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PORTABLE COMPUTER APPARATUS

Field of the invention

The present invention relates to a portable computer apparatus, particularly to the so called PC-assistant.

Background of the invention

At present, many types of portable computer apparatus are known, intended for employing as a pocket-book, electronic organizer, dictaphone, electronic book, etc.

In particular, from the Japan laid patent application № 05-035886 (Int. Cl. G 06 F 15/74, 12.02.1993) is known a portable computer apparatus comprising a housing with a display screen and sensor screen disposed on that housing, and with computer apparatus circuit components placed within said housing. This portable computer apparatus has keypad controls requiring a space within said housing and having a relatively low reliability as any mechanical devices.

From the USA patent № 5111426 (Int. Cl. G 06 F 1/00, 05.05.1992) is known a portable computer apparatus disposed in a housing like a book, on which one of wide faces is placed a display screen covered with a sensor screen, and within said housing are disposed, respectively connected to one another and to the display and sensor screens, a system board with portable computer apparatus circuit components, multifunction board with portable computer apparatus function expansion components, hard disk drive and self-containing power supply elements. This portable computer apparatus has the same disadvantages as the previous one.

The analogue closest to the present invention is a portable computer apparatus Stylistic LT C-500 Model produced by Fujitsu (http://www.fujitsupc.com). Said portable computer apparatus comprises: a housing which size in one dimension is significantly less than its sizes in two other dimensions; a flat display screen disposed on a surface of one of two housing faces having maximum area so that between at least one side of said display screen and the nearest side of said housing face is a space for placing portable computer apparatus controls; a sensor screen placed over the display screen, exceeding said display screen in size, and made with a possibility to dispose the portable computer apparatus controls in the section which is disposed over said space between at least one side of the display screen and the nearest side of the housing face on which the display screen is disposed; disposed within the housing and connected correspondingly to one another and to the display screen and sensor screen, a system board with portable computer apparatus circuit components, multifunction board with portable computer apparatus function expansion components, and hard disk drive; self-containing power supply elements disposed within the housing and intended for power supplying the portable computer apparatus. This apparatus is sufficiently comfortable in usage and has a wide functionality, but also is unreasonably expensive (more than 4000 $).

Summary of the invention

Thus, the object of the present invention is to develop a portable computer apparatus which would be cheap enough, and at same time could remain comfortable in usage and provide a user with a finished program decision of various problems, which does not require any correction or addition.

The set task is solved and the indicated technical result is achieved in the present invention, according to which is provided a portable computer apparatus comprising: a housing which size in one dimension is significantly less than its

sizes in two other dimensions; a flat display screen disposed on a surface of one of two housing faces having maximum area so that between at least one side of said display screen and the nearest side of said housing face is a space for placing portable computer apparatus controls; a sensor screen placed over the display screen, exceeding said display screen in size, and made with a possibility to dispose the portable computer apparatus controls in the section which is disposed over said space between at least one side of the display screen and the nearest side of the housing face on which the display screen is disposed; disposed within the housing and connected correspondingly to one another and to the display screen and sensor screen, a system board with portable computer apparatus circuit components, multifunction board with portable computer apparatus function expansion components, and hard disk drive; self-containing power supply elements disposed within the housing and intended for power supplying the portable computer apparatus; wherein, in accordance with the present invention, in the hard disk memory is stored, besides the operational system, at least a program of a personal information manager; said housing is made with a possibility to be placed into an enclosure from a soft material having a handle from the side which adjoins said space for placing the controls; wherein said handle has a form ensuring a fixation of the portable computer apparatus in a user's hand in such position that fingers of this hand, being threaded through said handle, are disposed over said space for placing the controls.

A specific feature of the present invention is in that a pocket for placing a control stylus type element is provided in the enclosure.

In so doing, an additional feature of the present invention is in that the enclosure is made from a leather.

One more specific feature of the present invention is in that the operational system is made with a possibility to change a functional purpose of at least a part

of the controls while affecting one of the controls not relating to said part of them.

One more specific feature of the present invention is in that the operational system is made with a possibility both to perform predetermined functions while affecting the corresponding controls, and to monitor an occurrence of predetermined events and ensure a corresponding reaction of the portable computer apparatus onto the occurrence of those events.

One more specific feature of the present invention is in that the program of the personal information manager is made with a possibility: to compile periodic plans of the user business activity; to compile recommendations on carrying out the planned actions; to perform auxiliary measures for carrying out the planned actions; to check the user activity and give out statistical reports on that activity; and also to present a reference information on principles for controlling the user's personal time.

At last, one more specific feature of the present invention is in that in the hard disk memory is stored a system software intended for inputting the information by any of the following methods: keypad, handwritten, voice.

And in so doing, the specific feature of the present invention is in that, in order to provide the voice input of the information, in the housing is mounted a microphone connected to the corresponding portable computer apparatus circuit components.

Brief description of drawings

The present invention will be now described by an example of its embodiment together with references on the accompanying drawings, where:

Fig. 1 shows a perspective view of the portable computer apparatus with a disengaged sensor screen and display screen;

Fig. 2 represents a disposition of the portable computer apparatus according to the present invention in an enclosure; and

Fig. 3 illustrates a possible usage of the portable computer apparatus according to the present invention.

Detailed description of the invention

Fig. 1 shows an embodiment of the portable computer apparatus according to the present invention. This apparatus comprises a book-like housing 1 which thickness (i.e., a size in one dimension) is significantly less than its length and width (i.e., sizes in two other dimensions). Within the housing 1 are disposed a system board 2 with portable computer apparatus circuit components, multifunction board 3 with portable computer apparatus function expansion components, and hard disk drive 4. Units 2 to 4 are shown in Fig. 1 schematically in the form of rectangles, since their specific embodiments are not included in the patent scope of this invention. The only condition for the units 2 to 4 is their corresponding thickness allowing to dispose those units within the housing 1. Moreover, within the housing 1 are disposed self-containing power supply elements 5 needed to supply the portable computer apparatus.

Fig. 1 shows the housing 1 of the portable computer apparatus according to the present invention with engaged top face 6, on which a flat display screen 7 (e.g., liquid crystal) is disposed. It is obvious, that one of two faces having maximum area must be chosen as a face 6 for arranging the display screen 7. In so doing, the display screen 7 is disposed on this face 6 so that between at least one side of the display screen 7 and the nearest side of the face 6 of the housing 1 is a space 8. Fig. 1 shows this space 8 as chosen over that part of the housing 1 in which the self-containing power supply elements 5 are disposed, however, this is not an obligatory requirement. The space 8 may be chosen from any side of the

display screen 7, and particularly this space may be from all sides of the display screen 7. The purpose of the space 8 is indicated below.

Fig. 1 depicts a sensor screen 9 disposed over the face 6 with the display screen 7. This sensor screen 9 has a size exceeding a size of the display screen 7 and, in the limit, equal to the size of the whole face 6. The sensor screen 9 is intended for choosing any elements of an image displayed on the display screen 7 during the portable computer apparatus operation. Moreover, the sensor screen 9 is made with a possibility to dispose the portable computer apparatus controls 10 in the section which is disposed over the space 8. Those controls 10 can be shown on the sensor screen 9 by drawing corresponding images either onto the front or back side of the sensor screen 9, or directly onto the space 8 between the side of the display screen 7 and the nearest side of the face 6 of the housing 1. Those controls 10 may be in the form of keys with symbols depicted on them, or may be the mere sections of the sensor screen 9 demarcated from each other.

In order to provide the proper operation of the portable computer apparatus, all units disposed in the housing 1, i.e., the system board 2 with portable computer apparatus circuit components, the multifunction board 3 with portable computer apparatus function expansion components, and the hard disk drive 4, as well as the display screen 7 and sensor screen 9, have corresponding connections between them and the power supply elements 5. A specific form of those connections (bus, cable, serial, parallel, etc.) is defined by a specific purpose of the portable computer apparatus and is not involved into the patent scope of the present invention. Fig. 1 does not depict the provided switch, using which the portable computer apparatus can be switched on and off, and which can be disposed in any place where it would be convenient from the viewpoint of disposition of other units. One of the possible examples for disposing this switch is discussed below.

Functions performed with the help of the controls 10 can be of a great variety: for instance, switching the format of the display screen 7 from the book to the album and vice versa, invoking an information from the memory to the screen, scrolling pages of the displayed text, etc. Among those functions may be a switching of the functionality of the controls 10 (at least a part of those controls 10) from one function set to another one. All operation carried out by the user actuating the controls 10 are performed with the help of the operating system stored in the hard disk memory. In any case, the functionality and quantity of the controls 10 are chosen in advance proceeding from the problems to be solved by the portable computer apparatus. In so doing, during an employment of the portable computer apparatus, all display screen 7 can be used for displaying only the information the user deals in, without the necessity for reducing an area for displaying the controls on the same display screen 7. However, when necessary, the display screen 7 can display function controls too, which are absent among the controls 10 in the space 8 or similar to them.

In order to provide a comfort in use, the portable computer apparatus is placed into an enclosure 11 from a soft material having a handle 12 from the side which adjoins the space 8 shown in Fig. 1 for placing the controls 10. The enclosure 11 can be made from a leather or other material in the form of a folder, in which one half is secured a housing 1 of the portable computer apparatus, another half serving as a turning back cover. This turning back cover, in the process of its turning back movement, can release the supply switch, being disposed on the housing 1 so that in a closed position of the enclosure 11 this switch is off and in an open position of the enclosure 11 it is on.

The handle 12 consists of two similar halves each of which is secured to its half of the enclosure 11 and can be made sliding or fixed. The handle 12 serves not only for comfort in carrying the portable computer apparatus in the non-working state, but also for increasing the comfort of usage during the operation.

For this purpose the handle 12 has a form ensuring a fixation of the portable computer apparatus in the user's hand in such a way that fingers of this hand, being put through the handle 12, are placed over the space 8 for disposing controls 10. In this case, it would be easy for the user to control the operation of the portable computer apparatus by fingers of one hand, – the hand which holds this portable computer apparatus (Fig. 3).

Fig. 3 shows the case of usage of the portable computer apparatus according to the present invention, where the user, after opening one half of the enclosure 11 and turning it back till contact with another half of this enclosure 11, puts fingers of his/her hand (for instance, left) through the opening of the handle 12 while disposing the portable computer apparatus in the enclosure 11 in the wrist area of this hand. In so doing, the user can, for example, invoke some text from the memory (hard disk) to the display screen 7 and read it, as if this text is disposed on a book page, "scrolling" text pages, as needed, by pressing with a finger of the same hand onto the corresponding control 10. In another case the user, after invoking some image to the display screen 7 and changing the display screen format from the book to album, can demonstrate this image to surrounding people, modifying it if necessary – for example, by rotating it on the display screen 7, using a pressing on the corresponding control 10 with a finger of the hand holding the portable computer apparatus.

On the other hand, in order for the user to mark displayed elements of small size on the display screen 7 or to perform another operations requiring a spot contact to the sensor screen 9, in the enclosure 11 is provided a pocket 13 for placing a control stylus type element 14. If necessary, the user, holding the portable computer apparatus with one (for example, left) hand, as was described, extracts this control element 14 with another, free hand from the pocket 13 and, touching the sensor screen 9 by this element 14 in those places where the display screen 7 has the corresponding image, ensures a marking of the required sections

of this image or initiation of one or other functions, if the display screen 7 displays some controls. The stylus type element 14 can be used also for the operation with the controls 10 disposed in the space 8 out of the display screen 7.

It should be noted that connectors and/or sockets can be provided in the housing 1, connected to the corresponding units within the housing 1 and intended for connecting the portable computer apparatus both to the power network and to other computer or periphery apparatuses.

In order to increase the functionality of the portable computer apparatus according to the present invention, into the memory of the said hard disk, besides the above mentioned operating system, is stored at least a program of a personal information manager. This program of a personal information manager is made with a possibility: to compile periodic plans of the user business activity; to compile recommendations on carrying out the planned actions; to perform auxiliary measures for carrying out the planned actions; to test the user's efficiency and give out statistical reports on that activity; and also to present a reference information on principles for controlling the user's personal time. In order to carry out all indicated functions, it is possible to use both the existing and specially developed program products.

For instance, in order to obtain data on the user's efficiency in predetermined time periods, the program of the personal information manager (PIM), periodically or by the users' notes, can offer him/her at predetermined moments to go through testing the rate: of reading, say, 100 words; of typing, say, 1000 symbols of text; etc. In accordance with the results of those tests, the program of PIM determines weighted estimations of the user's efficiency. In order to compile periodic plans of the user business activity and recommendations on carrying out the planned actions, the program of PIM needs in the user's data input in advance: a list of his/her contacts a list of documents (passport, insurance, etc.), event associated with the user's personal life (birthdays of the user and his/her relatives,

etc.). If a need arises in an urgent business travel, it is necessary, along with indicating the parameters of this travel (destination, arrival time, importance level of this travel), to input also the attendant information: vehicle traffic schedule, availability of hotels, etc. Then the program of PIM will not only account this travel in the schedule of the user business contacts, but propose its schedule considering data on other planned meetings input previously.

As indicated above, all functions carried out by the software of the portable computer apparatus according to the present invention including the program of PIM are performed using the controls 10 on the instrumental panel of sensor screen 9 disposed over the space 8 by pressing with a finger onto those places of the sensor screen 9, which are marked with corresponding images of the controls 10. Some controls, however, can be formed by the software directly on the display screen 7, then the actuating ("pressing") onto them, – i.e., onto those sections of the sensor screen 9, under which a corresponding image is on the display screen 7, – could be performed by the stylus type element 14, kept in the pocket 13 of the enclosure 11.

Moreover, in the memory of said hard disk may be stored a system software intended for inputting and extracting the information not only with the help of the described sensor keypad, but also for a handwritten and/or voice input. This system software can be both already existing and specially developed. In order to provide a handwritten input, this software converts the sensor screen 9 into the tablet mode and senses handwritten symbols written on it, and simultaneously displays them on the display screen 7, thereby simulating a reproduction of the handwritten text which is recognized by the corresponding program and input into the hard disk memory of the portable computer apparatus according to the present invention.

In order to provide the voice input of the data, on the top face 6 of the housing 1 is provided a mounting of a microphone 15 (see Fig. 1) connected to

the corresponding portable computer apparatus circuit components. Program means in this case includes a program of the speech recognition, using which the data input by the user's voice are converted into signals which can be output on the display screen 7 and/or stored in the hard disk memory.

Thus, the present invention provides the portable computer apparatus, – for instance, of the PC-assistant type, – in which all control functions (except for switching on or off) are carried out using controls on the sensor screen, saving the display screen area for displaying the necessary information and the inner volume of the housing for compacting the disposition of units of the portable computer apparatus. The operating system and program of the personal information manager stored in the hard disk memory provide increased functionality of the portable computer apparatus according to the present invention.

Industrial applicability

The present invention can be used in developing portable computer apparatus of different purposes.

The present invention is described in the above specification by means of the example of its possible embodiment. This example serves only as an illustration and not limitation. All possible modifications and embodiments should be considered as falling into the scope of the following claims.

Claims

1. A portable computer apparatus comprising:

– a housing which size in one dimension is significantly less than its sizes in two other dimensions;

– a flat display screen disposed on a surface of one of two housing faces having maximum area so that between at least one side of said display screen and the nearest side of said housing face is a space for placing portable computer apparatus controls;

– a sensor screen placed over the display screen, exceeding said display screen in size, and made with a possibility to dispose the portable computer apparatus controls in the section which is disposed over said space between at least one side of the display screen and the nearest side of the housing face on which the display screen is disposed;

– disposed within the housing and connected correspondingly to one another and to the display screen and sensor screen, a system board with portable computer apparatus circuit components, multifunction board with portable computer apparatus function expansion components, and hard disk drive;

– self-containing power supply elements disposed within the housing and intended for power supplying the portable computer apparatus;

– in the memory of the hard disk is stored, besides the operational system, at least a program of a personal information manager;

– said housing is made with a possibility to be placed into an enclosure from a soft material having a handle from the side which adjoins said space for placing the controls;

– wherein said handle has a form ensuring a fixation of the portable computer apparatus in a user's hand in such position that fingers of this hand, being threaded through said handle, are disposed over said space for placing the controls.

2. The apparatus as claimed in claim 1, wherein in the enclosure is provided a pocket for placing a control stylus type element.

3. The apparatus as claimed in claim 1 or 2, wherein the enclosure is made from a leather.

4. The apparatus as claimed in claim 1, wherein said operational system is made with a possibility to change a functional purpose of at least a part of said controls while affecting one of the controls not relating to said part of them.

5. The apparatus as claimed in claim 1, wherein said operational system is made with a possibility both to perform predetermined functions while affecting the corresponding controls, and to monitor an occurrence of predetermined events and ensure a corresponding reaction of the portable computer apparatus onto the occurrence of those events.

6. The apparatus as claimed in claim 1, wherein said program of the personal information manager is made with a possibility: to compile periodic plans of the user business activity; to compile recommendations on carrying out the planned actions; to perform auxiliary measures for carrying out the planned actions; to test the user activity and give out statistical reports on that activity; and also to present a reference information on principles for controlling the user's personal time.

7. The apparatus as claimed in any of claims 1, 4 to 6, wherein in the memory of the hard disk is stored a system software intended for inputting the information by any of the following methods: keypad, handwritten, voice.

8. The apparatus as claimed in claim 7, wherein, in order to provide the voice input of the information, in the housing is mounted a microphone connected to the corresponding portable computer apparatus circuit components.