communications, such as when a telephone call is received while the device **300** is operating in text or data mode of operation. Additionally, the method **500** involves displaying visibly different key arrangements on the adaptive display screen **322** in dependence upon the mode of operation of the wireless handheld device **300** (block **520**). Thus, the key arrangement shown on the display screen **322** depends upon the mode of operation the wireless handheld communication. For instance in data or text mode, the key arrangement shown on the display screen **322** is one designed for entry of alphabetic characters. Thus, in the text or data mode the display screen **322** will present an alphabetic key arrangement, which could include additional keys to aid in the entry of data. Furthermore, the method **500** adapts a shape of an exposed upper surface of the adaptive display screen **322** in dependence upon the displayed key arrangement (block **530**). In at least one examplary embodiment, each of the visibly different key arrangements present a plurality of discrete keys that each visibly define a two-dimensionally signified key zone. The key zone establishes a target area for press-engagement and the exposed upper surface presents a corresponding tactilely perceptible key zone for each of the plurality of discrete keys.

[0087] The above described method **500** in other embodiments incorporates various features from the description of the adaptive display screen **322** given above. Some examples of the method **500** may incorporate are: controlling an electrically responsive media to produce the shape changes, creating a convex surface on the display screen **322** within the key zone, and creating a concave surface within the key zone.

[0088] Still another embodiment, a processing subsystem is configured to be installed in a handheld communication device **300**, having capabilities for at least voice and email modes of communication, comprising an adaptive display screen **322** with a shape-changing upper surface. The processing subsystem servers as an operating system for the incorporating device **300**. The processing subsystem preferably includes a microprocessor **338** and a media storage device connected with other systems and subsystems of the device **300**. The microprocessor **338** can be any integrated circuit or the like that is capable of performing computational or control tasks. The media storage device can exemplarily include a flash memory **338**, a hard drive, a floppy disk, RAM **326**, ROM, and other similar storage media.

[0089] As stated above, the operating system software controls operation of the incorporating mobile communication device **300**. The operating system software is programmed to control operation of the handheld communication device **300** and is configured to transmit signals to a visual display that variously presents visibly different key arrangements in dependence upon the mode of operation of the incorporating device **300**. Additionally, the operating system software is configured to change the shape of a shape-adaptive, exposed upper surface in dependence upon the presented key arrangements.

[0090] In other embodiments, the processing subsystem also includes the various features described above in relation to the adaptive display screen embodiments. The various features include presenting discrete keys defined by a two-dimensional key zone, changing the shape of the upper surface through controlled volumetric changes, establishing a tactilely perceptible concave or convex area within the key zone, among others.

[0091] Preferably, the handheld device **300** is sized for portable use and adapted to be contained in a pocket. In one examplary embodiment, the handheld device **300** is sized to be cradled in the palm of the user's hand. The handheld device **300** is advantageously sized such that it is longer than wide. This preserves the device's **300** cradleability while maintaining surface real estate for such features as the display screen **322** or an optional keyboard **332**. In a development of this embodiment, the handheld device **300** is sized such that the width of the handheld device **300** measures between approximately two and three inches thereby facilitating the device **300** to be palm cradled. Furthermore, these dimension requirements may be adapted in order to enable the user to easily carry the device **300**.

[0092] Further aspects of the environments, devices and methods of employment described hereinabove are expanded upon in the following details. The handheld electronic device **300** includes an input portion and an output display portion. The output display portion can be a display screen **322**, such as an LCD or other similar display devices.

[0093] An exemplary handheld electronic device **300** and its cooperation in a wireless network **319** is exemplified in the block diagram of FIG. **16**. This figure is exemplary only, and those persons skilled in the art will appreciate the additional elements and modifications necessary to make the device **300** work in particular network environments.

[0094] As shown in, the block diagram of FIG. **16** representing the communication device **300** interacting in the communication network **319** shows the device's **300** inclusion of a microprocessor **338** which controls the operation of the device **300**. A communication subsystem **311** performs all communication transmission and reception with the wireless network **319**. The microprocessor **338** further connects with an auxiliary input/output (I/O) subsystem **328**, a serial port (preferably a Universal Serial Bus port) **330**, a display screen **322**, a keyboard **332**, a speaker **334**, a microphone **336**, random access memory (RAM) **326**, and flash memory **324**. Other communication subsystems **340** and other device subsystems **342** are generally indicated as connected to the microprocessor **338** as well. An example of a communication subsystem **340** is that of a short range communication subsystem such as BLUETOOTH® communication module or a Wi-Fi communication module (a communication module incompliance with IEEE 802.11b) and associated circuits and components. Additionally, the microprocessor **338** is able to perform operating system functions and preferably enables execution of software applications on the communication device **300**.

[0095] The above described auxiliary I/O subsystem **328** can take a variety of different navigation tool (multi-directional or single directional) such as a trackball navigation tool **325** as illustrated including the above described navigation tool. The navigation tool is preferably a trackball based device, but it can be a thumbwheel, navigation pad, or joystick. These navigation tools are preferably located on the front surface of the device **300** but may be located on an exterior surface of the device **300**. Other auxiliary I/O devices can include external display devices and externally connected keyboards (not shown). While the above examples have been provided in relation to the auxiliary I/O subsystem **328**, other subsystems capable of providing input or receiving output from the handheld electronic device **300** are considered within the scope of this disclosure. Additionally, other keys may be placed along the side of the device **300** to function as