

[0023] FIG. 2 illustrates an initial touch screen layout with a first set of input character keys displayed on a display screen of the electronic device of FIG. 1;

[0024] FIG. 3 is a flow diagram illustrating a method for entering a character into the electronic device FIG. 1 in accordance with the present invention;

[0025] FIG. 4 illustrates the touch screen layout with a second set of input character keys displayed on a display screen of the electronic device of FIG. 1;

[0026] FIG. 5 illustrates a detail of the touch screen layout position of the second set of input character keys in accordance with the present invention 4;

[0027] FIG. 6 illustrates a subsequent character entry iteration using another set of input character keys in accordance with the present invention; and

[0028] FIG. 7 and FIG. 8 illustrates the comparative respective hand movement required for a known entry mode and a typical text entry using the present invention.

[0029] Skilled artisans will appreciate that elements in the figures are illustrated for simplicity and clarity and have not necessarily been drawn to scale. For example, the dimensions of some of the elements in the figures may be exaggerated relative to other elements to help to improve understanding of embodiments of the present invention.

DETAILED DESCRIPTION

[0030] Before describing in detail embodiments that are in accordance with the present invention, it should be observed that the embodiments reside primarily in combinations of method steps and apparatus components related to entering characters into an electronic device using a touch sensitive display screen. Accordingly, the device components and method steps have been represented where appropriate by conventional symbols in the drawings, showing only those specific details that are pertinent to understanding the embodiments of the present invention so as not to obscure the disclosure with details that will be readily apparent to those of ordinary skill in the art having the benefit of the description herein.

[0031] In this document, relational terms such as first and second, top and bottom, and the like may be used solely to distinguish one entity or action from another entity or action without necessarily requiring or implying any actual such relationship or order between such entities or actions. The terms “comprises,” “comprising,” or any other variation thereof, are intended to cover a non-exclusive inclusion, such that a method or device that comprises a list of elements does not include only those elements but may include other elements not expressly listed or inherent to such method or device. An element preceded by “comprises . . . a” does not, without more constraints, preclude the existence of additional identical elements in the process, method, article, or apparatus that comprises the element. Also, throughout this specification the term “key” has the broad meaning of any key, button or actuator having a dedicated, variable or programmable function that is actuable by a user.

[0032] It will be appreciated that embodiments of the invention described herein may be comprised of one or more conventional processors and unique stored program instruc-

tions that control the one or more processors to implement, in conjunction with certain non-processor circuits, some, most, or all of the functions of entering characters into an electronic device using a touch sensitive display screen described herein. The non-processor circuits may include, but are not limited to, a radio receiver, a radio transmitter, signal drivers, clock circuits, power source circuits, and user input devices. As such, these functions may be interpreted as steps of a method to perform entering characters into an electronic device using a touch sensitive display screen. Alternatively, some or all functions could be implemented by a state machine that has no stored program instructions, or in one or more application specific integrated circuits (ASICs), in which each function or some combinations of certain of the functions are implemented as custom logic. Of course, a combination of the two approaches could be used. Further, it is expected that one of ordinary skill, notwithstanding possibly significant effort and many design choices motivated by, for example, available time, current technology, and economic considerations, when guided by the concepts and principles disclosed herein will be readily capable of generating such software instructions and programs and ICs with minimal experimentation.

[0033] It will be appreciated that embodiments of the invention described herein may also be comprised of one or more software programs, embodied as processor control code, for example on a carrier medium such as a disk, CD- or DVD-ROM, programmed memory such as read only memory (Firmware), or on a data carrier such as an optical or electrical signal carrier, for example an Internet download. As the skilled person will appreciate, the code may be distributed between a plurality of coupled components in communication with one another.

[0034] Referring to FIG. 1, there is a schematic diagram illustrating an electronic device 100, typically a wireless communications device, in the form of a mobile station or mobile telephone comprising a radio frequency communications unit 102 coupled to be in communication with a processor 103. The electronic device 100 also has a touch screen 105 and auxiliary keys 165. There is also an alert module 115 that typically contains an alert speaker, vibrator motor and associated drivers. The touch screen 105, auxiliary keys 165 and alert module 115 are coupled to be in communication with the processor 103.

[0035] The processor 103 includes an encoder/decoder 111 with an associated code Read Only Memory (ROM) 112 for storing data for encoding and decoding voice or other signals that may be transmitted or received by the electronic device 100. The processor 103 also includes a micro-processor 113 coupled, by a common data and address bus 117, to the encoder/decoder 111, a character Read Only Memory (ROM) 114, a Random Access Memory (RAM) 104, static programmable memory 116 and a Removable User Identity Module (RUIM) interface 118. The static programmable memory 116 and a RUIM card 119 (commonly referred to as a Subscriber Identity Module (SIM) card) operatively coupled to the RUIM interface 118 each can store, amongst other things, Preferred Roaming Lists (PRLs), subscriber authentication data, selected incoming text messages and a Telephone Number Database (TND phonebook) comprising a number field for telephone numbers and a name field for identifiers associated with one of the numbers in the name field. The RUIM card 119 and static