) company and client number pay by searching for a company and entering the client number.
2. The processor 44 of the interactive digital dispenser 10 has a video and audio streaming module 802 that is able to provide an interface for streaming content from the network to which the interactive digital dispenser 10 is connected to the user's mobile telecommunications-enabled device such as a PDA, mobile telephone, or the like. Streaming may be wirelessly or via a cable connection from the user's mobile telecommunications-enabled device into connector assembly 22. If the interactive digital dispenser 10 is connected directly or indirectly (e.g. via a WLAN) to the Internet that content may be, for example, entertainment. This will include, but is not limited to:
 - (a) live television broadcasts that can be made available to the user's mobile telecommunications-enabled device;

- (b) option to allow the user to download television shows that had been broadcast previously; and
- (c) movie trailers.

3. The processor 44 of the interactive digital dispenser 10 has a customization
5 module 803 that contains or has access to a database with mobile customization files such as, for example, wallpapers, ring tones, and themes. The access may be to a database 850 in a central storage, over the network to which the interactive digital dispenser 10 is connected, the Internet, and so forth. The customization files can be
10 downloaded wirelessly, or via a cable as described above, to the user's mobile telecommunications-enabled device such as a PDA, mobile telephone, or the like.

4. The processor 44 of the interactive digital dispenser 10 has a tag module 804 that enables the user to create his or her own tag in accordance with our earlier published International Patent Application Number WO 2006/033645, the contents of which are hereby incorporated by reference as if disclosed herein in their entirety. This
15 may be by use of a personal tag generator module 805 in the processor 44 of the interactive digital dispenser.

5. The processor 44 of the interactive digital dispenser 10 has a browsing module 806 that permits the user to browse their tags, either stored in a personal account on database 850, or on a web page.

20 6. The processor 44 of the interactive digital dispenser 10 has an uploading module 807 that allows the user to upload a new media file. The media file, or its URL may be sent via Bluetooth on the user's mobile telecommunications-enabled device to an interface of the interactive digital dispenser module 807.

7. The processor 44 of the interactive digital dispenser 10 has a communications access module 808 that provides to users a communication function that includes user access to VOIP functions on a Bluetooth-enabled mobile telecommunications-enabled device. The VOIP service may be free or at a cost to the user. This may include the ability to connect a mobile telecommunications-enabled device to the VOIP service using Bluetooth or WiFi.

8. Registered users may have a quick dial list stored in the database 850 and registered users may be able to access their stored quick dial numbers after the log-in process in log-in module 809.

9. The processor 44 of the interactive digital dispenser 10 has a telephone module 810 that allows users to make telephone calls using the interactive digital dispenser 10 but at the cost of the user. This may be limited or expanded to one or more of: local, national and international telephone numbers. However, other online interactive digital dispenser users may be able to be called for free. This may also contain a friend list for quick scanning of online friends.

10. The processor 44 of the interactive digital dispenser 10 has a bank account access module 811 that allows users to top up their credit, debit or cash card accounts at any time and for any amount within the limits provided by the card issuing authority.

11. The processor 44 of the interactive digital dispenser 10 has a call record module 812 that provides a list of all telephone calls made, and their cost.

12. The processor 44 of the interactive digital dispenser 10 has a user profile module 813 that enables a user to create a user name and profile upon accessing the interactive digital dispenser 10. The profile may be used to log-in to various services and functionalities.

13. The processor 44 of the interactive digital dispenser 10 has a user name module 814 that enables a user to change their user name to an available name.

14. The processor 44 of the interactive digital dispenser 10 has a preference module 815 that the user may use to store in database 850 their likes and dislikes. These
5 may be used for targeted advertising or personalized content.

15. The processor 44 of the interactive digital dispenser 10 has an avatar module 816 that allows the user to change their avatar that will be displayed in applications such as the VOIP service.

16. The processor 44 of the interactive digital dispenser 10 has a software
10 installation module 817 that can install or reinstall desired or required software in the user's mobile telecommunications-enabled device.

17. The processor 44 of the interactive digital dispenser 10 has a content update module 818 that will automatically update the content database 850 and software at night or otherwise when not in use.

15 18. The processor 44 of the interactive digital dispenser 10 has a web browser module 819 that is able to connect to the Internet. This may be by one of:

(a) direct WiFi access;

(b) via a LAN;

(c) by automatically scanning for nearby interactive digital dispenser that have
20 Internet access. If out of direct WiFi range, it is possible to use a direct or indirect cable connection.

19. The processor 44 of the interactive digital dispenser 10 may have a public module 820 that allows members of the public who are not registered users to gain

access to information stored on the database 850. This is more fully explained below in relation to Figure 9.

20. The processor 44 of the interactive digital dispenser 10 may have a GPS module 821 to enable a central server to track the interactive digital dispenser when the
5 interactive digital dispenser is moving.

21. The processor 44 of the interactive digital dispenser 10 may have a barcode reader module 822 to enable a two-dimensional bar code to be scanned and processed, including being printed by a remote or built-in printer (not shown).

10 Because multiple interactive digital dispensers can communicate with each other, they can download different files at the same time. In consequence, the interactive digital dispensers may create a distributed database of software thereby reducing the storage requirements in each interactive digital dispenser.

15 The Interactive digital dispenser 10 may be installed in any number of locations for use by the general public. For example, it may be installed in locations where people have spare time that is inherent to the area. By way of example: during transit inside a train, or while waiting in a store, bank or the like in a queue. At such locations, the transuser craves entertainment. The interactive digital dispenser 10 can provide digital content
20 and stream it to the user's hand held telecommunications-enabled device, communication functions, games, or the like.

Another location suitable for the installation of the interactive digital dispenser is where people go to relax such as, for example, cafés and clubs. By delivering content or

connectivity to the user's mobile telecommunications-enabled device, leaving the home no longer means leaving Internet connectivity.

In Figure 9 a number of interactive digital dispensers 910 are installed in a multi-story building 970. However, it may be for a single storey having a number of zones. Each of the interactive digital dispensers 910 is operatively connected to one or more servers 960 that may have one or more database 962. The operative connection may be wireless or cable. All connection of the interactive digital dispensers 910 to the Internet 964 and/or telecommunications network 966 is via the server 960. The public module 820 may be able to be accessed for each of the interactive digital dispensers 910. It may contain information about the building 970 and/or the contents of the building 970. For example, if the building 970 is a museum, art gallery or the like, the public module 820 of each interactive digital dispenser 910 may provide information about the exhibits on the relevant floor or in the relevant zone of the building 970. However, if the building 970 is an office building the public module 820 of each interactive digital dispenser 910 may provide information on the tenants or occupants on the relevant floor or in the relevant zone of the building 970. If the building 970 is a shopping mall, the public module 820 of each interactive digital dispenser 910 may provide information on the stores on the relevant floor or in the relevant zone of the building 970. The interactive digital dispenser 910 on the ground floor may also provide information as if a store guide.

By using the server 960 to control the individual interactive digital dispensers 910, various daily, weekly or monthly "specials" or the like may be included in the database

962 and thus in the data of the public module 820 of each of the interactive digital dispensers 910. Communication between the server 960 and each interactive digital dispenser 910 may be by cable connections, optical fibre connections, GPRS/3G or WiFi and may be by a dedicated LAN or WAN.

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Furthermore, further interactive digital dispensers 910 may be placed outside each store, restaurant, café or the like, and the public module 820 can display store specials, menus, beverage lists, table plans, take reservations, and so forth. As all interactive digital dispensers 910 are linked, they can provide a total experience for a user inside the

10 building 870.

Whilst there has been described in the foregoing description exemplary embodiments, it will be understood by those skilled in the technology concerned that many variations in details of design, construction and/or operation may be made without departing from the present invention.

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The Claims:

1. An interactive digital dispenser comprising a cover, a main shell substantially enclosed by the cover, a display between the cover and the main shell, at least one array of touch sensors for a plurality of controls adjacent the display and under the cover; and
5 a plurality of electronic components within the main shell; the plurality of electronic components comprising a main processor, an antenna operatively connected to the main processor, an RFID reader operatively connected to the main processor, a Bluetooth module operatively connected to the main processor, and a solid state storage operatively connected to the main processor.
- 10 2. An interactive digital dispenser as claimed in claim 1 further comprising a communications port operatively connected to the main processor.
3. An interactive digital dispenser as claimed in claim 1 or claim 2, wherein the cover is a glass cover and touch screen operatively connected to the at least one array of touch sensors.
- 15 4. An interactive digital dispenser as claimed in any one of claims 1 to 3, wherein there are two arrays of touch sensors arranged on each side of the display.
5. An interactive digital dispenser as claimed in any one of claims 1 to 4 further comprising a main shell plate in the main shell, the main shell plate comprising an array of openings therethrough for receiving therethrough lock pins of a connector assembly,
20 and a central opening for receiving therethrough a connector of the connector assembly.
6. An interactive digital dispenser as claimed in claim 5, wherein the connector is to provide Ethernet and power connections to the interactive digital dispenser.
7. An interactive digital dispenser as claimed in claim 4 or claim 5, wherein there is further provided a cradle for receiving therein the interactive digital dispenser; the

cradle comprising a generally planar base with two elongate and opposed, U-shaped retaining strips to releasably hold the interactive digital dispenser in position relative to the cradle.

8. An interactive digital dispenser as claimed in claim 7, wherein the planar base further
5 comprises a rectangular opening for releasably receiving therein the connector assembly

9. An interactive digital dispenser as claimed in any one of claims 1 to 8, wherein the main processor comprises a bill paying module to allow a user to pay bills.

10. An interactive digital dispenser as claimed in any one of claims 1 to 9, wherein the main processor comprises a video and audio streaming module to provide an interface
10 for streaming content from a network to which the interactive digital dispenser is connectable to a mobile telecommunications-enabled device.

11. An interactive digital dispenser as claimed in claim 10, wherein the content comprises at least one selected from the group consisting of: live television broadcasts, television shows that had been broadcast previously, and movie trailers.

15 12. An interactive digital dispenser as claimed in any one of claims 1 to 11, wherein the main processor comprises a customization module that has access to a database with mobile customization files.

13. An interactive digital dispenser as claimed in claim 12, wherein the mobile customization files are selected from the group consisting of: wallpapers, ring tones, and
20 themes.

14. An interactive digital dispenser as claimed in claim 12 or claim 13, wherein the access is to a database in at least one selected from the group consisting of: central storage, over a network to which the interactive digital dispenser is connected, and the Internet.

15. An interactive digital dispenser as claimed in any one of claims 1 to 14, wherein the main processor comprises a tag module to enables the creation of a tag by use of a personal tag generator module.
16. An interactive digital dispenser as claimed in claim 15, wherein the main processor
5 comprises a browsing module to browse the tags.
17. An interactive digital dispenser as claimed in any one of claims 1 to 16, wherein the main processor comprises an uploading module to upload a new media file.
18. An interactive digital dispenser as claimed in any one of claims 1 to 17, wherein the main processor comprises a communications access module to provide a
10 communication function.
19. An interactive digital dispenser as claimed in claim 18, wherein the communication function comprises access to VOIP functions on a Bluetooth-enabled mobile telecommunications-enabled device.
20. An interactive digital dispenser as claimed in any one of claims 1 to 19 further
15 comprising a quick dial list stored in a database.
21. An interactive digital dispenser as claimed in any one of claims 1 to 20, wherein the main processor comprises a telephone module to make telephone calls using the interactive digital dispenser.
22. An interactive digital dispenser as claimed in any one of claims 1 to 21, wherein the
20 main processor comprises a bank account access module to access bank accounts to top up credit, debit or cash card accounts.
23. An interactive digital dispenser as claimed in any one of claims 1 to 22, wherein the main processor comprises a call record module to provides a list of all telephone calls made and their cost.

24. An interactive digital dispenser as claimed in any one of claims 1 to 22, wherein the main processor comprises a user profile module to create user profiles.
25. An interactive digital dispenser as claimed in any one of claims 1 to 24, wherein the main processor comprises a user name module to change user names to an available
5 name.
26. An interactive digital dispenser as claimed in any one of claims 1 to 25, wherein the main processor comprises a preference module to store in a database likes and dislikes.
27. An interactive digital dispenser as claimed in any one of claims 1 to 26, wherein the main processor comprises an avatar module to change avatars for display in applications.
- 10 28. An interactive digital dispenser as claimed in any one of claims 1 to 27, wherein the main processor comprises a software installation module to install or reinstall desired or required software in a mobile telecommunications-enabled device.
29. An interactive digital dispenser as claimed in any one of claims 1 to 28, wherein the main processor comprises a content update module to automatically update a content
15 database and software when not in use.
30. An interactive digital dispenser as claimed in any one of claims 1 to 29, wherein the main processor comprises a public module to access to information stored on a database.
31. An interactive digital dispenser as claimed in any one of claims 1 to 30, wherein the main processor comprises a web browser module to connect to the Internet by at least
20 one selected from the group consisting of: direct WiFi access, via a LAN, and by automatically scanning for nearby interactive digital dispenser that has Internet access.
32. A system in a building comprising a plurality of interactive digital dispensers as claimed in any one of claims 1 to 31, wherein each of the plurality of interactive digital dispensers are connected via at least one server, the at least one server controlling each

of the plurality of interactive digital dispensers, each of the plurality of interactive digital dispensers being for a zone of the building.

33. A system as claimed in claim 32, wherein the zone is a storey of the building.

34. A system as claimed in claim 32 or claim 33, wherein all connection of each of the
5 interactive digital dispensers to the Internet or telecommunications network is via the at least one server.

35. A system as claimed in any one of claims 32 to 34, wherein the public module of each of the interactive digital dispensers contains information about at least one of: the building, contents of the building, and the zone of the interactive digital dispenser.

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