VIDEO DISPLAY UNIT FOR VIDEO GAME CONSOLE

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ABSTRACT
A portable video display unit is adapted for use with variously configured electronic video-processing devices, such as video game consoles. The video display unit includes a base member adapted for removably attaching the video display unit to the electronic video processing device. The base member includes a locking device to securely affix the video display to the game console and permit portability while attached. The locking device includes interchangeable brackets to accommodate varied dimensions/configurations of a specific console. The locking device also provides a surface mirroring a portion of the console to which it attaches the console to permit attachment of add on accessories to the display that would otherwise attached to the console itself.
VIDEO DISPLAY UNIT FOR VIDEO GAME CONSOLE


BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to consumer electronics, and more particularly to a detachable, compact screen apparatus for a video game console and mechanism for connecting to the gaming console having various configurations.

[0004] 2. Description of the Prior Art

[0005] various electronic video-processing devices, and particularly dedicated video game consoles, etc., are becoming more and more popular. Usually, they include a box-shaped casing provided with a plurality of female plugs for interconnecting to two or more respective control units, a TV monitor and a power adapter. Typically, larger sophisticated electronic video-processing devices are sold separately, without a dedicated display screen, and are adapted to work with conventional TV monitors. Therefore, when children without a TV in their rooms are playing video games or using the video player, they are tying up family TV monitors, precluding other household members from watching regular TV shows. Furthermore, many dedicated platforms are configurable providing for attachment accessories such as hard drives and wireless connectivity interfaces. These attachment accessories often change the configuration/dimensions of the dedicated console making the attachment of a display screen difficult or impractical.

[0006] Thus, there is a need for a compact, portable video screen unit adapted to be used with the electronic video-processing devices, in particular with dedicated video game consoles, such as Microsoft™ X-BOX 360 and provide ability to change various physical connection configurations to accommodate different dimensions due to changes in a particular platform due to accessory attachments.

SUMMARY OF THE INVENTION

[0007] The present invention provides a novel, portable video display unit for various electronic video-processing devices, especially for the dedicated video game console.

[0008] In accordance with the present invention, the portable video screen unit is specifically adapted to be used with the X-Box 360 console manufactured by Microsoft Corp. and comprises a base member adapted to be removably attached to the X-Box 360, a video display member pivotally mounted on the base member for rotation between a stowed position and a deployed position and configurable connection systems to accommodate changes in dimensions due to variances in a specific console or presence of various accessories attached to such a specific console.

[0009] The base member includes a screen support member integrally formed with and upwardly extending from a top surface of the base panel adjacent to a rear edge thereof. The screen support member has a front control panel provided with a power switch, a volume control, a screen brightness control, a screen color control, and an earphone plug socket.

[0010] A rear panel/side of the base member/screen support member includes audio and video inputs (S-video input socket, components input sockets, composite audio/video input sockets, stereo audio output and socket for connected to a DC/AC adapter providing low voltage DC current.

[0011] The base panel of the base member further includes a locking attachment device provided for removably engaging and positively securing the video display unit to the video game console. Three removable brackets are provided to engage opposite sides of the console. Two brackets are selectively interchangeable to accommodate different widths and various configurations of the console, such as the presence or omission of an attached removable hard drive unit. Two pivotal legs are also provided to support a rearmost portion of the game screen. The legs are dimensioned to engage a planar surface on which the dedicated console is disposed to produce additional and independent vertical support to the game screen.

[0012] The mounting flange extends downwardly from the bottom surface of the base panel substantially perpendicular thereto and is formed along the side edge thereof. The mounting flange of the present invention includes at least one mounting rib formed substantially complementary to grooves provided on a front side face of the casing of the video game console. Preferably, the mounting rib is formed of two front tab members adapted to appropriately position the base panel of the video display unit relative to the front face of the casing of the X-Box 360 video game console. The front tab members are formed at the opposite ends of the front edge of the base panel and extend inwardly to engage a grooved recess formed in the front of the video console.

[0013] The screen device further provides a releasable connector to positively engage and secure to the rear of the console. Two tabs extend from the base member of the screen to engage recesses in the console.

[0014] Therefore, the video screen unit in accordance with the present invention represents a novel arrangement that is compact and portable and adapted to be conveniently used with the electronic video-processing devices, in particular with the X-Box 360 video game consoles manufactured by Microsoft Corp.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] Other objects and advantages of the invention will become apparent from a study of the following specification when viewed in light of the accompanying drawings, wherein:

[0016] FIG. 1 is an elevated perspective view of an audio and video accessory for an electronic device according to the present invention.

[0017] FIG. 2 is a front view of the audio and video accessory for an electronic device of FIG. 1.

[0018] FIG. 3 is a rear view of the audio and video accessory for an electronic device of FIG. 1.

[0019] FIG. 4 is a right side view of the audio and video accessory for an electronic device of FIG. 1.
FIG. 5 is a left side view of the audio and video accessory for an electronic device of FIG. 1.

FIG. 6 is a top view of the audio and video accessory for an electronic device of FIG. 1.

FIG. 7 is a bottom view of the audio and video accessory for an electronic device of FIG. 1.

FIG. 8 is an isolated elevated left side perspective view of the audio video accessory of FIG. 1 connected to a computer game console.

FIG. 9 is an isolated elevated right side perspective view of the audio video accessory of FIG. 1 connected to a computer game console.

FIG. 10 is an isolated elevated left side perspective view of the audio video accessory of FIG. 1 of an alternate embodiment connected to a computer game console of a different configuration.

FIG. 11 is an isolated elevated right side perspective view of the audio video accessory of FIG. 10.

FIG. 12 is an isolated elevated view of the left side bracket of the audio video accessory shown in FIG. 8.

FIG. 13 is an isolated elevated view of the left side bracket of the audio video accessory shown in FIG. 10.

FIGS. 14-15 is isolated rear views of the gaming console depicted in FIGS. 8-10.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

The preferred embodiments of the present invention will now be described with the reference to accompanying drawings.

Referring to FIG. 1, the video display unit 1 includes a video screen 3 mounted in a display panel 5 pivotally mounted to a base member 7. The video display panel includes all the necessary electrical components to display video images produced by an electronic device such as a dedicated computer gaming console. Specifically the video panel 5 includes an LCD display screen 3, a pair of speakers 11, head phone jacks 13, volume button 15, and a menu button 17 for controlling the LCD display such as adjusting picture quality (brightness/contrast) as well as the input signal types. Referring to FIG. 3, the display panel 5 also includes audio output RCA jacks 17, a DC voltage source input jack 19 composite audio/video input RCA jacks 21, component video input jack 23, and an S-video input connector 25. The display panel 5 contains all the necessary electronic components to display a quality video image and generate stereo sound as is well known to those skilled in the art and need not be disclose in greater detail. Such video display devices, in an of themselves, are well known to those of ordinary skill in the art. The present invention is directed to the novel means to connect such a video display device to an electronic video generating device, preferably Microsoft's X-box 360. The mechanism to connect the display device will be discussed in more detail.

The display panel 5 is pivotally mounted to a base member 7. The display panel may pivot within a range of motion from viewable position as shown in FIG. 1, to a closed position pivoting downward in excess of ninety degrees to lie flush against a gaming console such as the console 51 depicted in FIGS. 8-11. The base member is adapted to be firmly secured to a computer gaming console and particularly to Microsoft's X-box 360. A pair of removable brackets 71,72 are secured to opposite sides of the base member each by a screw 73 that extends through the brackets to threadingly engage a threaded recess (not shown) formed in the side wall of the base member 7. The bracket is permitted to translate along the screw to facilitate ease of installation when securing the display unit to the gaming console 51. The bracket 71 may also be replaced with another bracket 71a to accommodate differently sized/configured consoles as will be explained later.

Each of the brackets 71,72 are provided with a locating pin 74 which projects inwardly top engage a corresponding recess formed in the side of the base member 7. The locating pins 74 and recesses formed in the base member assist in properly positioning/orienting the brackets as well as establishing a more firm connection to the base member. At least one of the brackets 72 is also provided with at least one projection 76 (three shown in FIGS. 1 & 13) which are properly positioned to engage corresponding recesses formed in a side surface of the gaming console and thereby properly position the base member, and thus display unit) relative to the console when connected thereto. The ability to for the bracket 72 to me removed or outwardly positioned while loosely screwed to the base member 7 allows for easy insertion of the projections 76 into the recesses of the gaming console. Bracket 71 may also be provided with such projections when connecting to the x-box 360 in a configuration where both sides of the console included recesses.

Referring to FIG. 8, bracket 71 differs from bracket 72 in that no projections are provided. Rather bracket 72 is configured to accommodate an accessory secured to the gaming console. Specifically, as shown in FIG. 8, the gaming console includes a hard drive united to the one side of the console. The configuration with the hard drive 101 alters the configuration and dimensions of the unit increasing its width for example. Furthermore the side surface is smooth without recesses to accommodate projections. As shown in FIG. 2, bracket 72 includes an integrally formed spacer portion 78 to outwardly displace the bracket to accommodate a wider console. A substantially C-shaped bracket is integrally formed with the bracket to snugly hug along the top side and bottom portions of the hard drive unit 101. When screws 73 are tightened the brackets 71, 72 are drawing inwardly and bracket 71 clamps onto the hard drive unit and left side of the gaming console while bracket 72 clamps onto the right side of the console and projections 76 engage recesses in the console. As a result the base member, and entire display unit, is thereby securely fashioned to the gaming console and the display pivoted to a desired position for optimal viewing. A player need only make the properly audio video electrical connections as is routine in the art.

FIGS. 10-11 depict the display unit in an alternate configuration. As can be seen in FIG. 10, the left side of the gaming console is dimensionally configured differently than in the embodiment of FIGS. 8-9. In this configuration no hard drive unit is employed and the left side of the gaming console substantially mirrors the right side of the gaming console as shown in FIG. 11. In this embodiment bracket 71 is removed and replaced by bracket 71a. Bracket 71a is
substantially a mirror image of bracket 72 and includes projections 76 to engage the recesses formed in the side of the gaming console. Thus the display unit of the present invention allows for varied dimensional configurations of the gaming console while providing a secure connection thereto. The base member and associated display unit are thus securely fitted to the console without freedom of movement in any direction. Additional support for the display unit is also provided to reduce the stress on the connection between the base member and gaming console as will be explained below.

[0036] FIG. 7 depicts a bottom view of the display unit. A pair of support legs 81, 83 is stored in a corresponding cavity in the base member. When the base member is connected to the gaming console 51, as for example shown in FIG. 9, the legs may be pivoted to an extended position to provide additional support to the base member and display device to reduce stress on the connection between the base member and gaming console. The legs 81, 83 are simply fixed to extend downwardly from the base member equal to the height H that the base member sits above a platform to which the console is supported. A locking member is employed to lock the legs 81, 83 in the vertical position when supported the base member 7. Release tabs 82, 84 are simply depressed to release the legs when desired to be positioned in the stored position within the cavity. The locking mechanism may simply be a locking tab penetrating a recess formed in the leg when in the vertical position. Depressing the release tabs 82, 84 simply dislodged the locking tab 86,88 from the recess in the legs 81, 83 and the legs 81,83 may then be simply rotated to the stored position as shown in FIG. 7. The locking tabs 86,88 are preferably spring biased such that when the legs 81, 83 are pivoted to the vertical support position the tabs 86,88 automatically engage the recess in the legs to lock in place when the legs reach the proper support position.

[0037] The display unit includes additional connection points to the console to provide an even stiffer rigid connection between the base member and gaming console. FIGS. 14-15 depict the rear surface of the gaming console. As can be seen a pair of recesses are formed in the rear panel of the gaming console. The recesses are sufficiently open to allow slight access to the internal space of the console. As shown in FIGS. 1-2 a pair of locking tabs 121 are disposed between the interchangeable connecting brackets 71, 72 and extending from the substantially vertically surface of said base member 7. The locking tabs 121 are provided to correspondingly engage the corresponding recesses 111 formed on the rear side surface of the console 51. In order to maintain the ability to connect an additional accessory device such as an wireless adapter port, the base member 7 has a pair of second recesses 211 precisely mirroring recesses 111 of the console thereby facilitating connection to another accessory device when the base member 7 is connected to the console 51 that would otherwise connect directly to the gaming console. Each of said locking tabs 121 have an outwardly facing detent 121a such that when said locking tabs 121 are inserted within recesses 111, the tabs 121 deforming inwardly toward one another until the detents 121a pass through the wall surface of the console and upon further insertion the locking tabs 121 at least partially spring back towards its resting position such that the detents 121a engage an inner surface of the console with a snap fit fashion to positively engage said console. The base member further includes a releasing mechanism 151 to urge at least one of the locking tabs 121 inwardly thereby allowing said locking tabs 121 to be easily withdrawn from recesses 111. The release mechanisms may simply be a projection that upon depression urged the tab inwardly by a simply camming mechanism as is well within the knowledge of one or ordinary skill in the art.

[0038] While the foregoing invention has been shown and described with reference to a preferred embodiment, it will be understood by those possessing skill in the art that various changes and modifications may be made without departing from the spirit and scope of the invention. For example it is preferred to form the adjustment collars 11a, 11b and locking collars out of steel. However, other materials of sufficient strength may be employed.

What is claimed is:

1. A portable computer gaming display unit comprising:
   a base member adapted for removably attaching said video display unit to a variably configured computer gaming console,
   a video display member pivotally connected to said base member and being provided with a display screen, said video display member pivotally mounted to said base member for pivoting between a stowed position wherein said video display member is substantially parallel to said base gaming console when connected thereto and a deployed position which is viewable by a user of said gaming console;
   a plurality of interchangeable connecting brackets each independently and selectively removably secured to said base member, said connecting brackets provided to facilitate connection between said base member and said gaming console when secured to said base member, wherein by selectively choosing one of said plurality of interchangeable brackets, said base member is configured to connect and accommodate a gaming console of a first dimensional configuration and whereby replacing said one of said plurality of interchangeable brackets with a second bracket, said base member thereby is configured to connect and accommodate said gaming console of a different dimensional configuration.

2. The portable computer gaming display unit according to claim 1, wherein said base member comprises a plurality of legs pivotally connected to said base member for pivoting between a stored position within a cavity formed in said base member and an extended position such that when said base member is connected to a rear side surface of said gaming console resting on a support surface, said legs extend to rest flush against said support surface thereby providing support to said display unit independent of said gaming console.

3. The portable computer gaming display unit according to claim 1, wherein a pair of said plurality of interchangeable connecting brackets are each secured to opposite side surfaces of said base member opposing one another, wherein when said base member is connected to said gaming console, said gaming console is disposed between and retained within said pair of brackets.

4. The portable computer gaming display unit according to claim 3 wherein each of said brackets are secured to said base member by at least one screw extending through a bore in said bracket whereby said brackets being capable of lateral movement relative to said base member when said
screws loosely engage said base member and being clamped tightly against said base member when said screws are securely tightened to said base member.

5. The portable computer gaming display unit according to claim 4 wherein at least one of said brackets includes at least one projection provided to engage a recess formed in a side surface of said gaming console and thereby properly position said base member relative to said console when connected thereto.

6. The portable computer gaming display unit according to claim 5 wherein each of said brackets includes a locating pin for engaging a recess formed in said base member to properly orient said bracket in a predetermined position relative to said base member when secured thereto.

7. The portable computer gaming display unit according to claim 3, wherein said bases member further includes a pair of locking tabs disposed between said pair of inter-changeable connecting brackets and extending from a substantially vertically surface of said base member provided to correspondingly engage a pair of first recesses formed on a rear side surface of said console.

8. According to claim 7 wherein said base member has a pair of second recesses mirroring said first pair of first recesses of said console thereby facilitating connection to another accessory device when said base member is connected to said console that would otherwise connect directly to said gaming console.

9. The portable computer gaming display unit according to claim 7 wherein each of said locking tabs have an outwardly facing detent, wherein when said locking tabs are inserted within said first pair of recesses, said tabs deforming inwardly toward one another such that said detents pass through said first pair of recess and upon further insertion of said locking tabs within said first pair of recesses said locking tabs at least partially spring back towards its resting position such that said detents engage an inner surface of said console with a snap fit fashion to positively engage said console.

10. The portable computer gaming display unit according to claim 9 wherein said base member further includes releasing mechanism to urge at least one of said locking tabs inwardly thereby allowing said locking tabs to be easily withdrawn from said pair of first recesses.

11. The portable computer gaming display unit according to claims 9, wherein said base member comprises a plurality of legs pivotally connected to said base member for pivoting between a stored position within a cavity formed in said base member and an extended position such that when said base member is connected to a rear side surface of said gaming console resting on a support surface, said legs extend to resist flush against said support surface thereby providing support to said display unit independent of said gaming console.

12. The portable computer gaming display unit according to claim 1, wherein said bases member further includes a pair of locking tabs extending from a substantially vertically surface of said base member provided to correspondingly engage a pair of recesses formed on a rear side surface of said console.

13. According to claim 12 wherein said base member has a pair of second recesses mirroring said first pair of first recesses of said console thereby facilitating connection to another accessory device when said base member is connected to said console that would otherwise connect directly to said gaming console.

14. The portable computer gaming display unit according to claim 13, wherein each of said locking tabs have an inwardly facing detent, wherein when said locking tabs are inserted within said first pair of recesses, said tabs deforming inwardly toward one another such that said detents pass through said first pair of recess and upon further insertion of said locking tabs within said first pair of recesses said locking tabs at least partially spring back towards its resting position such that said detents engage an inner surface of said console with a snap fit fashion to positively engage said console.

15. The portable computer gaming display unit according to claim 14, wherein said base member further includes releasing mechanism to urge at least one of said locking tabs inwardly thereby allowing said locking tabs to be easily withdrawn from said pair of first recesses.

16. The portable computer gaming display unit according to claim 12, wherein said base member comprises a plurality of legs pivotally connected to said base member for pivoting between a stored position within a cavity formed in said base member and an extended position such that when said base member is connected to a rear side surface of said gaming console resting on a support surface, said legs extend to resist flush against said support surface thereby providing support to said display unit independent of said gaming console.

17. The portable computer gaming display unit according to claims 15, wherein said base member comprises a plurality of legs pivotally connected to said base member for pivoting between a stored position within a cavity formed in said base member and an extended position such that when said base member is connected to a rear side surface of said gaming console resting on a support surface, said legs extend to resist flush against said support surface thereby providing support to said display unit independent of said gaming console.

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