

relationship that would be applied to the device in any given overall orientation. Terms of geometric orientation and relationship are used herein for clarity of description and should not be read as restrictive on the broad aspects of various embodiments of the invention.

[0020] Herein, the terms “rotate,” “pivot,” as well as varying tenses thereof are generally defined as an angular movement about an axis of rotation. The axis of rotation may be fixed relative to the overall orientation of the device. For this detailed description, the terms “vertically pivoted” (or any tenses thereof) generally relates to a rotation along a substantially horizontal axis of rotation. The term “horizontally pivoted” (or any tense thereof) generally relates to a rotation along a substantially vertical axis of rotation.

[0021] FIGS. 1-3 illustrate perspective views of an exemplary electronic device 100 placed in various positions. In particular, FIG. 1 shows a perspective view of an exemplary electronic device 100 placed in a CLOSED position. FIG. 2 shows a perspective view of the electronic device 100 placed in a NOTEBOOK position. FIG. 3 shows a perspective view of the electronic device 100 placed in a TABLET position wherein the back display panel 114 of the display housing 110 is adjacent the front panel section 122 of the body 120. The features and components of the electronic device 100 will be referenced based on a collective review of FIGS. 1-3.

[0022] Implemented with an embodiment of an interlocking mechanism as described below, electronic device 100 comprises a display housing 110 that is pivotally coupled to a body 120 through a first and second hinge assemblies 130, 150 and a display support member 140. It is contemplated that different areas of the display housing 110 and the body 120 may be of different materials. For example, a portion 123 of a front panel section 122 of the body 120 surrounding a secondary input device 185 may be of stainless steel or another metal composition rather than hardened plastic to improve durability in prolonged use.

[0023] In one embodiment of the invention, the body 120 may comprise two main panel sections, namely the front panel section 122 and a back panel section 124. These panel sections 122, 124 may be brought together to enclose hardware components and stored software of the electronic device 100. This provides protection against foreign materials and environmental conditions. In this embodiment, the panel sections 122, 124 may be made of non-pliable material such as hardened plastic. The body 120 has a bottom edge 126 and an opposing top edge 128.

[0024] The electronic device 100 may further comprise a keyboard 180 integrated into the body 120. A secondary input device 185, such as a touch pad or a track ball for example, may be integrated into the body 120 as well. In one embodiment of the invention, dual speakers 170 and 172 may be integrated into the body 120 adjacent the bottom edge 126 and separated by the display support member 140. The speakers 170, 172 may be substantially visible when the display housing 110 is placed in the CLOSED position.

[0025] The display support member 140 has a first end 142 and an opposing second end 144. A first hinge assembly 130 may pivotally couple the first end of the display support to the body 120 adjacent the bottom edge 126. In one embodiment of the invention, the first hinge assembly 130 may be

configured to pivotally couple the bottom edge 126 of the body 120 and the first end 142 of the display support member 140.

[0026] The display support member 140 may be coupled adjacent to the bottom edge 126, meaning that the first hinge assembly 130 may rotate about a substantially horizontal axis of rotation that is in the plane of the bottom edge 126 or somewhat forward or backward from that plane.

[0027] In one embodiment of the invention, the axis of rotation for the first hinge assembly 130 may be several inches forward of the bottom edge 126. This may provide a rear portion of the body between the horizontal axis of rotation of the first hinge assembly 130 and the bottom edge 126 of the body 120. The rear portion of the body may accommodate some of the hardware components in the body 120, for example speakers 170, 172.

[0028] In one embodiment of the invention, the first hinge assembly 130 may provide a brake mechanism, such as a torsion bar mechanism or a frictional hinge, in order to maintain display housing 110 at a selected angle of rotation above body 120 when the device 100 is opened in NOTEBOOK position. For instance, the first hinge assembly 130 may be adapted to maintain display housing 110 at an angle A, where “A” typically ranges between approximately 30 degrees and 150 degrees (see FIG. 2).

[0029] The display housing 110 houses a flat panel display 111. In one embodiment of the invention, the display housing 110 may also house all or part of the circuitry for generating a displayable image on the flat panel display 111. Examples of flat panel displays 111 include, but are not limited or restricted to a liquid crystal display (LCD), a plasma display, or the like.

[0030] The display housing 110 may comprise two panel sections coupled together. These panel sections may include a front display panel 112 and a back display panel 114. The flat panel display 111 may be housed such that a display surface of the flat panel display 111 is visible in the front display panel 112 of the display housing 110.

[0031] Herein, the display housing 110 has a top edge 118, which is the edge that is substantially adjacent the top edge 128 of the body 120 when the display housing 110 is placed in the CLOSED position (FIG. 1). Moreover, the flat panel display 111 is adjacent the front panel section 122 of the body 120.

[0032] When the display housing is placed in the CLOSED position (FIG. 1) or in the NOTEBOOK position (FIG. 2), the display housing 100 has a bottom edge 117 situated substantially adjacent to the bottom edge 126 of the body 120.

[0033] Alternatively, the bottom edge 117 of the display housing 110 may be placed substantially adjacent the top edge 128 of the body 120 when the display housing 110 is placed in the TABLET position (FIG. 3). In the TABLET position the back display panel 114 is adjacent the front panel section 122 of the body 120.

[0034] FIG. 4 is a perspective view of the electronic device 100 of FIG. 1 in the CLOSED position without the display support member 140 to allow certain aspects of the display housing 110 to be illustrated. The back display panel 114 may include a recessed area 115 that is sized to