

diameter depending upon the application and the brightness level generated by the backlight. The screen **1235** can be folded out from the telephone housing, or can be a detachable accessory including sidewalls **1239**.

[0177] A camera **1237** can be incorporated adjacent the display section **1226** to provide an image of the user or some other object of interest for transmission.

[0178] Alternatively, the display can be formed in a modular component that snaps onto the base portion of a standard telephone and couples to a display circuit port in the base section of the telephone. This is illustrated in the preferred embodiments of FIGS. 9A-9J. The standard telephone shown in FIGS. 9A, 9C and 9D is representative of a Motorola Star Tec® Cellular Telephone.

[0179] FIG. 9A shows a telephone **250** having standard features such as a display **252** and a port **254** for external communications. The modular display unit **260** shown in FIG. 9B is configured to dock with the telephone **250** wherein the connector **268** is inserted into port **254** and latch **264** connects to the top of the base section of telephone **250** thereby connecting the microdisplay within display subhousing **262** to the receiver within the telephone **250**. The subhousing **262** pivots relative to main housing **270** to allow viewing of the display through lens **267** during use of the telephone **250**. In this embodiment, telescoping camera **215** can extend from subhousing **262**. Base **270** includes a second battery, drive electronics for the LED backlight LCD display on activation switch **266**. FIG. 9C is a sideview of telephone **250** showing the battery housing **212** on the opposite side from the speaker **206**. Back panel **258** is shown in the rear view of FIG. 9D along with second battery contacts **256** exposed thereon. When the telephone **250** is docked in unit **260**, the surface **258** abuts surface **265** and connectors **264** are positioned against contacts **256** such that the telephone can be powered by the second battery in housing **270**.

[0180] FIGS. 9E, 9F and 9G illustrate top front and side views of unit **260** where the subhousing is shown in both its storage position **274** and its viewing position **272**. FIGS. 9H and 9I show back and second side views of unit **260** and illustrate battery access panel **275**, focus knob **276** and control buttons **278** that are exposed on the side of housing **270** when the sub-housing **262** is rotated to the viewing position **272**.

[0181] In the embodiment **280** shown in FIG. 9J the telephone **284** is shown docked with housing **286**. However in this embodiment, the display is mounted within a pivoting unit **282**. The user can swing unit **282** along arc **292** to expose viewing lens **288**. The user can also swing the display around a second orthogonal axis **294** at joint **298** so that the display rotates into a variety of viewing positions relative to hinge section **290**.

[0182] FIGS. 10A and 10B illustrate another docking system for a portable telephone. The element **286** of system **300** includes mouse controls **303** that can be positioned on the front or rear of the element. The telephone, which can incorporate a touchpad **301**, nests within the docking element **286** and is electrically connected to the element through a connecting port as described previously. Part of the base section houses a display module **306** having a display window **309** and can optionally also include a CCD

or CMOS camera **310** in module **305**. The modules **305**, **306** can be manually or electrically actuated to move between a cavity within the base element and an operating position outside of the base section. Each module **305**, **306** can rotate around axis **308** when in the operating position for easy repositioning by the user. The display can be used as a view finder for the camera. The base section can optionally rotate around the longitudinal axis of the base section for left or right handed use.

[0183] The docking element **286** can also include a PCMCIA card slot **302** and a touchpad on the rear panel adjacent the docking element battery. Slot can receive an image data card on which data can be stored or retrieved. The slot and associated circuitry can thus receive a smart card that can be used to charge or pay for phone calls or information on the card can be shown on the display or transmitted. Slot **302** as described herein can also be included in a wireless telephone with an integrated display as shown in FIG. 8.

[0184] FIG. 11 illustrates another preferred embodiment of a docking element **311** in which the display module **312** can be moved along axis **314** between a position within the base section to an operating position outside the docking-element housing. The image viewed through lens **313** can be inverted for left or right handed use.

[0185] Another preferred embodiment of the docking element is illustrated in FIGS. 12A and 12B. The element **315** has a rotating portion on the back of the telephone and includes a display module **316** which rotates around a second axis **318** to expose the viewing port **317**. The module **316** can rotate around a third axis for positioning by the user.

[0186] Another preferred embodiment of the docking element is illustrated in connection with FIGS. 13A-13F. In this embodiment a cellular phone **552** docks with a docking element **550**. Docking system **550** has a two display module ports **554** and **556**. Either port **554** or **556** can receive the display module **580** that is illustrated in FIG. 13F. FIG. 13A illustrates port **554** on a first side of system **550** and docking port connector access **571**. FIG. 13B shows a second port **556** on a second side of the docking system as well as a joystick element **560**, a mouse button **558** and an external mouse port **562**.

[0187] FIGS. 13C and 13D show the docking element **550** without the phone **552**. These illustrate the phone docking connector **566** and the phone retention clip slot **564**.

[0188] FIG. 13E shows an exploded view with the housing **550** having top **551** and bottom **553**. The housing contains the joystick **561**, the phone port connector **565**, circuit board **570**, docking port connector **572** clip **563**.

[0189] The display module housing **580** has a connector **586** that electrically connects the display circuit to the circuit board **570**. A circular element **584** connects to each port **554**, **556** and permits the housing **580** to rotate relative to system **550** so that the viewing window **582** can be positioned by the user.

[0190] An alternative display docking system **1500** is shown in FIGS. 13G-13I. A cradle **1504** in a docking element or station **1506** receives the cellular phone **1502**. The cradle **1504** is formed by a pair of side rails and a top rail **1508**, in addition to the base **1510** and the bottom **1512**. The docking station **1506** is adapted to receive a battery **1516** as best seen