

sensor, and the analyzer unit **836** may determine another speed of the horizontal movement. The comparison unit **838** may compare the speed of the horizontal movement with the other speed of the horizontal movement, and the haptic controller unit **840** may scroll the Braille content at the determined other speed.

**[0068]** The memory unit **830** embodies functionality to implement embodiments described above. The memory unit **830** may include one or more functionalities that facilitate the haptic display of Braille patterns on a haptic rocker button, where the haptic rocker button is also used to control a horizontal movement, and more particularly, a rightward or leftward speed of scrolling of the Braille patterns across the haptic rocker button.

**[0069]** Some or all of the functionality of the haptic rocker button may be implemented with program code embodied in the memory unit **830** and/or processor **802**, any co-processors, other cards, etc. Any one of these functionalities may be partially (or entirely) implemented in hardware and/or on the processing unit **802**. For example, the functionality may be implemented with an application specific integrated circuit, in logic implemented in the processing unit **801**, in a co-processor on a peripheral device or card, etc. Further, realizations may include fewer or additional components not illustrated in FIG. 8 (e.g., video cards, audio cards, additional network interfaces, peripheral devices, etc.).

**[0070]** The processor unit **802**, and the network interface **820** are coupled to the ICH **824**. Although illustrated as being coupled to the ICH **824**, the memory unit **830** may be coupled to the processor unit **802**.

**[0071]** While the embodiments are described with reference to various implementations and exploitations, it will be understood that these embodiments are illustrative and that the scope of the inventive subject matter is not limited to them. In general, techniques for the haptic display of Braille patterns on a haptic rocker button, where the haptic rocker button is also used to control a horizontal movement, and more particularly, a rightward or leftward speed of scrolling of the Braille patterns across the haptic rocker button, as described herein may be implemented with facilities consistent with any hardware system or hardware systems.

**[0072]** Many variations, modifications, additions, and improvements are possible. For example, the haptic rocker button **300** can alternatively embody a haptic pointing stick, which in contrast to the button **300** shown in FIG. 3 (which has a length much greater than a height), has a length more approximate to a height thereof. Like the haptic rocker button **300**, the haptic pointing stick has a right side, a left side, and a surface. The surface is a top surface. The pointing stick can have a neutral center position, and an operator can contact the left or right side so as to push the stick left or right about a point at different pressures corresponding to different speeds of scrolling Braille text. When an operator of the haptic pointing stick lets go of the pointing stick, the haptic pointing stick can return to the neutral center position.

**[0073]** The haptic display is located on the top surface of the haptic pointing stick. The top surface of the haptic pointing stick can have a diameter (if circular in shape) or width (if another shape) of an appropriate size for reading scrolled Braille text. Because Braille is read in cells of six raised dots per cell, the diameter must be large enough to accommodate at least one Braille symbol so that most human-Braille readers can interpret the symbol on the haptic display of the haptic

pointing stick. For example, the diameter of a circular haptic pointing stick can be approximately between 1.5 mm and 3 mm.

**[0074]** The haptic pointing stick can have restricted left and right movement only, or can have unrestricted directions of movement. The movement restriction can be manually or electronically enabled or disabled. For example, a restriction on/off button can be manually switched by an operator. In another example, upon putting the device into Braille-reading mode, the software of the device can automatically control an electronic restriction switch to limit the motion of the haptic pointing stick.

**[0075]** To operate the haptic pointing stick, instead of lifting a finger from the right side of the button and then pushing the finger down on the left side of the button to change direction, an operator of the haptic pointing stick embodiment of the haptic rocker button can push the haptic pointing stick to the left or to the right. No finger repositioning is necessary for the haptic pointing stick, and an operator's finger always remains at a top surface of the haptic pointing stick even when changing scrolling directions.

**[0076]** Plural instances may be provided for components, operations or structures described herein as a single instance. Finally, boundaries between various components, operations and data stores are somewhat arbitrary, and particular operations are illustrated in the context of specific illustrative configurations. Other allocations of functionality are envisioned and may fall within the scope of the inventive subject matter. In general, structures and functionality presented as separate components in the exemplary configurations may be implemented as a combined structure or component. Similarly, structures and functionality presented as a single component may be implemented as separate components. These and other variations, modifications, additions, and improvements may fall within the scope of the inventive subject matter.

What is claimed is:

1. A method comprising:
  - receiving data in a mobile device;
  - converting the data into a Braille content;
  - presenting at least a portion of the Braille content on a haptic rocker button; and
  - controlling a horizontal movement of the Braille content displayed in the haptic rocker button.
2. The method of claim 1, the presenting further comprising:
  - generating a Braille-pattern on a surface of the haptic rocker button, wherein the Braille pattern corresponds to the Braille content.
3. The method of claim 1, further comprising:
  - controlling a vertical movement of the displayed Braille content with a non-haptic input device.
4. The method of claim 1, wherein the controlling the horizontal movement of the Braille content displayed in a haptic rocker button includes:
  - sensing a first input from the right side of the haptic rocker button;
  - receiving a first signal based on the first input;
  - determining a first speed of rightward scrolling according to a value associated with the signal; and
  - scrolling the Braille content to the right in the haptic rocker button at the first speed.
5. The method of claim 4, wherein the controlling the horizontal movement of the Braille content displayed in a haptic rocker button further includes: