A SYSTEM AND METHOD OF INVOKING A PROCESS IN A GRAPHICAL USER INTERFACE ENVIRONMENT

FIELD OF INVENTION

The present invention relates to a system and method of invoking a process in a computer system, in particular, in a graphical user interface (GUI) environment.

BACKGROUND OF THE INVENTION

A general purpose computer system is operated by a pointing device such as a two-button mouse, which has at least two buttons. By clicking a button, especially a right button, a pop-up menu is displayed on the display screen. The user can select one item on the pop-up menu to perform an operation.

However, for an application operating on another system other than the Microsoft Windows system, there is no right-button operation to trigger the pop-up menu. Alternative methods may be employed to trigger the pop-up menu, for example, pressing special keys or preparing special buttons.

As mentioned above, a GUI based computer system, which does not have two-button mouse, has to provide other ways to trigger a pop-up menu. However, as shown in FIG. 1, even if an application software with a two-button mouse can display the pop-up menu, the operator or the user must go through three steps: (1) clicking the right button on the mouse to display the pop-up menu 102, (2) moving a cursor to select an item of interest in the menu 104, and (3) clicking the item 106. Three steps are required to select the GUI object.

Further, an application software with no right-button mouse will need additional steps to select a necessary process.

Although Japan patent no. 280326 solved such a problem, it needs to display two icons, namely, the first icon and the second icon. The purpose of the Japan patent is

to display wordings of "help" so that it is not necessary to input keywords or comments on the display. In other words, the Japan patent has only improved the "help" function.

SUMMARY OF THE INVENTION

The present invention serves to overcome the disadvantages of existing systems or at least provide the public or industry with a useful choice.

An embodiment of the present invention is a method of invoking a process in a GUI environment. The method comprises displaying a plurality of first objects on a display, selecting one of the first objects with a pointing device, displaying one or more of second objects on the display, and de-selecting the one of the first objects within a defined area of the one of the second objects so as to invoke a process associated with one of the second objects.

Preferably, after selecting the one of the first objects and prior to de-selecting it within the defined area of the one of the second objects, the one of the first objects is moved into the defined area.

Preferably, the one of the first objects is a handle relating to a function or data.

Still preferably, according to whether it is selected, moved or de-selected, the one of the first objects changes its colour, shape and/or behaviour.

Still preferably, the corresponding one or more of the second objects is/are hidden after the one of the first objects is de-selected.

Another embodiment of the present invention is a system of invoking a process in a GUI environment. The system comprises a display controller to display a plurality of first objects on a display and to display or hide one or more of second objects on a display, an item controller to control functions of the plurality of the first objects, a pad controller to execute processes associated with the one or more of the second objects, a pointing device to select one of the first objects, to move it into a defined area of one of the second objects, and to de-select it within the defined area of one of

the second objects to invoke the process associated therewith, and a handle controller to check whether the one of the first objects is selected, moved or de-selected by the pointing device.

Preferably, the handle controller changes colour, shape and/or behaviour of the one of the first objects when it is selected, moved or de-selected by the pointing device.

Still preferably, the display controller displays or hides the one or more of the second objects according to whether the one of the first objects is selected or de-selected.

BRIEF DESCRIPTION OF THE DRAWINGS

One embodiment of the present invention will now be described with reference to the accompanying drawings.

FIG. 1 shows an example of a prior art which illustrates triggering a pop-up menu and selecting an item.

FIG. 2 is a block diagram of an embodiment of the present invention.

FIG. 3 is a flow chart of the present invention.

FIGS. 4a and 4b are examples of displays by using the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

An embodiment of the present invention will now be described in details using the drawings below.

FIG. 2 is a block diagram of the present invention. As shown in FIG. 2, the present invention is set into the general purpose computer system, which has a pointing device 1 such as a two-button mouse, display 2 and display controller 3. Pointing device 1 can be operated by clicking, dragging and dropping.

Item controller 4 controls general items in a computer system such as inputting texts, switching operations and displaying combo box or pop-up menu. Item controller 4 is further linked to item1 process 41, item2 process 42, item3 process 43 and so on. Examples of a function of each item1, item2 or item3 are inputting texts, switching operations and displaying combo box or pop-up menu. The items may also be data.

The invention has features to provide for a handle controller 5 and a pad controller 6.

Each item has a handle displayed adjacent thereto. The handle represents the item and moves from the position of the item to a corresponding pad which relates to a process of interest.

According to which handle is selected, the invention will display one of more corresponding pads on the display 2. The pads are displayed in a shape of a window by pad display unit 7. Pad controller 6 selects one pad among pad1 process 61, pad2 process 62 or pad process 63 and executes a process associated therewith. For example, pad1 process is a process of "show help", pad2 process is a process of "show history" and pad3 process is a process of "copy to clipboard".

FIG. 3 shows a flow chart of the embodiment of the invention shown in FIG. 2. Explanations will be made by each step as follows.

Step 302: Each item is displayed on display 2. At the same time, handles are displayed near their corresponding items on display 2.

Step 304: Handle controller 5 checks the handle whether or not it is grabbed by pointing device 1. If the handle is not grabbed ("no"), the flow proceeds to end.

Step 306: If the handle is grabbed by pointing device 1 ("yes" in step 304), the handle controller 5 changes the handle's appearance. The handle changes to a different colour, for example, from blue to red or from green to yellow, or to a different shape or behaviour, for example, from a shape of a square to an arrow, or from normal to blinking.

Step 308: The display controller 3 displays one or more corresponding pads on the display 2, according to which handle is grabbed by pointing device 1 in step 306.

Step 310: Further, handle controller 5 checks whether or not the handle is dropped within an area of the pad. If it is not dropped within the area of the pad ("no"), handle controller 5 continues to monitor the handle.

Step 312: If an operation of dragging or dropping the handle is stopped by the operator ("exit" in step 310), display controller 3 hides the corresponding pads.

Step 314: Handle controller 5 returns the handle to the original colour or shape or behaviour and returns to step 304.

Step 316: If the handle is dropped within the area of any pad ("yes" in step 310), pad controller 6 detects the operation of dropping and selects a process corresponding to the pad. The corresponding process, for example "show help", "show history" or "copy to clipboard", will be performed.

Step 318: When the operation in step 314 is completed, display controller 3 hides the corresponding pads.

Step 320: Handle controller 5 returns the handle to the original colour or shape or behaviour.

An example of the operation of the invention is shown in details in FIG. 4a.

Items 402, 404, 406, 408 and 410 are displayed on the display. Examples of functions of items 402, 404, 406, 408 and 410 are inputting texts, switching operations and displaying combo box, pop-up menu. Items 402, 404, 406, 408 and 410 may also be data.

Each item 402, 404, 406, 408 and 410 has a corresponding handle 412, 414, 416, 418 and 420, which is displayed at the left side of the item, in a shape of a small square.

First, the operator or the user selects and grabs, for example, the handle 418 displayed adjacent the item 408 by operating a pointing device or a mouse. The handle 418 changes colour to green. Corresponding operation pads, which are operation pads with captions, are displayed at lower area of the display, in this case as "show help" and "show history", i.e. corresponding pads 422 and 424 respectively.

Then the operator or the user moves the handle 418 to the pad of interest, for example pad 424, and de-selects the handle to drop it within the defined area of pad 424, which corresponds to the operation "show history". If the item 408 relates to a data such as value of temperature, a new window, indicating histories of trends of the temperature, will be displayed.

On the other hand, if a handle is dropped within the defined area of the pad 422, which corresponds to the operation "show help", a new window will be opened for displaying functions of "help".

As soon as the handle 418 is de-selected or dropped, it returns to its normal appearance and corresponding pads 422 and 424 are hidden.

Another example of the operation of the invention is shown in FIG. 4b.

If the handle 420 is selected, it changes colour to green. Corresponding operation pads are displayed as "copy to clipboard" and "paste from clipboard", i.e. corresponding pads 426 and 428 respectively. The handle 420 is then dropped to pad 426 which corresponds to the operation "copy to clipboard", a new window for displaying the contents of "clipboard" will be opened. If the handle 420 is dropped to pad 428, corresponding to operation "paste from clipboard", pad 428 performs an operation of pasting data or text from the clipboard to the corresponding item.

Similarly, as soon as the handle 420 is de-selected or dropped, it returns to its normal appearance and corresponding pads 426 and 428 are hidden.

The present invention is operated by the operator or the user. The operator or the user can obtain necessary information by easy operation, which is to grab a handle

corresponding to an item. By a drag/drop operation, the required information will be displayed on the display of the computer system.

WHAT IS CLAIMED IS:

1. A method of invoking a process in a graphical user interface (GUI) environment, the method comprising the steps of:

displaying a plurality of first objects on a display;

selecting one of the first objects with a pointing device;

displaying one or more of second objects on the display; and

de-selecting the one of the first objects within a defined area of one of the second objects to invoke a process associated with the one of the second objects.

2. The method according to claim 1, further comprising the step of moving the one of the first objects into the defined area, after selecting the one of the first objects and prior to de-selecting it within the defined area.

3. The method according to claim 1 or 2, wherein the one of the first objects is a handle relating to a function or data.

4. The method according to any one of the preceding claims, further comprising the step of changing colour, shape and/or behaviour of the one of the first objects, according to whether it is selected, moved or de-selected.

5. The method according to any one of the preceding claims, further comprising the step of hiding the corresponding one or more of the second objects after the one of the first objects is de-selected.

6. A system of invoking a process in a GUI environment, the system comprising:

a display controller to display a plurality of first objects and to display or hide one or more of second objects on a display;

an item controller to control functions of the plurality of the first objects;

a pad controller to execute processes associated with the one or more of the second objects;

a pointing device to select one of the first objects and to de-select it within a defined area of one of the second objects to invoke the associated process; and

a handle controller to check whether the one of the first objects is selected or de-selected by the pointing device.

7. The system according to claim 6, wherein the pointing device moves the one of the first objects into the defined area of one of the second objects, after selecting the one of the first objects and prior to de-selecting it within the defined area.

8. The system according to claim 7, wherein the handle controller further checks whether the one of the first objects is moved.

9. The system according to any one of claims 6, 7 and 8, wherein the handle controller changes colour, shape and/or behaviour of the one of the first objects according to whether it is selected, moved or de-selected.

10. The system according to any one of claims 6, 7, 8 and 9, wherein the display controller displays or hides the one or more of the second objects according to which one of the first objects is selected or de-selected.