

[0056] It will be appreciated that many circuit topologies may be provided for input signal generator 74. For an x, y coordinate touchpad 24B having a series of sensors, the sensors may be connected input signal generator 74, where the generator controls the output signals for use in other components in the device. Generator 74 may be embodied in an application specific integrated circuit (ASIC) or a programmable system on a chip (pSOC), such as those provided by CapSense (trademark) products provided by Cypress Semiconductor Corp. An embedded micro-controller may be provided with the controller to convert output capacitive signals to corresponding digital values that may be used by other components in the device. The connection between the controller and the other components may include an interrupt line and a serial interface (for example, SPI, I2C, etc.) which would send the co-ordinate and finger detection signals to the device. The amount of signals generated over a given time may be monitored to provide an indication of the speed of finger travel across the touchpad.

[0057] Display 14 has backlight system 64 to assist in the viewing of display 14, especially under low-light conditions. A backlight system is typically present in a LCD. A typical backlight system comprises a lighting source, such as a series of LEDs or a lamp located behind the LCD panel of the display and a controller to control activation of the lighting source. The lamp may be fluorescent, incandescent, electroluminescent or any other suitable light source known to a person of skill in the art. As the lighting sources are illuminated, their light shines through the LCD panel providing backlight to the display. The intensity of the backlight level may be controlled by the controller by selectively activating a selected number of lighting sources (e.g. one, several or all LEDs) or by selectively controlling the activation duty cycle of the activated lighting sources (e.g. a duty cycle anywhere between 0% to 100% may be used).

[0058] To assist with one method of adjusting the backlight level, light sensor 66 is provided on device 10. Sensor 66 is a light sensitive device which converts detected light levels into an electrical signal, such as a voltage or a current. It may be located anywhere on device 10, having considerations for aesthetics and operation characteristics of sensor 66. In one embodiment, an opening for light to be received by sensor 66 is located on the front cover of the housing of device 10 to reduce the possibility of blockage of the opening. In other embodiments, multiple sensors 66 may be provided and the software may provide different emphasis on signals provided from different sensors 66. The signal(s) provided by sensor(s) 66 can be used by a circuit in device 10 to determine when device 10 is in a well-lit, dimly lit or moderately-lit environment. This information can then be used to control backlight levels for display 14. It will be appreciated that a number of discrete ambient lighting levels may be recognized by sensor (s) 66. Progressions between levels may or may not be separated by a constant change in lighting intensity. In some embodiments, LED indicator 18 may be also used as a light sensor.

[0059] Now, brief descriptions are provided on the applications 48 stored and executed in device 10. Voice communication module 48A and data communication module 48B have been mentioned previously. Voice communication module 48A handles voice-based communication such as telephone communication, and data communication module 48B handles data-based communication such as e-mail. In some embodiments, one or more communication processing func-

tions may be shared between modules 48A and 48B. Additional applications include calendar 48C which tracks appointments and other status matters relating to the user and device 10. Calendar 48C is activated by activation of calendar icon 26A on display 14. It provides a daily/weekly/month electronic schedule of appointments, meetings and events entered by the user. Calendar 48C tracks time and day data for device 10 using microprocessor 30 and internal clock 46. The schedule contains data relating to the current accessibility of the user. For example it can indicate when the user is busy, not busy, available or not available. In use, calendar 48C generates input screens on display 14 prompting the user to input scheduled events. Alternatively, notification for scheduled events could be received via an encoded signal in a received communication, such as an e-mail, SMS message or voice-mail message. Once the data relating to the event is entered, calendar 48C stores processes information relating to the event; generates data relating to the event; and stores the data in memory in device 10.

[0060] Address book 48D enables device 10 to store contact information for persons and organizations. Address book 48D is activated by activation of address book icon 26D on display 14. Names, addresses, telephone numbers, e-mail addresses, cellphone numbers and other contact information is stored. The data can be entered through keys 24A and touchpad 24B and is stored in an accessible database in non-volatile memory, such as persistent memory storage 74 or flash memory 42, which are associated with microprocessor 30, or any other electronic storage provided in device 10. Persistent memory 74 may be a separate memory system to flash memory 42 and may be incorporated into a device, such as in microprocessor 30. Additionally or alternatively, memory 74 may be removable from device 10 (e.g. such as a SD memory card), whereas flash memory 42 may be permanently connected to device 10.

[0061] Email application 48E provides modules to allow user of device 10 to generate email messages on device 10 and send them to their addressees. Application 48E also provides a GUI which provides a historical list of emails received, drafted, saved and sent. Text for emails can be entered. Email application 48E is activated by activation of email icon 26C on display 14.

[0062] Calculator application 48F provides modules to allow user of device 10 to create and process arithmetic calculations and display the results through a GUI.

[0063] Input signal processing application 48G operates in conjunction with touchpad 24B input signal generator 74 and physical elements 70 to adjust activation sensitivities and thresholds of touchpad 24B and/or output signals of input signal generator 74. Input signal processing application 48G may have one or more algorithms in a library that it can access to set, change or analyze user actions and signals received from touchpad 24B or input signal generator 74 depending on any number of local operating conditions (for example, specific conductive signatures and/or characteristics of one or more user's fingers on touchpad 24B, sensitivities, specific characteristics for a given world location, having regard to local atmospheric conditions and/or altitudes etc.). Sensitivities ranges may be established, for example high, medium, low with relative sensitivities set accordingly.

[0064] Key control application 48H provides a series of templates to allow one or more of defined keys in touchpad 24B to have different assignments depending on a context of the operating environment of device 10. For example, one