Alphanumeric Keyboard with In-built Microphone

Field of the Invention

The present invention relates to a keyboard with at least one in-built microphone with an automatic function and preferably, but not exclusively, to such an alphanumeric keyboard that also has peripheral functionality.

Definitions

Throughout this specification reference to "alphanumeric" is to be taken as including any symbols that may be found on the keys of a computer keyboard including regional or national alphabets, scripts and symbols. For example, a so-called "western" keyboard may include the following alphanumeric keys:

alpha keys a to z;

numeric keys 0 to 9;

function keys including dedicated function keys such as, for example, F1 to F12, and such keys as Internet access keys;

instructional keys such as, for example, "Esc", "Enter", "Ctl", "Shift", "Tab", "Caps Lock", "Delete", "Insert", "Home", "Page Up", "Page Down", "End", "Num Lock";

cursor control keys;

and the "Shift" function of all of them.

Background to the Invention

Many alphanumeric keyboards for computers now have a digital data connection to the host computer. The digital data connection may be a USB connection or IEEE 1394, or other relevant system including wireless connections. In many instances this is to allow extra function keys on the keyboard to control audio functions of the host. The audio functions may be, for example, volume controls, play functions, and so forth. By use of the digital data connector these may be controlled from the keyboard.

Peripheral devices such as a mouse are often connected to the host by a wireless connection using a wireless hub, the wireless hub being connected to the host using a wired digital data connector. This means that if only the mouse is wireless,

there is more hardware, and still the same number of cables connected to the host. The wireless hub will also require a power supply, thus adding more cables.

Summary of the Invention

In accordance one aspect of the present invention there is provided an alphanumeric keyboard having a digital data connector for connection with a host computer, the alphanumeric keyboard having at least one in-built functional components for co-operating with at least one external component to enable data received from the at least one external component to be communicated to the host computer using the digital data connector; and the in-built functional component is able to have power supplied to it from the host computer using the digital data connector, the external component being external to both the host and the alphanumeric keyboard.

In accordance with a second aspect of the invention there is provided an alphanumeric keyboard having a digital data connector for connection with a host computer, the alphanumeric keyboard having built-in a wireless data receiver for receiving wireless communication from a peripheral device. The wireless data receiver is able to communicate with the host computer using the digital data connector, and is able to have power supplied to it from the host computer using the digital data connector. The second aspect may be in addition to the first aspect, or as an alternative to the first aspect.

In accordance with another aspect there may be provided an alphanumeric keyboard having a digital data connector for connection with a host computer, the alphanumeric keyboard having built-in a card reader. The card reader is able to communicate with the host computer using the digital data connector, and is able to have power supplied to it from the host computer using the digital data connector. This may be in addition to or as an alternative to the aspects described above.

The card reader may be either or both of a radio frequency card reader, and a reader of non-volatile memory devices for data transfer, data storage, multimedia file playback, multimedia data transfer, and multimedia data storage, and so forth. Memory devices may include Flash cards, Secure Digital memory cards, Multi-Media Cards, Compact Flash cards, Memory Sticks from Sony Corp, Microdrives

from IBM Corp, and SmartMedia memory cards. The card reader may be additional to or as an alternative to the wireless data receiver.

For all aspects, the digital data connector may be a USB connector or an IEEE 1394 connector. The peripheral device may be a wireless mouse.

According to a further aspect there is provided an alphanumeric keyboard having a plurality of alphanumeric keys and including at least one built-in microphone. The at least one microphone is able to be operated in an automatic mode. In the automatic mode upon one of the alphanumeric keys being activated, the at least one microphone is deactivated for a predetermined period. The predetermined period is controllable by a timer. The further aspect may be additional to or as an alternative to one or more of the aspects described above.

The microphones may detect the key press and mute an audio component. Additionally or alternatively, the processor may be able to detect a scan code generated by a keyboard driver of the alphanumeric keyboard and to mute the audio line from the microphones to disable the at least one microphone for the predetermined period in response to the receipt of the scan code. The predetermined period may be in the range 10 milliseconds to 10 seconds. At the end of the predetermined period the processor may reactivate the at least one microphone by cancelling the mute function.

Upon the microphones detecting a further key stroke sound and/or the keyboard driver generating a further scan code as a result of a further activation of at least one of the alphanumeric keys, the timer may reset the predetermined period.

The audio component may be one of: an audio line, a digital amplifier, an analog audio component, and a digital audio component. There may also be a buffer to delay processing of signals to prevent key press sounds from being processed as desired audio inputs. Upon a key press sound being detected, the buffer may be purged and muting take place.

The alphanumeric keyboard may further include one or more of: noise cancellation; a radio frequency card reader as described above; echo cancellation; and a wireless data receiver as described above. There may be a plurality of microphones in a spaced-apart relationship in the alphanumeric keyboard.

The keyboard may further include a switch to control the operation of the at least one microphone. The switch is preferably a physical switch and may have an LED display to indicate an operational mode of the switch.

There may be provided a keyboard driver for generating a scan code resulting from the activation of the at least one of the alphanumeric keys, the scan code being able to be detected by the processor to enable the processor to mute an audio line from the at least one microphone and, at the end of the predetermined period, the processor enables the at least one microphone by cancelling the muting of the audio line. Upon the processor detecting a further scan code resulting from a further activation of at least one of the alphanumeric keys within the predetermined period, the timer resets the predetermined period.

In a final preferred aspect there is provided an alphanumeric keyboard having a digital data connector for supplying received DC power to the keyboard, the keyboard comprising an inverter for rectifying and transforming the received DC power to a primary AC power of a primary frequency; and a primary coil immediately adjacent a wall of the keyboard and being adapted to have applied to it the primary AC power. The primary coil is able to induce an eddy current in a secondary coil located within a wireless mouse when the secondary coil is brought into close proximity to the primary coil. This generates a secondary voltage across the secondary coil to enable recharging of at least one battery in the wireless mouse by contactless induction charging. The final aspect may be additional to or as an alternative to one or more of the aspects described above.

The primary coil and secondary coils may each have a hollow core, and the primary coil may have a ferrite rod in its hollow core. The primary coil may be perpendicular to the wall, the ferrite rod projecting through the wall for surface interlock charging; or may be parallel to the wall for surface close coupled charging.

The primary AC power may be of a frequency above the audible range such as, for example, the range of from 20KHz to 25KHz.

There may also be provided a secondary rectifier between the secondary coil and the at least one battery for rectifying the secondary voltage.

The alphanumeric keyboard may have a recess in a side wall thereof sized and shaped to receive a front portion of the mouse. The recess may have a wall. The primary coil may be adjacent the wall. The secondary coil may be in the front portion of the mouse. The recess may have a shelf on which the mouse can rest.

The wall of the alphanumeric keyboard may be a side wall, the mouse having a mouse wall, the mouse wall being able to contact the side wall; the secondary coil being adjacent the mouse wall.

Alternatively, the wall may be a top surface of the alphanumeric keyboard, there being provided a docking station in the top surface; the primary coil being located under the docking station; the secondary coil being located above a base of the mouse.

Description of the Drawings

In order that the 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 invention, the description being with reference to the accompanying illustrative drawings in which:

Figure 1 is an illustration of a computer system incorporating a keyboard according to a first aspect of the present invention;
Figure 2 is a top view of the keyboard of Figure 1;
Figure 3 is a front view of the keyboard of Figures 1 and 2;
Figure 4 is an illustration of the fascia of the card reader of Figure3;
Figure 5 is a flow chart for the operation of the microphones;
Figure 6 is an architecture diagram;
Figure 7 is a partial sectional view of a further embodiment, the section along the lines and in the direction of arrows 6-6 on Figure 2;
Figure 8 is a view corresponding to Figure 6 of a second form of the further embodiment;
Figure 9 is a view corresponding to Figure 6 of a third form of the further embodiment;

Figure 10 is a view corresponding to Figure 6 of a fourth form of the further embodiment;

Figure 11 is a block diagram of the components of the further embodiment;

Figure 12 is a top view of the wireless mouse of Figure 1;

Figure 13 is one embodiment of a cross-sectional view along the lines and in the direction of arrows C-C on Figure 12;

Figure 14 is a partial underneath view of the embodiment of Figure 13;

Figure 15 is one embodiment of a partial cross-sectional view along the lines and in the direction of arrows A-A on Figure 2;

Figure 16 is a second embodiment of a cross-sectional view along the lines and in the direction of arrows C-C on Figure 12;

Figure 17 is a partial underneath view of the embodiment of Figure 16;

Figure 18 is a second embodiment of a cross-sectional view along the lines and in the direction of arrows A-A on Figure 2;

Figure 19 is a top view of a second embodiment of the wireless mouse of Figure 1;

Figure 20 is a cross-sectional view along the lines and in the direction of arrows E-E on Figure 19;

Figure 21 is a cross-sectional view along the lines and in the direction of arrows B-B on Figure 2;

Figure 22 is a partial perspective view illustrating the mouse of Figures 12 to 14 with the keyboard of Figure 2;

Figure 23 is a partial side view of the mouse and keyboard of Figure 22 prior to engagement of the mouse with the keyboard;

Figure 24 is a partial perspective view corresponding to Figure 22 after engagement of the mouse on the keyboard;

Figure 25 is a partial perspective view illustrating the mouse of Figures 16 and 17 with the keyboard of Figure 2;

Figure 26 is a partial top view of the mouse and keyboard of Figure 25 after engagement of the mouse with the keyboard;

Figure 27 is a partial perspective view corresponding to Figure 25 after engagement of the mouse on the keyboard;

Figure 28 is a partial perspective view illustrating the mouse of Figures 19 and 20 with the keyboard of Figure 2;

Figure 29 is a partial side view of the mouse of Figure 28 prior to engagement of the mouse with the keyboard;

Figure 30 is a partial perspective view corresponding to Figure 28 after engagement of the mouse with the keyboard;

Figure 31 is a partial perspective view illustrating an alternative form of mouse with a variant of the keyboard of Figure 2;

Figure 32 is a partial side view of the mouse and keyboard of Figure 31 after engagement of the mouse with the keyboard;

Figure 33 is a partial perspective view corresponding to Figure 31 after engagement of the mouse with the keyboard;

Figure 34 is a partial perspective view illustrating a further alternative form of mouse with a further variant of the keyboard of Figure 2;

Figure 35 is a partial perspective view of the mouse of Figure 34 after engagement of the mouse with the keyboard;

Figure 36 is a partial side cross-sectional view corresponding to Figure 34 after engagement of the mouse with the keyboard; and

Figure 37 is a partial perspective view in cutaway of the mouse of Figure 34 after engagement with the keyboard.

Description of the Preferred Embodiment

To first refer to Figures 1, 2 and 3, there is shown a computer system including monitor **10**, host PC **12** and keyboard **14**. Keyboard **14** is shown connected to host PC **12** by a cable **16**. Alternatively, a wireless connection may be used. The wireless connection may be by any suitable system including, for example, Bluetooth, or any other radio frequency or infrared system.

Keyboard **14** may have built-in speakers **18**. Cable **16** is connected to keyboard **14** at one end, and has its other end at least one digital data connector **20**. It is preferred for there to be only one connector **20**. The connector **20** may be a USB connector or a IEEE 1394 connector, or other suitable digital data transfer connector. In the following description reference will be made to the use of a single USB connector for the sake of convenience.

As is shown in Figure 2, the keyboard **14** has a number of built-in functional components including built-in wireless receiver **22** for a peripheral device to be able to communicate with the host **12**. The peripheral device may be a wireless mouse **23**. In this way a separate wireless hub connected to the host **12** is not required and the keyboard **14** acts as the wireless hub. This also clears a cable

from the computer system and thus assists in clearing a desk of a user. Receiver **22** may be a transmitter/receiver, if desired or required.

Alternatively or additionally, the keyboard **14** may have a built-in card reader **24**. The card reader **24** fascia may be as illustrated in Figure 3 and be to enable non-volatile memory to be used in conjunction with host **12** for data transfer and storage, multimedia file playback, multimedia data transfer and storage, and so forth. Memory devices may include, but are not limited to, for example, secure digital memory sticks, multi-media cards, compact Flash cards, memory sticks, MicroDrives as available from IBM, and SmartMedia memory cards. Card reader **24** may have a plurality of slots to receive different forms of memory devices. For example, slot **31** may be for SmartMedia memory cards, slot **32** may be for compact Flash cards or MicroDevices, slot **33** for Memory Stick and slot **34** for Secure Digital memory cards and Multi-Media Cards.

Alternatively or additionally, card reader **24** may be or include a radio frequency card reader and thus any card only needs to be placed in close proximity to card reader **24** for data transfer to take place. This would be relevant for radio frequency cards including, but not limited to, smart cards such as, for example, cash cards, membership cars, identity cards, and security passes, to be used in conjunction with host **12** for on-line payments, security access, security clearance, password confirmation, identity confirmation, and so forth.

Power for card reader **24** and wireless receiver **22** may be obtained from the power connection available through the digital data connector **20**. Data transfer between card reader **24** and host **12**, and between receiver **22** and host **12**, will also able to be through the digital data connector **20**. In this way card reader **24** and wireless receiver **22** do not need an external power source. In this way the keyboard **14** may be used for many of the basic functions for host computer **12** and thus enables keyboard **14** to be more versatile. It may also reduce cable clutter.

A docking station **40** for the wireless mouse **23** may also be provided. This may be in a top wall of the keyboard **14**.

As can be seen, the keyboard **14** may also have one or more built-in microphones **28**, the operation of which is illustrated in Figures 5 and 6. Preferably, the

microphones **28** are in a top wall of the keyboard **14**. However, one or more of them may be in a side wall of the keyboard **14**.

A switch **30** is provided to control the operation of microphones **28**. Switch **30** is preferably a physical switch because if a software switch was used it may be able to be remotely accessed and the microphones **28** activated. This may allow a remote person to record conversations in the room in which keyboard **14** is located. This may be a breach of security or a breach of privacy. The switch **30** may have a LED display to indicate the operational mode of switch **30**. Preferably, the switch **30** is in a top wall of the keyboard **14**, but it may be in a side wall, if desired or required.

When an alphanumeric key is pressed (**100**), the position of switch **30** is checked (**102**). The switch **30** preferably has three positions – ON, OFF and AUTO. OFF disables all microphones **28** (**102**). ON enables on all microphones **28** (**104**) and they remain enabled until the switch **30** is changed (**106**). If the switched **30** is moved to OFF (**108**), the activation of the microphones **28** ends (**116**). If the switch **30** is moved to auto (**112**) the microphones move to the auto mode (**114**). However, if desired or required, the switch **30** may have only two positions. These may be OFF and an ON position that corresponds directly to the AUTO position described above and below.

As shown in Figure 6, there is a processor **35** that controls the operation of microphones **28** in response to switch **30** and input from microphones **28**. The processor **35** may be in the host **12** or, alternatively, may be in the keyboard **14**. The processor **35** passes audio signals from microphones **28** to an audio system **36** along at least one audio line **37**. The processor **35** has timer **39** that may be integral with processor **35** or may be separate. There may also be a buffer **38** that may be integral with processor **35** or separate. Preferably, buffer **38** is in keyboard **14** even if processor **35** is in host **12** .

The output of microphones **28** will be analog audio. To be able to be processed in a digital environment, the analog audio needs to be:

(i) converted to digital audio using an analog-to-digital converter in keyboard **14** and then sent over the digital data connection to a sound card in host **12**. It can then be sent back to the keyboard 14 over the digital data connection; or

(ii) processed in a separate processor(s) in keyboard **14** to enable it to be converted to digital audio and processed within the keyboard **14**. This may be in accordance with the system disclosed in my co-pending US patent application entitled "Keyboard With Digital Audio" as filed on May 23, 2003, the contents of which are hereby incorporated by reference.

In Figure 5, when switch **30** is in AUTO, the microphones **28** are enabled (**118**) until a key of the keyboard **14** is pressed (**100**). As soon as a key is pressed, the keyboard driver **65** generates a scan code resulting from the key press, and processor 35 detects the scan code. The processor **35** purges buffer **38** and mutes audio line **37** (**120**) or, alternatively, switches off audio line **37**. The buffer **38** enables the processing of signals from the microphones **28** to be delayed to prevent key press sounds from being processed as desired audio inputs. Timer **39** is started (**122**) and, after a prescribed delay (**124**), the microphones are enabled by cancelling the mute function on lines 37 (**126**) unless there has been a further pressing of a key of keyboard **12**, in which case the timer **39** (**122**) is reset to zero, and recommenced. This continues until there is no key pressed in the prescribed delay, whereupon the microphones **28** are enabled (**126**) by cancelling the mute function.

Additionally or alternatively, as soon as a key is pressed, the microphones **28** may be used to detect the noise of the key press and the signal passed to the processor **35**. The process proceeds as described above.

The prescribed delay may be pre-set, or be set by user input. It should be of a relevant duration such as 1, 2, 3, 4, 5 or 10 seconds. The buffer **38** introduces a time delay of less than second, preferably of the order of 50 to 500 milliseconds.

If at any time the switch **30** is moved to a different position this is detected at **128**. If yes, and the switch is in the OFF position (**130**) the inputs of the microphones into the audio system are disabled (**132**). If it is moved to the ON position (**134**) the system reverts to ON mode (**136, 104**).

The ON mode is more suitable for continuous use of microphones 28. This may, for example, be when using voice-to-text word processing, Internet telephony such as VoIP, or voice recording. The AUTO mode would be more suitable for functions

where there is both audio input and keyboard functions. In this way the microphones **28** do not detect the use of the alphanumeric keys of keyboard **14** and thus the audio system **36** does not record, playback , transmit or otherwise propagate the sounds of the keys.

By having more than one microphone **28**, it is possible to use an echo-cancelling feature such as, for example, the "Adaptive Echo Canceller" available from Infinior MicroSystems Co Ltd of Seoul, Korea; or "Acoustic Echo Canceller" available from NEC Electronics Corporation of Japan. Both of these systems are for a single microphone and speaker and thus it may be necessary to have a separate system for each microphone/speaker pair.

To now consider Figures 7 to 11, there is shown part of the keyboard **14** including apparatus for recharging batteries of the wireless mouse **23** by contactless induction charging.

The keyboard **14** has a wall **602**. This may be a front wall, side wall or rear wall. Located immediately adjacent the wall **602** is a primary coil **604**. Primary coil **604** receives power from digital data connector **20**. If digital data connector **20** is a USB connector, the power will be at 5V DC. This is inverted to AC using DC-AC inverter **606** and the AC power is applied to the primary coil **604**.

When wireless mouse **23** is brought into close proximity to primary coil **604**, a secondary coil **608** in mouse **23** moves to be within the magnetic field generated by primary coil **604**. Eddy currents will therefore be induced within secondary coil **608**. This generates an AC voltage across secondary coil **608**. This generated AC voltage is then rectified in an AD-DC rectifier **610** and used to recharge batteries **612** in mouse **23**. Rectifier **610** may also have a battery charging circuit (not shown). The battery charging circuit may be a separate component if desired.

Primary coil **604** may have a core **614** that may be hollow, or may have ferrite core **616** if desired or required.

Primary coil **604** may be arranged parallel to wall **602** for surface close coupled charging (Figure 7); perpendicular to wall **602** but not projecting through wall **602** for surface close coupled charging (Figure 8); perpendicular to wall **602** and with ferrite rod **616** projecting through wall **602** for surface interlock charging (Figure 9);

or may be around or immediately adjacent a concave recess **618** in wall **602** shaped to correspond to the shape of mouse **23** in the region of secondary coil **608** for surface close coupled charging (Figure 10).

Secondary coil **608** preferably has a hollow core **620** with the core **620** being aligned to be perpendicular to wall **622** of mouse **23**.

The ratio of the number of windings of primary coil **604** and secondary coil **608**, together with the voltage applied to primary coil **604**, will determine the maximum possible voltage generated across secondary coil **608**. For example, if the voltage across the primary coil **604** is 20V AC, the voltage generated across secondary coil **608** may be of the order of 3.5V AC. This would be rectified to 3.5V DC to provide a slow change for batteries **612**. It is preferred for the secondary coil **608** voltage to be in the range 3 to 4 AC. The voltage generated across secondary coil **608** should be that required to recharge the batteries **612**.

It is preferred for the AC voltage to be of a high frequency – preferably above the normal hearing range of humans. For example, it may be in the range of 20 to 25 KHz, preferably 22KHz. This would eliminate the usual, audible, transformer-style hum.

The efficiency of induction of the eddy currents in the secondary coil **608** will vary according to the relative positions of the secondary coil **608** and the primary coil **604**. That of Figure 7 has a relatively low efficiency, whereas that of Figure 8 has a relatively high efficiency. The efficiency way vary from as low as 5% up to about 20%.

Figures 12 to 18 show two variations of the embodiment of Figures 7 to 11. In Figures 12 to 13, the mouse **23** is to be used with the docking station **40**. The mouse **23** may have a recess **624** in its base **626**, the secondary coil **608** being wound around or be immediately adjacent (but preferably coaxial with) recess **624**. The recess **624** may have a tapered entry **628**, if desired. The docking station has ferrite rod **616** of primary coil **604** projecting through docking station **40** to engage in recess **624**.

For Figures 16 to 18, the primary coil **604** is beneath the surface of docking station **40**. The secondary coil **608** is therefore on base **626** of mouse **23**.

Figures 19 to 21 are a variation of Figures 7 to 10 in that primary coil **604** is immediately adjacent wall **602** – in this case a side wall of keyboard **14**. The secondary coil **608** is adjacent a side **630** of mouse **23**.

Figures 22 to 24 show the mouse **23** of Figures 12 to 14 with the docking station **40** of keyboard **14** where the rod **616** engages in recess **624**.

Figures 25 to 27 show mouse **23** of Figures 16 and 17 with the keyboard of Figure 2. Here the docking station **40** is recessed into keyboard **14**. Coils **604** and **608** operate as previously.

Figures 28 to 30 show the mouse **23** of Figures 19 and 20 with the keyboard **14** of Figure 2. Here the primary coil **604** is in the side **632** of keyboard **14**, and the secondary coil **608** is in the side **630** of mouse **23**. Bringing the two coils in close relationship enables recharging to take place. Preferably, the close relationship is offset so that an end of the secondary coil **608** is adjacent an end of the primary coil **604** with there being no overlap of primary coil **604** and secondary coil **608**.

Figures 31 to 33 show an alternative form of mouse **23** with a variant of the keyboard **14** of Figure 2. Here the secondary coil **608** is between the scroll wheel **634** and the front **636** of mouse **23**. The primary coil **604** is in the front/top surface **640** of a recess **638** in the side **632** of keyboard **14** and that is sized and shaped to receive the front portion **644** of mouse **23**. When the front portion of mouse **23** is fully inserted into recess **638**, the secondary coil **608** is brought into adjacent relationship with the primary coil **604** to enable recharging to take place.
Figures 34 to 37 show the mouse **23** of Figures 31 to 33 with a variation of the keyboard **14** of Figures 31 to 33. The only differences are that recess **638** is elevated up wall **632** to allow the addition of a small shelf **642** on which the mouse **23** can rest when its batteries are being recharged, or for transport. This also enables primary coil **604** to be wound around recess **638**, and thus for an enlarged secondary coil **608** to be in the front portion **644** of mouse **23**.

In all other respects, the apparatus and operation to recharge the batteries **612** of mouse **23** is the same.

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 that many variations or modifications in details of design, construction or operation may be made without departing from the present invention.

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The claims:

1. An alphanumeric keyboard having a digital data connector for connection with a host computer, the alphanumeric keyboard having at least one in-built functional component for co-operating with at least one external component to enable data received from the at least one external component to be communicated to the host computer using the digital data connector; and the in-built functional component is able to have power supplied to it from the host computer using the digital data connector, the external component being external to both the host and the alphanumeric keyboard.

2. An alphanumeric keyboard as claimed in claim 1, wherein the digital data connector is selected from the group consisting of: USB connector and IEEE 1394 connector.

3. An alphanumeric keyboard as claimed in claim 1, wherein the in-built functional component is at least one of: a card reader, a wireless data receiver, an audio circuit, and a primary coil of a cordless induction charger.

4. An alphanumeric keyboard as claimed in claim 3, wherein the card reader is for non-volatile memory devices to be used in conjunction with the host computer for at least one of: data transfer, data storage, multimedia file playback, multimedia data transfer, and multimedia data storage.

5. An alphanumeric keyboard as claimed in claim 4, wherein the non-volatile memory devices are selected from the group consisting of: Flash memory cards, Secure Digital memory cards, Multi-Media Cards, Compact Flash cards, Memory Sticks, Memory Sticks Pro, Microdrives, and SmartMedia memory cards.

6. An alphanumeric keyboard as claimed in claim 3, wherein the at least one external component is a wireless mouse including a secondary coil of the

recharger, the recharger being for the recharging of at least one rechargeable battery in the wireless mouse by contactless induction charging.

7. An alphanumeric keyboard having a digital data connector for connection with a host computer, the alphanumeric keyboard having built-in a wireless data receiver for receiving wireless communication from a peripheral device; the wireless data receiver being able to communicate with the host computer using the digital data connector and being able to have power supplied to it from the host computer using the digital data connector.

8. An alphanumeric keyboard as claimed in claim 7, wherein the digital data connector is selected from the group consisting of: USB and IEEE 1394.

9. An alphanumeric keyboard as claimed in claim 7, wherein the peripheral device is a wireless mouse including a secondary coil of a recharger, the recharger being for the recharging of at least one rechargeable battery in the wireless mouse, the alphanumeric keyboard including a primary coil of the recharger, the primary coil being able to have power supplied to it by the digital data connector.

10. An alphanumeric keyboard having a digital data connector for connection with a host computer, the alphanumeric keyboard having built-in a card reader; the card reader being able to communicate with the host computer using the digital data connector and being able to have power supplied to it from the host computer using the digital data connector.

11. An alphanumeric keyboard as claimed in claim 10, further including a built-in wireless data receiver for wireless communication with a peripheral device; the wire data receiver being able to communicate with the host computer using the digital data connector and being able to have power supplied to it from the host computer using the digital data connector.

12. An alphanumeric keyboard as claimed in claim 10, wherein the card reader is for non-volatile memory devices to be used in conjunction with the host

computer for at least one of: data transfer, data storage, multimedia file playback, multimedia data transfer, and multimedia data storage.

13. An alphanumeric keyboard as claimed in 10, wherein the card reader is a radio frequency card reader.

14. An alphanumeric keyboard as claimed in claim 12, wherein the non-volatile memory devices are selected from the group consisting of: Flash memory cards, secure digital memory sticks, multi-media cards, compact Flash cards, memory sticks, MicroDrive, and SmartMedia memory cards.

15. An alphanumeric keyboard as claimed in claim 10, wherein the digital data connector is selected from the group consisting of: USB and IEEE 1394.

16. An alphanumeric keyboard having a plurality of alphanumeric keys and including at least one built-in microphone able to be operated in an automatic mode; whereby upon at least one of the plurality of alphanumeric keys being activated, the at least one microphone is muted for a predetermined period, the predetermined period being controlled by a timer.

17. An alphanumeric keyboard as claimed in claim 16, wherein there are a plurality of microphones in a spaced-apart relationship in the alphanumeric keyboard.

18. An alphanumeric keyboard as claimed in claim 16, wherein there is provided a keyboard driver for generating a scan code resulting from the activation of the at least one of the alphanumeric keys, the scan code being able to be detected by the processor to enable the processor to mute an audio line from the at least one microphone and, at the end of the predetermined period, the processor enables the at least one microphone by cancelling the muting of the audio line.

19. An alphanumeric keyboard as claimed in claim 18, wherein upon the processor detecting a further scan code resulting from a further activation of at least one

of the alphanumeric keys within the predetermined period, the timer resets the predetermined period.

20. An alphanumeric keyboard as claimed in claim 16, wherein the at least one built-in microphone detects the activation of the at least one of the alphanumeric keys and mutes an audio component and, at the end of the predetermined period, the at least one microphone is enabled by cancelling the muting.

21. An alphanumeric keyboard as claimed in claim 20, wherein the audio component is selected from the group consisting of: an audio line, a digital amplifier, an analog audio component, and a digital audio component.

22. An alphanumeric keyboard as claimed in claim 20, wherein the alphanumeric keyboard has a buffer to delay processing of signals to prevent key press sounds from being processed as desired audio inputs.

23. An alphanumeric keyboard as claimed in claim 22, wherein upon a key press sound being detected, the buffer is purged and muting takes place.

24. An alphanumeric keyboard as claimed in claim 16, wherein the predetermined period is in the range 10 milliseconds to 10 seconds.

25. An alphanumeric keyboard as claimed in claim 20, wherein upon the at least one microphone detecting a further activation of at least one of the alphanumeric keys within the predetermined period, the timer resets the predetermined period.

26. An alphanumeric keyboard as claimed in claim 16, further including echo cancellation.

27. An alphanumeric keyboard as claimed in claim 16, further including a switch to control the operation of the at least one microphone.

28. An alphanumeric keyboard as claimed in claim 27, wherein the switch is a physical switch and has an LED display to indicate an operational mode of the switch.

29. An alphanumeric keyboard as claimed in claim 16, further including a digital data connector for connection with a host computer, the alphanumeric keyboard having at least one in-built functional component for co-operating with at least one external component to enable data received from the at least one external component to be communicated to the host computer using the digital data connector; the at least one in-built functional component being able to have power supplied to it from the host computer using the digital data connector.

30. An alphanumeric keyboard as claimed in claim 29, wherein the at least one in-built functional component is selected from the group consisting of: a card reader, a wireless data receiver, and a primary coil of a recharger

31. An alphanumeric keyboard having a digital data connector for supplying received DC power to the keyboard, the keyboard comprising an inverter for converting the received DC power to a primary AC power of a primary frequency; a primary coil immediately adjacent a wall of the keyboard and being adapted to have applied to it the primary AC power; the primary coil being able to induce an eddy current in a secondary coil located within a wireless mouse when the secondary coil is brought into close proximity to the primary coil so as to generate a secondary voltage across the secondary coil to enable recharging of at least one battery in the wireless mouse by contactless induction charging.

32. An alphanumeric keyboard as claimed in claim 31, wherein the primary coil has a hollow core.

33. An alphanumeric keyboard as claimed in claim 31, wherein the secondary coil has a hollow core.

34. An alphanumeric keyboard as claimed in claim 32, wherein the primary coil has a ferrite rod in the hollow core.

35. An alphanumeric keyboard as claimed in claim 34, wherein the primary coil is perpendicular to the wall, the ferrite rod projecting through the wall for surface interlock charging.

36. An alphanumeric keyboard as claimed in claim 31, wherein the primary coil is parallel to the wall for surface close coupled charging with the secondary coil having an end of the secondary coil adjacent an end of the primary coil with there being no overlap of primary coil and secondary coil.

37. An alphanumeric keyboard as claimed in claim 31, wherein the primary frequency is above the audible range.

38. An alphanumeric keyboard as claimed in claim 37 wherein the primary frequency is in the range of from 20KHz to 25KHz.

39. An alphanumeric keyboard as claimed in claim 31, wherein the secondary voltage in converted to DC to enable the recharging.

40. An alphanumeric keyboard as claimed in claim 31, wherein the alphanumeric keyboard has a recess in a side wall thereof sized and shaped to receive a front portion of the mouse; the recess having a wall, the primary coil being adjacent the wall, and the secondary coil being in the front portion of the mouse.

41. An alphanumeric keyboard as claimed in claim 40, wherein the recess has a shelf on which the mouse can rest.

42. An alphanumeric keyboard as claimed in claim 31, wherein the wall of the alphanumeric keyboard is a side wall, the mouse having a mouse wall, the mouse wall being able to contact the side wall; the secondary coil being adjacent the mouse wall.

43. An alphanumeric keyboard as claimed in claim 31, wherein the wall is a top surface of the alphanumeric keyboard, there being provided a docking station in the top surface; the primary coil being located under the docking station; the secondary coil being located above a base of the mouse.

44. An alphanumeric keyboard having a digital data connector for connection with a host computer, the alphanumeric keyboard comprising at least one in-built functional component for co-operating with at least one external component to enable data received from the at least one external component to be communicated to the host computer using the digital data connector; and the in-built functional component is able to have power supplied to it from the host computer using the digital data connector, the external component being external to both the host and the alphanumeric keyboard; the alphanumeric keyboard also having a plurality of alphanumeric keys and including at least one built-in microphone able to be operated in an automatic mode; whereby upon at least one of the plurality of alphanumeric keys being activated, the at least one microphone is muted for a predetermined period, the predetermined period being controlled by a timer.

45. An alphanumeric keyboard having a digital data connector for connection with a host computer, the alphanumeric keyboard comprising at least one in-built functional component for co-operating with at least one external component to enable data received from the at least one external component to be communicated to the host computer using the digital data connector; and the in-built functional component is able to have power supplied to it from the host computer using the digital data connector, the external component being external to both the host and the alphanumeric keyboard; the alphanumeric keyboard also comprising an inverter for converting the supplied power to a primary AC power of a primary frequency; a primary coil immediately adjacent a wall of the keyboard and being adapted to have applied to it the primary AC power; the primary coil being able to induce an eddy current in a secondary coil located within a wireless mouse when the secondary coil is brought into close proximity to the primary coil so as to generate a secondary voltage

across the secondary coil to enable recharging of at least one battery in the wireless mouse by contactless induction charging.

46. An alphanumeric keyboard having a digital data connector for connection with a host computer, the alphanumeric keyboard comprising at least one in-built functional component for co-operating with at least one external component to enable data received from the at least one external component to be communicated to the host computer using the digital data connector; and the in-built functional component is able to have power supplied to it from the host computer using the digital data connector, the external component being external to both the host and the alphanumeric keyboard; the alphanumeric keyboard also comprising a plurality of alphanumeric keys and including at least one built-in microphone able to be operated in an automatic mode; whereby upon at least one of the plurality of alphanumeric keys being activated, the at least one microphone is muted for a predetermined period, the predetermined period being controlled by a timer; the alphanumeric keyboard further comprising an inverter for converting the supplied power to a primary AC power of a primary frequency; a primary coil immediately adjacent a wall of the keyboard and being adapted to have applied to it the primary AC power; the primary coil being able to induce an eddy current in a secondary coil located within a wireless mouse when the secondary coil is brought into close proximity to the primary coil so as to generate a secondary voltage across the secondary coil to enable recharging of at least one battery in the wireless mouse by contactless induction charging.