general, voice activation technology can be employed to cause the device **100** to perform any function that the device **100** can otherwise perform.

The display **106** can have a display border **115**, as shown, that can include a microphone **121**, a speaker **123**, and a digital imager **125**. The imager **125** can be a thin film device integrated into the display screen **110**. For example, each pixel **109** (or some subset of pixels) could have a sensing element to receive light within its field of view. Alternatively, through the use of large area imaging technologies, the display screen **110** can, as a whole, be a combined video transmitted/receiver. In another embodiment of the invention, the imager **125** is separate from the display screen **110**. For example, the imager **125** can be embedded into or attached onto the display border **115** or the device housing **102**. In a preferred embodiment, the imager **125** is a thin film device that is thin enough and flexible enough so that the collapsible nature of the display **106** is unaffected. The imager can produce digital data corresponding to still photos or video. The digital data can be stored to memory (either to fixed memory in the housing **102** or to a removable memory card), and retrieved for later display. In this context, the device **100** can act like a digital camera or video camera.

The display **106** can include a speaker **123**, if desired, so that a stereo effect can be achieved. When the display **106** is collapsed, the speaker **108** on the housing **102** provides output audio. When the display **106** is extended, however, the speaker **123** on the display **106** is automatically activated. As with the video imager, it is preferred that the speaker **123** is a thin film speaker that is thin enough and flexible enough so that the collapsible nature of the display **106** is unaffected.

Preferably, the display system **106** includes a touch responsive screen **110**. In a touch responsive screen, components can be added into the screen itself, or overlaid on top of the screen **110**, so that the device **100** can detect the presence and position of any touch input. For example, the user can use such a touch responsive screen, in conjunction with a stylus (or the user's finger) to write on the screen. The screen detects the touch of the stylus, and displays a contrasting color (or grayscale) where the stylus has met the screen. Additionally, the display system **106** can detect the writing and convey to the processor **103** coordinate data that corresponds to the pixels that have been "touched." The processor can then cause the coordinate data to be transmitted to a far-end communications device. The far-end device can then process the received coordinate data, and display the same writing on its screen as that displayed on the user's screen. Thus, a user of a communications device according to the invention can transmit written information from his device to a far-end device.

A touch responsive screen also enables the display system **106** to detect and process user entered touch commands. This information can be used, for example, to activate switches displayed on the screen **110**, or to highlight specific points on the display **106** (for example, as a zoom reference point).

FIG. **4** depicts a preferred embodiment of a display communications device **100** according to the invention having a touch responsive display **106** with a telephone keypad **132**. The user can use the telephone keypad **132** on the display **106** just as one would use the telephone keypad buttons of an ordinary telephone. The display system **106** detects the user's touch, determines which portion of the screen the user has touched, and communicates to the processor **103** a representation that indicates that the user has touched that portion of the screen. For example, each pixel can be assigned a coordinate representation (in the x-y plane, for example). When the user touches the display screen, the display system detects that certain pixels have been touched, and relays the corresponding coordinates to the processor. The processor **103** processes the touch commands according to which portion(s) of the screen the user has touched. For example, if the screen is currently displaying telephone keypad buttons, the processor can be programmed to initiate a telephone call to the "touched" telephone number.

Similarly, FIG. **5** depicts a preferred embodiment of a display communications device **100** according to the invention having a touch responsive display **106** with a keyboard **134**, such as one might find on a personal digital assistant or pager for example. The user can use the screen **110** as a keyboard for accessing the Internet, communicating via email, paging, etc. Again, the display system **106** detects the user's touch, determines which portion of the screen the user has touched, and communicates to the processor **103** a representation that indicates that the user has touched that portion of the screen. The processor **103** processes the touch commands according to which portion(s) of the screen the user has touched.

FIG. **6** depicts a preferred embodiment of a display communications device **100** according to the invention having a display screen **110** that is capable of displaying an entire Web page. Preferably, the display screen **110** provides full color display and is sized and shaped to display a Web page in a visually appealing format.

Preferably, the display system **106** can display multiple images on the display screen **110**. That is, the display system **106** can provide split screen displays, such as those that might be downloaded from a web site, or can provide multiple active areas at the same time. For example, the display screen **110** can include a first sub-display (or window) that displays web pages as the user downloads them from the internet, and a second sub-display (or window) that displays the user's email at the same time. The user can move from window to window to interact alternatively with the internet or his email. Thus, a display communications device **100** according to the invention can be used to perform multiple functions concurrently.

Preferably, the display system **106** is self-configurable. For example, a sub-display might be made up of a 4×4 array of bistable pixels. Bistable pixels stay in their current state until told to change. Optionally, the bistable pixels can include organic photodetectors. In one configuration, the sub-display might change grayscale by changing the number of the 16 pixels that are on (or off) at a given time. The display can reconfigure itself as a matter of grayscale versus resolution based on to the needs of the image to be displayed. That is, the sub-display can reconfigure itself, based on whether a more precise grayscale or more resolution is desired for the current display. For example, for a particular image, four gray levels might be adequate but more resolution is desirable. In such an application, the 4×4 sub-display could reconfigure itself as four 2×2 sub-displays, each having four gray levels. Similarly, four 4×4 sub-displays could work together to form an 8×8 display having less resolution, but 64 gray levels.

In one embodiment of a bistable display, each pixel operates in a binary mode, that is, each pixel is either on or off. Gray scale can be achieved by defining each pixel as a series of sub-pixels (for example, 4, 8, 16, or 64). Gray scale can then be implemented by turning on or off the appropriate number of sub-pixels. Thus, the display can be used at