MULTIMEDIA KEYBOARD WITH STRING INSTRUMENT MODULE

FIELD OF THE INVENTION

The present invention relates to an input device for generating multimedia information with digital processor. In particular, the present invention pertains to a versatile accessory for a multimedia console for providing input information to digital processor and music equipment for generating multimedia work product.

BACKGROUND OF THE INVENTION

Input devices such the keyboard and mouse are well known in the personal computer industry for providing text and command to the digital computer for generating multimedia work products. Although the industry initially marketed such input devices as discrete accessories, the advent of the internet and the requirement for multimedia information have prompted input device manufacturers to extend the capability of stand alone input devices to cater to the needs of authors of multimedia work products.

At the same time, the music industry evolved from a mainly analogue world to a digital one: music synthesizers and music composition programs contributed significantly to the origination of musical output from the music industry. The popularity and acceptance of internet no doubt hastens this process.

In Singapore patent application no. 200001593-3, the applicant of the present invention disclosed an integrated multimedia console for facilitating the origination of multimedia work product while providing ergonomic benefits to the user while the console is used as an input device together with a central processor unit.

While the multimedia console of Singapore patent application no. 200001593-3 provided realistic simulation of musical key-bed instruments such as piano, organ or harpsichord; string instruments such as guitar or banjo were difficult to emulate.

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OBJECT OF THE INVENTION

It is an object of the present invention to incorporate string instrument input function into an unitary input device.

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It is another object of the present invention to consolidate the text/command and a broad range of musical input functionality into an integrated keyboard for facilitating the origination of multimedia work product.

15 It is yet another object of the present invention to disable physically the musical input functionality while it is not required while providing ergonomic benefits to the user of the present invention.

SUMMARY OF THE INVENTION

A multimedia console incorporating an alphanumeric keyboard, a musical key-bed and a string instrument module is described for generating multimedia work product conveniently when coupled with a digital personal computer or optionally as a stand alone music equipment. When the musical key-bed functionality is not required, a palm rest cover converts the top surface area of the musical key-bed into an ergonomic support for the user's hands. The string instrument module encourages users of personal computers and music instrument players alike to generate original multimedia work products effectively and economically.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top, plan, elevational view of a prior art embodiment of the present invention with the palm rest cover being removed and exposing the top surface of the musical key-bed.

FIG. 2 is a right side, partial elevation view of the embodiment of the present invention highlighting the string instrument module before it is coupled with the multimedia console.

FIG. 3 is top, plan, elevational view of the improved multimedia console of the present invention showing the string instrument module being coupled thereto.

DETAILED DESCRIPTION OF THE INVENTION

FIG. 1 is a top, plan, elevational view of applicant's multimedia console as described in Singapore patent application no. 20001593-3 filed on 20 March 2000. A multimedia console 5 comprises a housing 10 for receiving a keyboard 20, a musical key-bed 30, a pointing device 40 and a protective cover 60. In the preferred embodiment, the keyboard 20 is an extended QWERTY keyboard that features a full alphanumeric key set and function key set. Disposed substantially parallel with and below the keyboard 20 is the musical key-bed 30 which is integrated with the console 5. The pointing device 40 can either be a touch pad or a mouse for directing the cursor on an onboard display (not shown in figures) or optionally on a display screen of a digital personal computer (also not shown in figures).

When the musical key-bed 30 is not used, the user may place the protective cover 60 over the length of the musical key-bed 30. This cover 60 not only serves to as a palm rest for the key-bed 30, but also provides the user with the ergonomic benefits of such a protective cover. It should be understood by one skilled in the art that prolong and uninterrupted use of the keyboard 20 may cause psychological changes to the user's fingers and palms.

Referring again to FIG. 1, the pointing device 25 is also integrated as part of the multimedia console. Here, the distance between the alphanumeric key pads of the keyboard 20 and the pointing device 40 is kept at a minimum. As such, the user can control the process of composition of multimedia work product optimally. It should be understood by one skilled in the art that the pointing device can be either a mouse, touch pad or equivalent accessory for

controlling the direction and command of a cursor on a display screen (not shown).

Referring again to FIG. 1, a plurality of jacks 50 are disposed strategically on the side of housing 10 for securing thereon a strap (not shown). Such a strap facilitates a musician or user in carrying the multimedia console on his or her shoulders in generating musical signals with the musical key-bed.

Not shown but understood by one skilled in the arts is a link (not shown in figures) between the multimedia console 5 and the processor unit (not shown in figures). As mentioned briefly above, the processor can be a digital signal processor or a dedicated processor or an embedded chip. The link can be internal or can be a cable based on existing industry standards such as PS2 or Universal Serial Bus (USB) in combination with MIDI. In other instances, the multimedia console of the present invention can have a wireless link such as infrared or radio frequency.

With the multimedia console 5, authors and creators of multimedia content or even everyday user of personal computer can generate multimedia work product such as new web application on the spot without relying on traditionally dedicated equipment. As such, the cycle time for the origination of multimedia work product can be reduced tremendously. The multimedia console 5 of the present invention comes with the flexibility of disabling the musical key-bed 30 with a toggle switch (not shown). Alternatively, the protective cover 60 is detachably laid over the top surface of the key-bed 30 when the key-bed 30 is not required. The protective cover 60 also provides ergonomic support for the user.

While the multimedia console 5 is a adequate accompaniment for the origination of multimedia work product, the range of musical instruments represented is limited. For instance, the musical key-bed 30 simulates the input strokes of a piano or organ player. However, string instruments such as guitar or banjo is difficult to emulate with the multimedia console 5.

FIG. 2 is a right side, partial elevation view of the embodiment of the present invention highlighting the string instrument module before it is coupled with the multimedia console. The string instrument module comprises an accessory module 80 and a housing 90 that is detachably coupled to a interface receptable 65 that is previously occupied by the pointing device of applicant's Singapore patent application no. 20001593-3. Instead of the pointing device, the space is taken by a cover 45 and the interface receptable 65. Disposed within the interface receptacle 65 is at least one electrical interface for the accessory module 80.

Again in FIG. 2, the accessory module 80 further comprises a plurality of strings 82 that are arranged substantially parallel with each other. The vibration of strings is sent to an analog-to-digital converter 84 (not shown in the figure but understood to be embedded in the module or within the body 10). The electrical signals from the accessory module 80 are transmitted via wires 86 to the console via the electrical interface 70. The accessory housing 90 is capped over the accessory module 80 before the entire assembly is coupled to the interface receptacle 65 on the console.

FIG. 3 is top, plan, elevational view of the improved multimedia console 100 of the present invention showing the string instrument housing 90 being

coupled thereto. The string instrument housing 90 is located within the easy reach of the user such that the strings 82 can be plucked just as any guitarist or banjo player. Of course, the accessory cover 45 has to be removed from the interface receptacle 65 before the accessory housing 90 can be coupled with the improved multimedia console.

The present invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The presently disclosed embodiments are, therefore, to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims and all changes which come within the meaning and range of equivalency of the claims are, therefore, to be embraced therein.

Claims

What is claim:

1. A multimedia console comprising:
a housing,
at least one alphanumeric keyboard located in the housing for inputting alphanumeric information;
at least one musical key-bed located in the housing for generating non-string musical signals; and
at least one accessory module for simulating musical string instruments; the at least one accessory module being releasably coupleable with the multimedia console;
whereby said keyboard and said musical key-bed face the same direction, are substantially parallel, and are integrated with the console for facilitating the generation of multimedia work product.

2. A multimedia console according to claim 1, wherein there is provided a protective cover for covering the musical key-bed and for providing ergonomic support when the musical key-bed is not being used.

3. A multimedia console as claimed in claim 2, wherein the protective cover is a palm rest and cover.

4. A multimedia console as claimed in claim 2 or claim 3, wherein the protective cover is removed from the musical key-bed before the at least one accessory module is coupled with the multimedia console.

5. A multimedia console as claimed in any one of claims 1 to 4, wherein the at least one accessory module comprises a string instrument module and a housing, the housing being detachably coupleable with an interface receptacle in the multimedia console.

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6. A multimedia console as claimed in claim 5, wherein the string instrument module has a plurality of strings and an analog-to-digital converter.

7. A multimedia console as claimed in claims 5 or claim 6, wherein a pointer device is locatable in the interface receptacle when the at least one accessory module is not coupled in the interface receptacle.

8. A multimedia console as claimed in any one of claims 5 to 7, wherein the interface receptacle has at least one electrical interface for the at least one accessory module.

9. A multimedia console as claimed in any one of claims 1 to 8, wherein the housing has a bottom having a plurality of jacks for securing thereon at least one strap for allowing the multimedia console to be carried by a user when in use.

AMENDED SHEET
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