KEYBOARD DRAWER SYSTEM

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Abstract

The present invention is a flexible and adaptable solution to the disadvantages of the existing systems and includes an interface support for use with a computing system having at least a portion thereof supported by a planar worksurface, an interface support platform having a surface moveably coupled to the worksurface, the platform supporting an interface device for use with the computing system; and a shelf or drawer, underlying the platform, for extending longitudinally from under said platform.
KEYBOARD DRAWER SYSTEM

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present application claims the benefit of U.S. Provisional Patent Application 60/492,362 entitled "KEYBOARD DRAWER SYSTEM" filed 4 Aug. 2003, the contents thereof are expressly incorporated by reference in its entirety for all purposes.

BACKGROUND OF THE INVENTION

[0002] The present invention relates generally to interface support devices for use with computing systems, and more specifically to a slideable drawer for supporting input/output devices used in conjunction with the computing system.

[0003] FIG. 1 is a schematic perspective front view of a typical organization of selected components of a computing system 100. Computing system 100 includes, among other items, a tower 105, and a monitor 110, a keyboard 115, a pointing device 120 and a drawing tablet 125 (operable with a stylus 130) coupled to tower 105. Tower 105 includes a processor, memory (volatile and non-volatile, fixed and removable), interface ports, optical media, power supply and conditioner and other similar components as well known. Monitor 110, keyboard 115, pointing device 120, tablet 125 and stylus 130 typically exchange data and sometimes data and power, with tower 105. Commonly, these exchanges occur over wires or cables that connect the devices to tower 105.

[0004] In the typical working environment, monitor 110, keyboard 115, pointing device 120, and tablet 125 need to be supported and positioned for use within a limited range of acceptable locations and orientations.

[0005] For example, it is common to provide a worksurface 150 that is used to support, directly or indirectly, monitor 110, keyboard 115, pointing device 120 and tablet 125. A common arrangement is to provide monitor 110, keyboard 115, pointing device 120 and tablet 125 on top of a surface, worksurface 150, and to orient tower 105 on a floor under worksurface 150.

[0006] There are a number of disadvantages, to this arrangement. One disadvantage is the connection cables from monitor 110, keyboard 115, pointing device 120 and tablet 125 are on the wrong side of worksurface 150 from tower 105 to properly connect and exchange data. Sometimes it is possible to provide an opening 155 in worksurface 150 to permit cables to pass through. Sometimes it is not possible to add opening 155, so all the components are positioned on the same side of worksurface 150.

[0007] A second disadvantage, and one that is compounded when opening 155 is not provided, is that the top surface of worksurface 150 can become crowded and inhibit efficient work habits and inhibit efficient use of worksurface 150. The use of flat panel LCDs in lieu of CRTs for monitor 110 has been one solution to make more work space available on worksurface 150. Another solution has been to provide keyboard drawers that are used to store keyboard 115 out of the way when not in use.

[0008] A third disadvantage of the arrangement shown in FIG. 1 is that many worksurfaces 150 are too high for configuring properly the work environment using current ergonomic standards. Supporting a keyboard drawer under worksurface 150 makes proper configuration of the work environment easier to accomplish, and offers the advantage of storing the keyboard when the keyboard is not in use.

[0009] A fourth disadvantage is that the availability of usable, open, flat portions of workspace 150 is limited by arrangements of the elements of the computing system.

[0010] FIG. 2 is a schematic perspective front view of computing system 100 used in cooperation with a keyboard drawer 200 supported from an underside of worksurface 150. Keyboard drawer 200 is typically slidably supported by a coupling system 205 (e.g., a pair of lateral rails or a central arm) as well known. Pointing device 120 is often used in cooperation with keyboard 115, so keyboard drawer 200 typically includes a portion designed to support pointing device 120. There are many styles and configurations of keyboard drawer 200 and coupling system 205. Sometimes a second lateral platform (not shown) is provided as part of keyboard drawer 200 that slides out and in for supporting pointing device 120. This lateral platform is sized for the pointing device and is provided as a dedicated surface when keyboard drawer 200 is sized to accommodate only the width of keyboard 115 and is unable to support pointing device 115. The lateral platform is frequently adaptable to be engaged to either lateral side to accommodate both left-handed and right-handed users.

[0011] FIG. 3 is a schematic perspective top view of computing system 100 configured as shown in FIG. 2. In addition to the arrangement described above, computing system 100 can have an additional limitation. In many environments, worksurface 150 has a depth D that from a front edge 300 to a back edge 305 of the top surface. Often the secondary depth D' (distance from edge 300 to a back limit 310) under worksurface 150 is less than D.

[0012] FIG. 4 is a schematic perspective front view of computing system 100 used in cooperation with a keyboard drawer 200 supported on top of worksurface 150. Keyboard drawer 200 is typically slidably supported by a coupling system 205 (e.g., a pair of lateral rails or a central arm) from a housing 400 sitting on top of worksurface 150 as well known. Pointing device 120 is often used in cooperation with keyboard 115, so keyboard drawer 200 typically includes a portion designed to support pointing device 120. There are many styles and configurations of housing 400 and keyboard drawer 200 and coupling system 205.

[0013] FIG. 5 is a schematic perspective top view of computing system 100 configured as shown in FIG. 4.

[0014] In these various configurations and environments there are virtually limitless permutations for the positioning of the components, the limiting dimensions of worksurfaces 150, and the personal tastes of users, therefore a great deal of flexibility and adaptability is desirable. In virtually every configuration and environment, keyboard 115, pointing device 120 and tablet 125 must be communicated to tower 105, which means that proper pathways and layout routes must be accommodated. However, for historic reasons, a limitation on the flexibility and adaptability is that the physical cables on most keyboards and pointing devices conform to a standard that is often too short to properly route the cables to tower 105. Users are required to resort to less
than optimum solutions and inconvenient routing requirements to use the types of keyboard drawers available today in their computing systems.

[0015] It is a further disadvantage that once a routing plan is implemented, repositioning or changing components can be inconvenient. These inconveniences include accessing a backside of tower 105 to decouple coupling mating receptacles, correcting misconfigurations of the cable wiring. Many times the computing system must be powered down for some of the changes or repositionings which further adds time delays and other inconveniences.

[0016] Yet another disadvantage is that cable routing often contributes to cable management problems as cables extend, drape and wrap in inconvenient locations as existing keyboard drawers fail to provide a convenient cable management solution.

[0017] Further, tablet 125 sometimes is not used frequently enough to warrant dedicated a sufficient portion of worksurface space, so that when a user desires to use tablet 125, worksurface must be rearranged or tablet 125 is not used, or not used in ideal space. Further stylus 130 may be misplaced with infrequent use of tablet 125.

[0018] It is desirable therefore to provide for a flexible and adaptable solution to the disadvantages of the existing systems.

SUMMARY OF THE INVENTION

[0019] The present invention is a flexible and adaptable solution to the disadvantages of the existing systems and includes an interface support for use with a computing system having at least a portion thereof supported by a planar worksurface, an interface support platform having a surface moveably coupled to the worksurface, the platform supporting an interface device for use with the computing system; and a shelf or drawer, underlying the platform, for extending longitudinally from under said platform.

[0020] The shelf/drawer is available for non-tablet users for extending usable worksurfaces, and is operable independently from keyboard drawer (i.e., the shelf may be withdrawn while keyboard drawer is stowed away. For tablet use, either shelf/drawer may be provided with a conforming cavity (peripheral dimensions and depth) to form a shallow flat surface when the tablet is mounted within the cavity, or an adapter may be used for adapting the cavity to the desired use: for example a smooth surface or receiving varying sized tablets or other worksurface/computing elements. The shelf/drawer extension system used in cooperation with the interface device support provides a flexible and adaptable solution to the existing disadvantages. These and other novel aspects of the present invention will be apparent to those of ordinary skill in the art upon review of the drawings and the remaining portions of the specification.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] FIG. 1 is a schematic perspective front view of a typical organization of selected components of a computing system;

[0022] FIG. 2 is a schematic perspective front view of the computing system used in cooperation with a keyboard drawer supported from an underside of a worksurface;

[0023] FIG. 3 is a schematic perspective top view of the computing system configured as shown in FIG. 2;

[0024] FIG. 4 is a schematic perspective front view of the computing system used in cooperation with a keyboard drawer supported on top of the worksurface;

[0025] FIG. 5 is a schematic perspective top view of the computing system configured as shown in FIG. 4; and

[0026] FIG. 6 is a schematic perspective top view of a preferred embodiment for a keyboard support system.

DESCRIPTION OF THE SPECIFIC EMBODIMENTS

[0027] The present invention relates to interface support platforms having a data signal extension system. The following description is presented to enable one of ordinary skill in the art to make and use the invention and is provided in the context of a patent application and its requirements. Various modifications to the preferred embodiment and the generic principles and features described herein will be readily apparent to those skilled in the art. Thus, the present invention is not intended to be limited to the embodiment shown but is to be accorded the widest scope consistent with the principles and features described herein.

[0028] FIG. 6 is a schematic perspective top view of a preferred embodiment for a computing system 600. Computing system 600 includes tower 105, monitor 110, keyboard 115, pointing device 120, tablet 125 and stylus 130 used in cooperation with worksurface 150 having opening 155 therethrough. System 600 also includes an interface support platform 605 and a support system 610 coupled to platform 605.

[0029] Platform 605 is similar to keyboard support 200 supported by coupling system 205, with the important distinction of a second (or more) longitudinally extending platform 615 which provides platform 605 with greater adaptability, flexibility and usefulness, as well as additional options for construction and use. Platform 605 is preferably configured for supporting, orienting, and stowing interface devices used in cooperation with computing system 600. Common interface devices include keyboard 115 and pointing device 120. Platform 605 may be pivotally, slidably, rotatably or any combination of these, coupled to worksurface 150 (either the top or bottom sides) or other attachment scenario by use of coupling system 610. Platform 605 may optionally include auxiliary support arms for supporting additional interface devices for use with computing system 600. Support system 610 includes one or more of a combination of rails, rollers, pins, tracks and the like for moveably (e.g., slide, roll, fold, wrap, pivot, rotate, tilt and the like) supporting platform 605 relative to the worksurface (e.g., above, below, or integrated into the worksurface).

[0030] Platform 615 is preferably moveably (e.g., sliding or pivoting) coupled into or to an underside/topside of platform 605 or coupling system 610. The mounting is desirably implemented in a fashion as to not to interfere with operation of the interface devices used in cooperation with platform 605 while also not interfering with operation of platform 605 when it is repositioned. A multiplicity of shelves (including a combination of lateral and longitudinal drawers) may be implemented positioned variously relative to platform 605. For example, whether platform 605 is above or below a worksurface, platform 615 may be "inside" or "outside" platform 605 (with inside referring to a position between the worksurface and platform 605 and outside
referring to a position beyond the platform relative to the worksurface).

[0031] Platform 615 may be a simple planar shelf, or it may be a drawer, or other structure. As a shelf, platform 615 may be extended and used to support tablet 125 while a user draws or otherwise uses the tablet. For non-tablet uses, platform 615 may also be used as a general support surface, such as for reading or writing. As a shelf, platform 615 may be provided with a cavity sized to receive tablet 125. In this configuration, when tablet 125 is received into the cavity, platform 615 may be used as a general purpose shelf, or permit use of the tablet while stored. Platform 615 and/or the cavity may also provide for storage of stylus 130. In some implementations, such as for a tablet PC or other electronic device having a touch screen or stylus interface, platform 615 may have a suitable cavity for holding, and in some instances, coupling interface devices operated relative to platform 605. A user may conveniently operate the tablet PC directly by opening platform 615 or indirectly by operating interface components relative to platform 605 with the electronic device stowed out-of-the-way but ready for quick access. This implementation defines a convenient docking implementation, such as for a desktop use of a tablet PC.

[0032] When platform 615 is a drawer, or when it is a shelf with a cavity, platform 615 may be provided with an adapter having a second cavity adapted to receive tablet 125 when the adapter is received within the cavity of platform 615. The adapter may be sized for a particular one tablet, with different adapters used with different sizes of tablets, or the adapter may be constructed to interface with varying sized tablets including adjustable sidewalks/cavity depths.

[0033] There are some worksurfaces that support one or more components of the computing system other than by a planar surface or that integrate or incorporate various pieces of the computing system. Variations of the preferred embodiment are used with such worksurfaces. Further, there are workstructures that support components of the computing system, particularly the I/O devices, from other than a worksurface. These worksurfaces include worksurfaces and support structures for support from a floor, a cart, or a portion of a cubicle or a wall or other structure perpendicular to a worksurface for example.

[0034] The above-described arrangements of apparatus and methods are merely illustrative of applications of the principles of this invention and many other embodiments and modifications may be made without departing from the spirit and scope of the invention as defined in the claims.

[0035] These and other novel aspects of the present invention will be apparent to those of ordinary skill in the art upon review of the drawings and the remaining portions of the specification.

What is claimed is:

1. An interface support for use with a computing system having at least a portion thereof supported by a workstructure, comprising:

   an interface support platform having a surface moveably coupled to the workstructure, said platform supporting an interface device for use with the computing system; and

   a shelf, underlying said platform, for extending longitudinally from under said platform.

2. The interface support of claim 1 wherein the workstructure is a worksurface and said interface support platform is coupled to an underside of said worksurface.

3. The interface support of claim 2 wherein said interface support platform is supported by a pair of lateral rails coupled to said underside of the worksurface.

4. The interface support of claim 2 wherein said interface support platform is supported by a center rail coupled to said underside of the worksurface.

5. The interface support of claim 1 wherein said interface support platform includes a forward edge adapted to be positioned proximate a user during operation of said interface device and a rear edge opposing said forward edge and further away from said user during such operation wherein said shelf extends from said forward edge.

6. The interface support of claim 1 wherein said shelf includes a cavity for receiving a drawing tablet.

7. The interface support of claim 1 wherein said shelf includes a first cavity for receiving an adapter for a drawing tablet, the adapter including a second cavity for receiving said drawing tablet.

8. The interface support of claim 7 wherein a periphery of said second cavity conforms to a periphery said drawing tablet.

9. An interface support for use with a computing system having at least a portion thereof supported by a workstructure, comprising:

   an interface support platform having a surface moveably coupled to the workstructure, said platform supporting an interface device for use with the computing system; and

   a drawer, underlying said platform, for extending longitudinally from under said platform.

10. The interface support of claim 9 wherein said drawer includes a cavity for receiving a drawing tablet.

11. The interface support of claim 9 wherein said drawer includes a first cavity for receiving an adapter for a drawing tablet, the adapter including a second cavity for receiving said drawing tablet.

12. The interface support of claim 11 wherein a periphery of said second cavity conforms to a periphery said drawing tablet.

13. A method for supporting elements of a computing system having at least a portion thereof supported by a workstructure, the method comprising:

   a) operating an interface device in cooperation with the computing system wherein said interface device is supported by an interface support platform having a surface moveingly coupled to the workstructure; and

   b) withdrawing longitudinally a second support structure from under said support platform wherein said second support structure is moveably coupled to said platform.

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