A MOUSE WITH INTERNET PHONE CAPABILITY

FIELD OF INVENTION

This invention relates to a mouse with the capability to make Voice Over Internet Protocol (VoIP) telephone calls when connected to the Internet.

BACKGROUND

A mouse is a ubiquitous computer input device. The capability of the mouse to generate position signals plus one or more binary control signals with just one hand of a user has turned the mouse into a most useful tool for interactive computer program control. Popular applications include computer games, presentation and processing software, and Internet browsing.

Despite the usefulness of the mouse, the user still requires additional hardware for VoIP applications. Additional headsets, earphones, webcams and related equipment are usually required, creating a clutter of wires around the computer and/or causing numerous equipment compatibility problems.

VoIP applications usually also require several intermediate steps to be carried out before calls are able to be made. This may be deemed an inconvenience to the user.

SUMMARY

There is provided a mouse for a computer that is usable as a telephone when the computer is connected to the Internet. The mouse includes a first input means to generate positional signals of a cursor on a screen of the computer in response to movement of the first input means; a second input means to enter alphanumeric data into the computer; at least one third input means to enter sound signals into the computer; at least one output means for the transmission of sound signals from the computer; and at least one selection element for enabling the selection of at least one object on the screen. The mouse may be wired to the computer or wirelessly connected to the computer using UWB USB wireless, Bluetooth, infrared, or radio frequency protocols. The sound signals may be digital or analog.

Advantageously, the display means of the mouse is used to show data being input into the computer and data being output from the computer. The display means of the mouse may be either LCD or OLED screens. Preferably, the first input means is either a track ball, or an optical signal. It is also preferable that the second input means is a set of keyboard keys that provides full alphanumeric input and the at least one third input means is a microphone. The output means may be at least one earphone, at least one headphone, or at least one speaker. Sound signals transmitted from the computer may be either analog or digital. Usually, the selection element comprises either buttons or scrollers (scrolling wheels).

Preferably, the mouse also includes a redial button to recall the last entered numeric input, and a "flash" button to end calls and/or obtain a dialing tone. A speed dial button may also be included. Voice dialing may also be possible with the mouse. It is also preferable that a fourth input means to enter image-based data into the computer is included. The fourth input means may be a camera and the images captured may be still or moving.

It is advantageous to include a controller in the mouse to process all signals and data coming into, and going out from the mouse.

The mouse may also further include a memory storage device and/or an external memory storage device slot for one of more of the common used memory cards, such as, for example, SD cards, MMC cards, CF cards, and xD cards. Preferably, the mouse may include cache memory.

There is disclosed a method to compose alphanumeric messages using the mouse and a method to make telephone calls over the Internet using the mouse.

DESCRIPTION OF DRAWINGS

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

Figure 1 is a schematic diagram of the present invention.

Figure 2 is a top view of a preferred embodiment of the present invention.

DESCRIPTION OF PREFERRED EMBODIMENTS

The following discussion is intended to provide a brief, general description of a suitable computing environment in which the present invention may be implemented. As those skilled in the art will appreciate, the invention may be practiced with other computer system configurations, including hand-held devices, multiprocessor systems, microprocessor-based or programmable consumer electronics, minicomputers, and the like.

Referring to Figures 1 and 2, there is provided a mouse 20 for a computer 38 that is usable as a telephone when the computer 38 is connected to the Internet. The mouse 20 may include a controller 22 to process all signals and data coming into, and going out from the mouse 20. The controller 22 may also be external to the mouse 20 and may be part of the computer 38.

The computer 38 may be of any form of Internet-enabled computer to which a mouse 20 may be able to be connected and includes, but is not limited to: a server, a personal computer, a laptop computer, a notebook computer, a tablet computer, a personal digital assistant and a mobile telephonic device.

The mouse 20 has a first input means 26 to generate positional signals of a cursor on a screen of the computer 38 in response to movement of the first input means 26. The first input means 26 may be either a track ball, or an optical signal (as used for optical mice). The actual technique employed would depend on cost and space considerations in relation to the manufacture of the mouse 20.

Preferably, the mouse 20 has a second input means 28 to enter alphanumeric data into the computer 38. Figure 2 shows the second input means 28 as a set of keys 28 on mouse 20 when viewed from the top. The keys 28 are identical to a numeric keypad found on any telephone, whether mobile or fixed line. Besides being able to key-in numbers using the keys 28, it is possible to compose alphanumeric messages by using the keys 28. For example, the word "ram" is created by pressing the "7" key three times, followed by pressing the "2" key once, and pressing the "6" key once. This is identical to how messages are typed in many mobile phones. Additional functions like back-space, enter, and inserting of symbols, among others, may be

pre-programmed into the existing set of keys 28. Pre-programming may be done by a user or may be done during manufacture of the mouse 20.

The mouse 20 also has at least one third input means 34 to enter analog sound signals into the computer 38. Figure 2 shows the third input means 34 as a microphone 34 to pick up a voice of the user. The analog sound signals picked up by the microphone 34 may be converted into digital format by a program in the computer 38 prior to transmission over the Internet. Correspondingly, given the telephone functionality of the mouse 20, the mouse 20 also includes at least one output means 36 for the transmission of sound signals from the computer 38. Figure 2 shows the output means 36 as an ear speaker 36. The output means 36 may also be at least one earphone or at least one headphone. The earphone or headphone may be coupled to the mouse 20 using a plug-and-jack mechanism. The earphone or headphone may also be wirelessly connected to the mouse 20. Multiple earphones or headphones may be connectable to the mouse 20. These earphones or headphones may also include microphones like a headset-microphone combination. Having multiple headsets connected to the mouse 20 would enable tele-conferencing to be possible. The headsets may be wireless connected to the mouse 20 using protocols such as, for example, UWB USB wireless, Bluetooth, infrared, and radio frequency.

Depending on the program used in the computer 38, the sound signals transmitted from the computer 38 may be in either digital format or they may be converted back to analog format. In accordance with the phone functionality of the mouse 20, the mouse 20 may include a redial button to recall the last entered numeric input, a "flash" button to end calls and/or obtain a dialing tone, and at least one speed dial button for fast dialing of numbers stored in either the computer 38 or the mouse 20. Voice dialing may also be possible with the mouse 20, either with voice recognition software in the computer 38 or on the mouse 20.

In order for the mouse 20 to still be able to perform its function as a "point-and-click" interface device with the computer 38, the mouse 20 includes at least one selection element 30 for enabling the selection of at least one object on the screen of the computer 38. Referring to Figure 2, the selection element 30 comprises two buttons 31 and a scrolling wheel (scroller) 33. This arrangement and method of use is similar to those found in other conventional computer mice.

A display means 24 may also be included with mouse 20. Figure 2 shows the display means 24 as a screen 24. The screen 24 may be an LCD or an OLED, and may be used for the presentation of either data being input into the computer or data from the Internet being output from the computer. The screen 24 may be able to show the originating number of the incoming call, or the originating caller of the incoming call. Depending on the image resolution of the screen 24, video images may also be viewed on the screen 24.

The mouse 20 may be wired to the computer 38 or may be wirelessly connected to the computer using protocols such as, for example, UWB USB wireless, Bluetooth, infrared, and radio frequency. A wireless mouse 20 may be considered to be a cordless VoIP telephone. The wireless mouse 20 may cover a range of approximately 50 m if UWB of 2.4 GHz or 5.2Ghz is employed.

The mouse 20 may also include a fourth input means 32 to enter image-based data into the computer. Figure 2 shows the fourth input means 32 as a retractable swivel camera 32 with lens 35. The camera 32 may be used to record either still or moving images. A memory to record the images may be incorporated into the mouse 20 or the mouse 20 may include a memory card reader/writer. Different formats like SD cards, MMC cards, CF cards, xD cards and the like may be acceptable. Alternatively, the images may be stored in the computer 38. It is preferable that mouse 20 has cache memory to better process moving image files. It may also be possible to video-conference using the camera 32 on the mouse 20.

Referring to Figure 2, there is shown a slidable cover 40 that is able to cover the set of keys 28 when the keys 28 are not required. When the cover 40 covers the keys 28, the mouse 20 retains a form factor that is similar to conventional computer mice, ensuring little time required for the user to familiarize with the mouse 20. The cover 40 may be biased. Sliding the cover 40 to expose the keys 28 may send a signal to the VoIP program in the computer that the user may be ready to make or receive a call. The keys 28 may also be located at a back surface 42 of the mouse 20. The first input means 26 of either a track ball, or an optical signal (as used for optical mice) may also be located at the back surface 42.

The mouse 20 may be used to make telephone calls over the Internet as long as the computer 38 that it is connected to is connected to the Internet. Calls may be made using the mouse 20 like as if the mouse 20 was a telephone connected to a phone

line (if the mouse 20 is wired to computer 38) or as if the mouse 20 was a cordless telephone (if the mouse 20 is wirelessly connected to computer 38). Intermediate steps involving the setting up of hardware/software for VoIP may be minimized by using mouse 20. The mouse 20 may only require the installation of a driver once it is removed from a packaging.

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

CLAIMS

1. A mouse for a computer that is usable as a telephone when the computer is connected to the Internet, including:

a first input means to generate positional signals of a cursor on a screen of the computer in response to movement of the first input means;

a second input means to enter alphanumeric data into the computer;

at least one third input means to enter sound signals into the computer;

at least one output means for the transmission of sound signals from the computer; and

at least one selection element for enabling the selection of at least one object on the screen.

2. The mouse as claimed in claim 1, further including a display means for the presentation of:

data being input into the computer; and

data being output from the computer.

3. The mouse as claimed in claim 1, wherein the first input means is selected from the group comprising: a track ball, and an optical signal.

4. The mouse as claimed in claim 1, wherein the second input means is a set of keyboard keys that provides full alphanumeric input.

5. The mouse as claimed in claim 1, wherein the at least one third input means is a microphone.

6. The mouse as claimed in claim 1, wherein the at least one output means is selected from the group comprising: at least one earphone, at least one headphone, and at least one speaker.

7. The mouse as claimed in claim 1, wherein the sound signals transmitted from the computer are selected from the group comprising: analog and digital.

8. The mouse as claimed in claim 1, wherein the selection element is selected from the group comprising: buttons and scrollers.

9. The mouse as claimed in claim 1, further including a button selected from the group comprising: redial button, "flash" button and speed dial button.

10. The mouse as claimed in claim 1, wherein the at least one third input means and the at least one output means is combinable into a headset-microphone combination.

11. The mouse as claimed in claim 1, wherein the mouse is wired to the computer.

12. The mouse as claimed in claim 1, wherein the mouse is wirelessly connected to the computer using protocols from the group comprising: UWB USB wireless, Bluetooth, infrared, and radio frequency.

13. The mouse as claimed in claim 1, further including a fourth input means to enter image-based data into the computer.

14. The mouse as claimed in claim 13, wherein the fourth input means is a camera.

15. The mouse as claimed in claim 13, wherein the images are selected from the group comprising: still and moving.

16. The mouse as claimed in claim 1, further including a controller.

17. The mouse as claimed in claim 16, wherein all signals and data coming into, and going out from the mouse passes through the controller.

18. The mouse as claimed in claim 2, wherein the display means is a screen that is selected from the group comprising: LCD and OLED.

19. The mouse as claimed in claim 1, further including a memory storage device.

20. The mouse as claimed in claim 1, further including an external memory storage device slot for formats selected from the group comprising: SD cards, MMC cards, CF cards, and xD cards.

21. The mouse as claimed in claim 19, further including cache memory.

22. The mouse as claimed in claim 1, further including a slidable cover to cover the second input means.

23. The mouse as claimed in claim 22, wherein the slideable cover is biased.

24. The mouse as claimed in claim 1, wherein the entered sound signals are selected from the group consisting of: analog and digital.

25. A method to compose alphanumeric messages using the mouse as claimed in claim 1.

26. A method to make telephone calls over the Internet using the mouse as claimed in claim 1.