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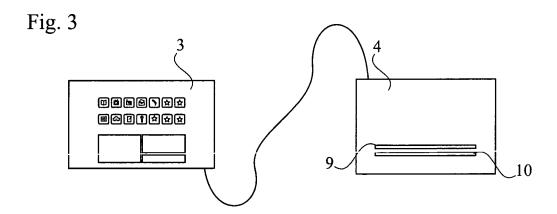
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(54)Electronic screen device

(57)The invention relates to a screen device. The screen device comprises a touch-screen 3 that may be connected to a computer or server 4. The computer or server 4 has software that can be displayed as a calendar on the touch-screen. Entries can be made into the calendar by a person using the touch-screen and the entries can be marked with a code, for example a colour code. The marking serves to link different entries to different users. The touch-screen 3 may be placed in a refrigerator door.



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FIELD OF THE INVENTION

[0001] The present invention relates to an electronic screen device specially adapted to perform interactive functions for a user, especially a calendar function but possibly also other functions. The invention also relates to a method of providing the functions of the device to a

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BACKGROUND OF THE INVENTION

[0002] In order to ensure that different activities will be performed in due time, a schedule or calendar may be used by a person who fears that activities may otherwise be forgotten and thus not carried out at all. In order to remember a given activity, such a person can make an entry into the calendar and consult the calendar on a regular basis to check what activity or activities that are to be carried out at a given point in time. A schedule or a calendar may include entries relating to several different individuals. This may be the case, for example, in an office, a household or a workshop. For such applications, it is also desirable that the activities of different individuals can be kept apart. If several individuals use the same calendar, it can easily happen that mistakes are made that result in confusion. Even if mistakes are avoided, the users may be forced to spend time in order to ensure that they have correctly identified the activities scheduled for each particular individual.

[0003] Some individuals may actually forget the calender. Hence, it is desirable to find a way to minimize the risk that the calendar is forgotten. Moreover, if several individuals are to use the same calendar, it is desirable that the calendar be easily available to all users.

[0004] It is an object of the present invention to provide improved solutions for the above-indicated problems.

DISCLOSURE OF THE INVENTION

[0005] The invention relates to an electronic screen device. In embodiments of the invention, the electronic screen device may function as a calendar device. In an embodiment of the invention, the device could take the form of a refrigerator having a door with an exterior side and which further comprises a computer touch-screen placed on the exterior side of the door such that a person standing in front of the refrigerator can access the touchscreen. A computer is connected to the touch-screen such that the computer can be used through the touchscreen. The computer comprises software designed to display a calendar on the touch-screen and allowing entries to be made into the calender through the touchscreen and also displayed on the touch-screen. The computer further comprises software, allowing entries that are made into the calendar to be marked with different codes that are displayed on the calendar as visual symbols together with the entries. In this way, entries made into the calendar can be separated into different groups depending on which code that has been assigned to each entry.

[0006] In some embodiments, the computer software is designed to display the different codes as different colours such that different groups of entries can be displayed on the touch-screen in different colours. The computer software can also be designed to display the different codes as different geometric symbols such that different groups of entries can be displayed on the touch-screen together with different geometric symbols.

[0007] The computer may be located in the refrigerator door.

[0008] The computer may also comprise software corresponding to other functions than the calendar function. In such embodiments, the computer may have software designed such that a set of different software applications can be activated through icons on the touch-screen.

[0009] In some embodiments, the computer may have access to the Internet and an icon on the touch-screen may be designed to activate the Internet connection.

[0010] The invention also relates to a method of providing the functions of the screen device to users, for example by providing a calendar function to a computer touch-screen. In one embodiment, the method comprises the steps of providing a refrigerator having a door with an exterior side with a computer touch-screen, the touchscreen and the exterior side of the door being adapted to fit each other such that the touch-screen can be fastened to the exterior side of the door. The touch-screen is also adapted to be connected to a computer. According to the inventive method, a computer is provided to which the touch-screen can be connected. The computer may be, for example, a server that is set up such that a person using the touch-screen can access it via the Internet. The computer comprises software designed to be able to display a calendar on the touch-screen and allowing entries to be made into the calender through the touch-screen and also displayed on the touch-screen. The computer further comprises software allowing entries made into the calendar to be marked with different codes that are displayed on the calendar as visual symbols together with the entries such that entries made into the calendar can be separated into different groups depending on which code that has been assigned to each entry. The computer can then be operated to display a calendar on the touchscreen. Furthermore, input can be received through the touch-screen such that entries into the calendar are created and displayed on the touch-screen. Input can also be received through the touch-screen that marks or tags an entry with a code and such a code can be displayed on the touch-screen such that different groups of entries are displayed in different ways. For example, different entries can be displayed in different colours.

[0011] In other embodiments, the same functions may be provided without the refrigerator. In such embodiments, the touch-screen and a suitably programmed

computer - for example a server - may be provided separately. However, the embodiment including the refrigerator is believed to offer specific benefits to the users, for example in terms of availability.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012]

Figure 1 shows a refrigerator having a door with a computer touch-screen.

Figure 2 shows a touch-screen as the screen displays a navigational window.

Figure 3 shows the touch-screen connected to a computer.

Figure 4 shows a touch-screen as the screen displays a calendar with activities scheduled for one day.

Figure 5 shows a touch-screen as the screen displays a calendar with activities scheduled for a week.

Figure 6 shows a touch-screen as the screen displays a calendar with activities scheduled for a month.

Figure 7 shows a touch-screen as the screen displays a calendar with activities scheduled for a year.

Figure 8 shows a touch-screen adapted to receive entries into a calendar.

Figure 9 shows different embodiment of a touch-screen adapted to receive entries into a calendar.

Figure 10 is a schematic illustration of an embodiment adapted for a video call function.

Figure 11 shows the touch-screen as it displays a phonebook view that can be used for a telephone function or a video call function.

Figure 12 illustrates a how the touch-screen displays a view that can be used during a video call.

Figure 13 shows a view that can be used for volume control during, for example, a video call.

DETAILED DESCRIPTION OF THE INVENTION

[0013] With reference to Figure 1, an embodiment of the invention takes the form of a refrigerator 1 having at least one door 2 with an exterior side. In Fig. 1, the refrigerator 1 has two doors and it should be understood that the refrigerator could also have more than two doors.

The door or doors 2 may have handles 12. The refrigerator is designed to keep temperature inside the refrigerator at a temperature below ordinary room temperature. To this end, the refrigerator may comprise such well-known equipment as for example heat exchangers that need no further description. The refrigerator 1 further comprises at least one computer touch-screen 3 placed on the exterior side of a refrigerator door 2 such that the touch-screen 3 can be accessed by a person standing in front of the refrigerator 1. A computer 4 is connected to the touch-screen 3 such that the computer 4 can be used through the touch-screen 3.

[0014] As indicated symbolically in Fig. 3, the computer 4 comprises software 9, 10. In Fig. 3, the software 9, 10 is symbolically indicated as two separate files or programs. However, it should be understood that the software necessary for the invention may be included in one single file or program or in more than two files or programs. The computer has software 9 designed to display a calendar on the touch-screen 3 and allowing entries to be made into the calender through the touch-screen 3 and also displayed on the touch-screen. The computer 4 further comprises software 10 allowing entries made into the calendar to be marked with different codes that are displayed on the calendar as visual symbols together with the entries. In this way, entries that are made into the calendar can be separated into different groups depending on which code that has been assigned to each entry.

[0015] In households, a refrigerator is a very common object and it is typically placed in a room that is frequently visited by all members of the household. Refrigerators are also very often found in kitchen areas of many offices and workshops. By presenting a calendar on the door 2 of a refrigerator 1, the probability that the calendar will actually be seen and not forgotten is increased. By using a touch-screen 3 connected to a computer 4, entries into the calendar can easily be both made and deleted. By the use of a touch-screen, the need for cleaning can be kept to a minimum.

[0016] When different groups or categories of entries are marked with a code that is visibly displayed on the screen, different individuals can easily recognise those entries that are related to themselves. For example, if the invention is applied to a household with two parents and one child, one code can be used for the calendar entries made by or relating to the father, another code for entries relating to the mother and a third code for entries relating to the child.

[0017] In one embodiment of the invention, the computer software is designed to display the different codes as different colours such that different groups of entries can be displayed on the touch-screen 3 in different colours. Such an embodiment is symbolically indicated in Fig. 4 where one entry into the calendar is marked with one colour code 7a while a different entry is marked with another colour code 7b. If the household with three persons is once again used as an example, entries made

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by the father may by marked with the colour red while entries relating to the mother in the family may be marked with the colour green. When the father desires to check his personal schedule, he only needs to look at calendar entries marked with red. In a similar way, the mother only needs to look at calendar entries made with green etc. In this way, each person using the calendar can quickly identify his or her personal calendar entries. This saves time and reduces the risk that errors are made. Hence, the use of a special code that is linked to each individual user and displayed as, for example, a colour entails clear benefits to the users.

[0018] As indicated symbolically in Figure 5, the computer software may also be designed to display the different codes as different geometric symbols (i.e. symbols having different shapes) such that different groups of entries can be displayed on the touch-screen 3 together with different geometric symbols. In Fig. 5, a symbol indicating a man may be used for the father of a household while the mother may use a symbol indicating a woman. Of course, these symbols are mentioned only by way of example and any kind of geometric symbol may be used such as for example triangles, pentagrams, circles etcetera. Of course, such symbols could also have different colours. In Fig. 5, an embodiment is indicated where both different geometric symbols and colour codes are used. In Fig. 6, an embodiment is indicated where only different geometric symbols are used.

[0019] In Fig. 1, it is symbolically indicated that the computer 4 may be located in the refrigerator door 2. However, it should be understood that the computer 4 could also be completely separate from the refrigerator 1. Such an embodiment is schematically indicated in Fig. 3. For example, the computer 4 may be a server that can be accessed by the touch-screen via the Internet. The server 4 may be operated by the same entity that supplies the touch-screen 3. Of course the refrigerator, the touch-screen 3 and the server 4 and the software on the server 4 may come from the same supplier.

[0020] The computer 4 may comprise software corresponding to other functions than the calendar function. In Fig. 2, an embodiment is indicated where the touchscreen has a main view provided with a number of different icons 5 corresponding to different functions. For example, one icon 5 in the main view could correspond to the calendar function. By touching the calendar icon, a user can activate the calendar function. Hence, the user can access the calendar function through "Calendar" in the main view. In this view, reminders can also be posted reminding the user(s) of today's scheduled activities. In some embodiments of the invention, the user (or users) does not need to set these view reminders herself (or himself), they appear automatically. The reminders can be colour coded, thereby expressing to whom the reminder applies. The design of the system can also be such that the user can access the calendar by clicking on the daily reminders. The main view (for example a main view as indicated in Fig. 4) may constitute a starting point from which different functions can be accessed

[0021] Other icons 5 may correspond to other functions. For example, one icon 5 may correspond to an Internet function. By touching that icon, a user can activate the Internet function. In the same way, there may be icons for activating a number of different functions such as for example e-mail, television, telephone, video or news. Another possible function could be the control of various equipment such as the refrigerator itself, a microwave oven or a burglar alarm. Touching a selected icon (or a selected text) can activate a link on a "one touch approach" to the required function.

[0022] The main view can thus be understood as a door to a number of different screens or functions including the calendar function but also other functions such as radio, yellow pages and email etcetera. However, these different screens or functions would, in most embodiments, be subordinate to the main screen, which links all the different functions together.

[0023] Possibly, an address book can be a part of the menu. Optionally, the users may also have the possibility to insert birth-data of their contacts inside the address book. It is then possible to make birthdays appear automatically in the calendar and a reminder of them can be posted on the day in question. This may be useful, for example, to remember birthdays or other important days for individuals that are important clients or represent important clients. Optionally, the system can be set to generate an automatic birthday greeting that is posted on the specific day - for example by e-mail. The address book may of course also include other data about contacts, for example telephone numbers and/or e-mail addresses.

[0024] As indicated in Fig. 4, the calendar can be set to display activities scheduled for a given day. The user can access the calendar function through "Calendar" in the main view. In this view, reminders are also posted, informing the user of today's scheduled activities. The user does not necessarily need to set these main view reminders. They can be set to appear automatically. The reminders may be colour coded, thereby expressing whom the reminder applies to. The user may also access the calendar by clicking on daily reminders. The user can move freely between different days, for example by using the "Last day" or "Next day" buttons. This view specifies activity, time of activity and whom the activity applies to. [0025] As indicated in Figs. 5 - 7, the calendar can also be set to display activities for a given week, a given month or a given year. The week view (see Fig. 5) gives the user an overview over the weekly activities, for example the weekly activities of a family or a group of individuals working together at an office. The current week may be default when this view is entered unless the user has selected to view another week. The current day may be highlighted. Selecting a particular day can take the user to the corresponding day view (see Fig. 4). The user can move freely between different weeks, for example by us-

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ing the "Last week" or "Next week" buttons. This view specifies activity, time of activity and whom the activity applies to. If the activity is a special event, a separate icon may be used to designate that. Of course, the same can also apply to the day view according to Fig. 4.

[0026] The month view (see Fig. 6) gives the user a good overview of the month's activities. The current month can be a preset selection and the current day may be highlighted. Optionally, national holidays may be automatically inserted.

[0027] The year view (see Fig. 7) gives the user an overview of a whole year. The year view may function in the same way as described above with reference to the month view.

[0028] The touch-screen may be designed to facilitate entries into the calendar as schematically indicated in Fig. 8 and Fig. 9. Fig. 8 shows an example of a touchscreen where different symbols 13 correspond to different users of the touch-screen. Entries into the calendar can be made through a keyboard 11 (see Fig. 2) that is displayed on the touch-screen. Each person using the calendar may have his or her own symbol or icon 13. An entry into the calendar can then be made by first pressing the symbol 13 corresponding to the individual for which the entry is to be made and the activity that is to be scheduled may then be entered through the keyboard. The entry is then automatically marked with a colour, a geometrical shape or by some other visual code. Alternatively, the activity can be entered first and the individual to whom the entry refers to can be entered subsequently. The order in which individual, activity or time is specified can be varied in all possible ways.

[0029] Fig. 9 shows an example of a touch-screen where different activities can be entered through separate icons 14 that correspond to a predefined activity. For example, an icon resembling a wineglass may be used to designate a party or an icon resembling a telephone may be used to indicate a telephone conference. The same screen may include icons or symbols 13 corresponding to different individual users. To make an entry into the calendar, a user may start by first choosing an icon 13 which is his or her personal symbol. This selection determines whom the entry relates to. The user can then select an icon 14 that represents a specific activity. The activity is then entered into the calendar and displayed on the touch-screen together with a code (for example a colour code) that links the entry to a specific user.

[0030] The system may allow for entries to be removable. To remove an entry, the user can select the activity in question, for example by clicking on it to highlight the entry. The entry in question can then be deleted by using a delete button (see Fig. 4).

[0031] Optionally, the system can include the possibility of editing entries. To edit an entry, the user may select it to highlight it. The original input interface (for example in the form of a virtual keyboard 11 displayed on the screen 3) is opened which enables the user to edit the existing calendar entry.

[0032] Optionally, the software of the computer may be such that the user (or users) has the option to create one or several reminders. This can be done in for example the following way. When inserting a calendar entry, the user can select to send a reminder for example via e-mail or/and by SMS. A reminder can thus be sent as an SMS message to the mobile (cellular) telephone of a user (or to several users). In a similar way, a reminder may be sent to an e-mail address of one or several users. Optionally, when a reminder is inserted, the user may also have the possibility to select repetition of the reminder. For example, the reminder can be repeated on several different dates and/or at several different hours on a given

er. For example, the reminder can be repeated on several different dates and/or at several different hours on a given date. The user may also have a possibility to set when the repetitions should end. The reminder and repeat functions may have their own buttons as indicated in Fig. 8 and Fig. 9. Of course, the reminder function need not necessarily use e-mail or SMS. Other ways of creating reminders can also be envisaged.

[0033] It should be understood that the computer software may be designed to include entries relating to the different users, for example information about telephone numbers. Such entries can be used by the system for example in order to send SMS messages to the correct mobile telephone. In a similar way, the names, addresses, birth data and other information about the users can be inserted and used by the system. Entries relating to different users may also include colour codes or geometric symbols specific for each individual user such that the computer can associate each individual with the correct colour or code when entries for a specific individual are made into the calendar. The software may thus be so designed that, when the system is originally installed, a specific setting is created for each user including information about personal codes. Optionally, the software may be designed such that it may require a personal login and a personal password. A login and a password may be set for each user or a common login and password could be used for several users.

[0034] The screen 3 can also be used for purposes such as video calls. A video camera and a telephone function may be connected to the system and arranged such that it can capture a person standing in front of the screen. With reference to Fig. 10, a video camera 16 and a microphone 17 may be directly or indirectly connected to the screen 3. In Fig. 10, the camera 16 and the microphone 17 are shown as separate objects. It should be understood that they are not necessarily separate. For example, embodiments are possible where the microphone 17 is integral with the camera 16. When a user P places herself in front of the camera 16, an image of the user P can be created and used during a video call. The microphone 17 may be used to capture the speech of the user P. The user can then activate a video call function - for example by pressing an icon 5 on the main menu which is linked to a video call function. The computer 4 may include software containing a phonebook with the telephone numbers of different contacts. The phonebook

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may be in the shape of a scrollable list. A possible embodiment of such a phonebook is shown in Fig. 11 and such a phonebook could be displayed on the screen 3 if this is requested by the user. The list may draw information from an address book in a computer file that is limited to contain only the contacts that have a video call number. [0035] The phonebook view may include a special icon 22 for activating a video camera. When an "activate video camera" symbol has been pressed, the user may have the option to see himself/herself in a camera preview mode. The user can then also be asked to make sure that he/she is visible to the camera. When the user feels ready, he or she may press a "Call" button. As indicated in Fig. 12, a video call window may include a main camera view 19 that displays the person at the other end of the line and a minor window 20 displaying the user herself or himself. A set of buttons 18 may be present to give the user a possibility to contact persons not listed in the phone book. The video call function may be set up in such a way that an icon appears in a task bar and a sound alert is activated informing the user of the incoming call. As indicated in Fig. 13, the video call function may include a volume control window 21 having icons for controlling the sound level. The sound level control may include control of both the sound received and the sound transmitted. [0036] If a video call function is included, connecting the touch-screen 3 to a refrigerator door can make the video call function easily accessible. For example, work in the kitchen can be carried out at the same time as the video call takes place.

[0037] When the invention is applied at a place of work, for example in an office or a car repair shop, the refrigerator may be placed in a kitchen area. The calendar may then be used to coordinate tasks carried out by different individuals. This can save time and reduce or eliminate errors.

[0038] The calendar function may be provided by, for example, a manufacturer of refrigerators. A manufacturer of refrigerators can produce a refrigerator having a door that is specially adapted to receive a touch-screen. For example, the refrigerator door 2 may have a cavity and screwholes specially adapted to receive a touch-screen with known dimensions such that a touch-screen with the right dimensions can be fitted to the refrigerator door. A customer who buys the refrigerator can then purchase a touch-screen that has the right shape and the right dimensions to be fastened to the refrigerator door. The customer can then connect the screen 3 to the refrigerator door 2. The manufacturer of the refrigerator can then make such a touch-screen available to interested customers

[0039] Alternatively, the touch-screen 3 may be built in to the refrigerator door already when the refrigerator is manufactured.

[0040] It should also be understood that the refrigerator door 2 may be manufactured and sold separately.

[0041] The refrigerator manufacturer or someone cooperating with the refrigerator manufacturer or acting on

behalf of the refrigerator manufacturer can then provide a server that can be contacted via the Internet by using the touch-screen 3. The server may have software that can display a calendar on the screen 3 and also allow entries into the calendar and software that makes it possible to mark entries with a code, for example a colour code.

[0042] While the invention has been described with reference to an embodiment where the touch-screen is located in a refrigerator door, it should be understood that embodiments of the invention can be envisaged where the touch-screen is used separately and is not located in a refrigerator door. However, by placing the touch-screen in a refrigerator door, the touch-screen is more easily available and the risk that entries into the calender are overlooked or forgotten can be reduced. If the touchscreen is placed in a refrigerator door, the screen may advantageously be located at such a level that, when the refrigerator is placed on a floor or a shelf, the touchscreen is an area about 155 - 195 cm above the level of the floor, i.e. at the level approximately corresponding to the average height of adult individuals. This can make it easier to see text and/or symbols on the screen.

[0043] While the invention has been described above with reference to an electronic screen device and a method for providing the functions of this device to users, it should be understood that these categories only reflect different aspects of one and the same invention.

Claims

- 1. An interactive screen device comprising
 - a) a computer touch-screen (3);
 - b) a computer (4) connected to the touch-screen (3) such that the computer (4) can be used through the touch-screen (3), the computer (4) comprising software (9) designed to display a calendar on the touch-screen (3) and allowing entries to be made into the calender through the touch-screen (3) and also displayed on the touch-screen, the computer (4) further comprising software (10) allowing entries made into the calendar to be marked with different codes that are displayed on the calendar as visual symbols together with the entries such that entries made into the calendar can be separated into different groups depending on which code that has been assigned to each entry.
- 2. A refrigerator (1) having an interactive screen device according to claim 1 wherein the refrigerator (1) has a door (2) with an exterior side, the touch-screen (3) being placed on the exterior side of the refrigerator such that the touch-screen (3) can be accessed by a person standing in front of the refrigerator (1).

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- 3. A refrigerator (1) according to any of the preceding claims, wherein the computer software is designed to display the different codes as different colours such that different groups of entries can be displayed on the touch-screen (3) in different colours.
- 4. A refrigerator (1) according to any of the preceding claims, wherein the computer software is designed to display the different codes as different geometric symbols such that different groups of entries can be displayed on the touch-screen (3) together with different geometric symbols.
- **5.** A refrigerator (1) according to any of the preceding claims, wherein the computer (4) is located in the refrigerator door (2).
- **6.** A refrigerator (1) according to any of the preceding claims, wherein the computer (4) comprises software corresponding to other functions than the calendar function and a set of different software applications can be activated through icons (5) on the touch-screen (3).
- 7. A refrigerator (1) according to any of the preceding claims, wherein the computer (4) has access to the Internet and an icon (5) on the touch-screen (3) is designed to activate the Internet connection.
- **8.** A refrigerator (1) according to any of the preceding claims, wherein the computer (4) is a server (4) that is connected to the touch-screen via the Internet.
- **9.** A method of providing a calendar function comprising the steps of:
 - a) providing a computer touch-screen (3) adapted to be connected to a computer (4);b) providing a computer (4) to which the touch-screen (3) can be connected, the computer (4)
 - screen (3) can be connected, the computer (4) comprising software designed to be able to display a calendar on the touch-screen (3) and allowing entries to be made into the calender through the touch-screen (3) and also displayed on the touch-screen, the computer (4) further comprising software (10) allowing entries made into the calendar to be marked with different codes that are displayed on the calendar as visual symbols together with the entries such that entries made into the calendar can be separated into different groups depending on which code that has been assigned to each entry and; c) operating the computer to display a calendar
- **10.** A method according to claim 9, wherein the method further comprises providing a refrigerator (1) having a door (2) with an exterior side and where the touch-

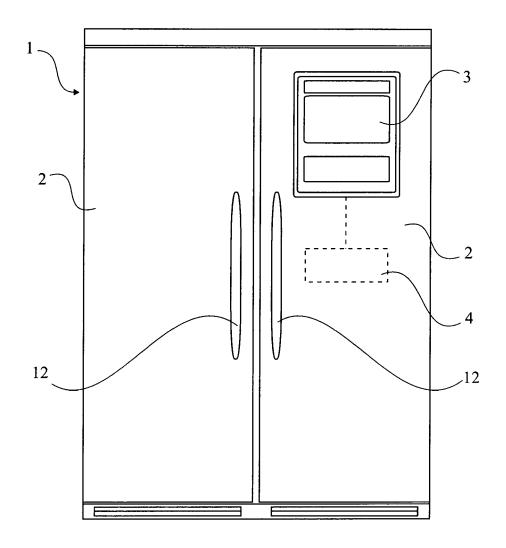
on the touch-screen (3).

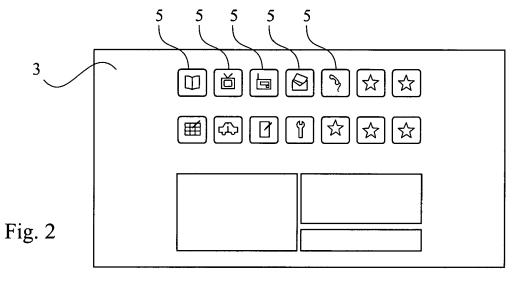
- screen (3) and the exterior side of the door (2) are adapted to fit each other such that the touch-screen can be fastened to the exterior side of the door (2).
- 11. A method according to any of the preceding claims, wherein the computer (4) is a server which is set up such that is can be accessed via the Internet by a person using the touch-screen.
- 12. A method according to any of the preceding claims, wherein the computer software is designed to display the different codes as different colours such that different groups of entries can be displayed on the touch-screen (3) in different colours.

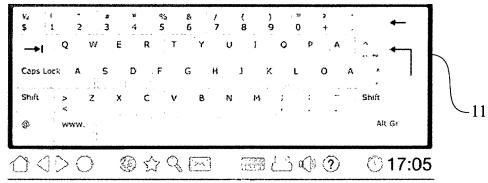
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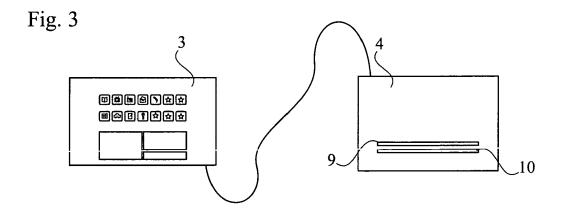
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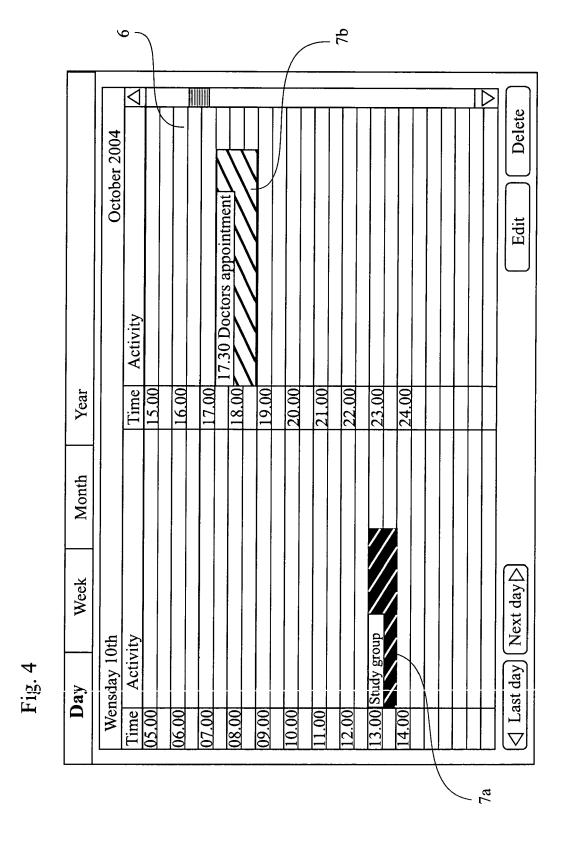
Fig. 1



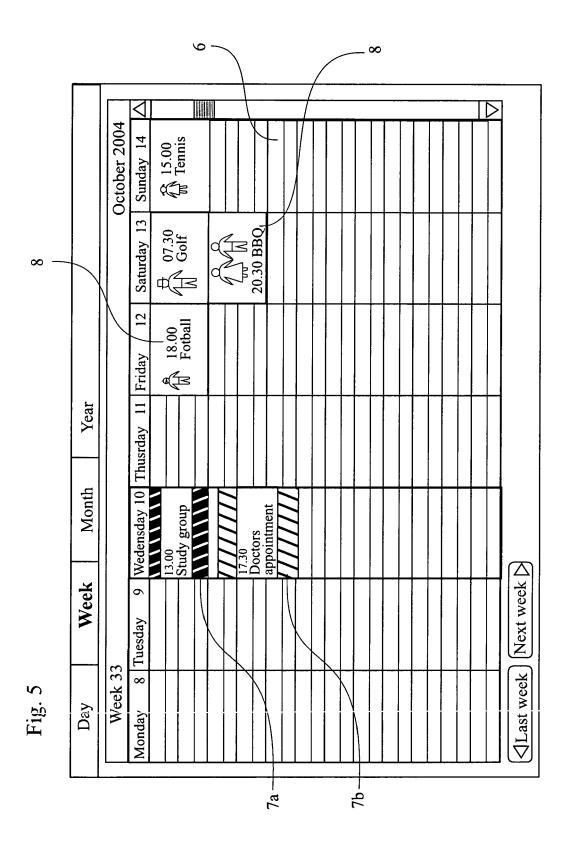


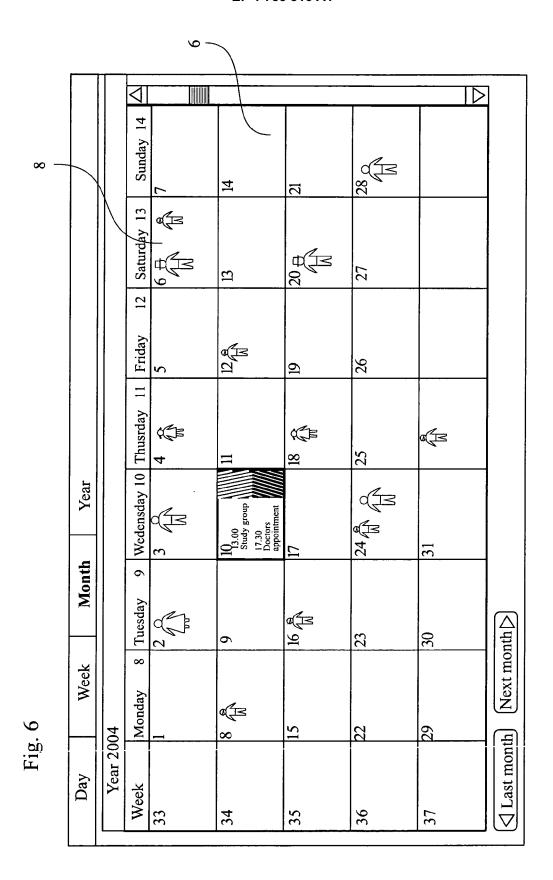






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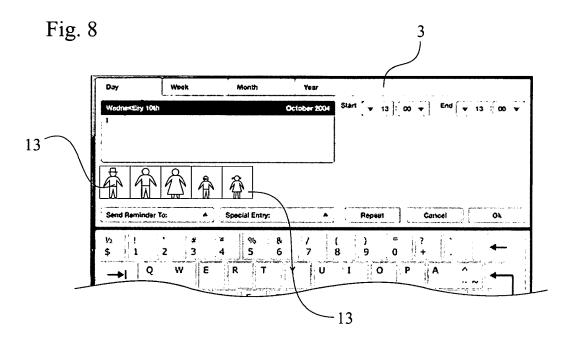
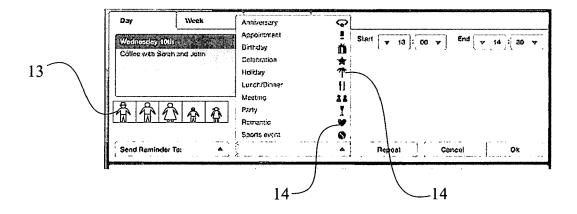


Fig. 9



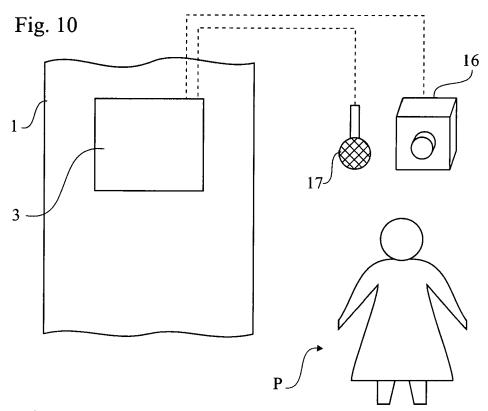
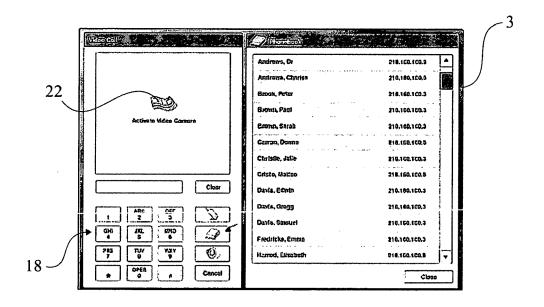


Fig. 11



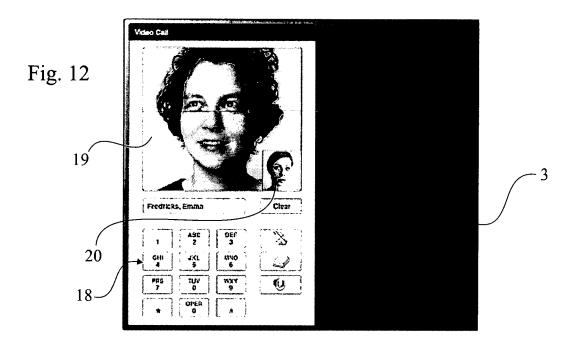
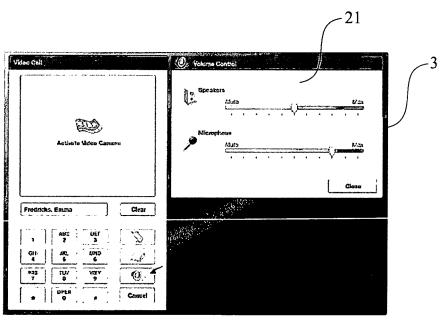


Fig. 13





EUROPEAN SEARCH REPORT

Application Number EP 05 07 7573

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	Place of search	Date of completion of the search		Examiner
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X : parti Y : parti docu A : tech O : non	ATEGORY OF CITED DOCUMENTS icularly relevant if taken alone cularly relevant if combined with another ment of the same category nological background written disolosure mediate document	T : theory or principle E : earlier patent doc after the filing dat D : document cited in L : document cited fo & : member of the sa document	eument, but publise e n the application or other reasons	shed on, or

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