work through an external adaptor module **2638** (e.g., a modem or network interface).

[**0217**] Illustrated in FIGS. **14**A-**14**C is another preferred embodiment of a telephone system **600** incorporating the microdisplay of the present invention. In this desktop system a handset **602** is connected by cable or wireless connection to a base containing by cable or wireless connection to a base containing a standard telephone keypad **604**. The display operates in a rear projection configuration within housing **610**. The housing can pivot **620** or swivel **612** and includes a camera **608** so that a user viewing screen **606** can be seen by a person with a similar system. Further details regarding rear projection systems are described in U.S. Pat. No. 5,467,154, the contents of which is incorporated herein by reference.

[**0218**] **FIGS. 15A, 15B** and **15**C show side cross-sectional, front and front cross-sectional views of a hand-held rear projection system **320** using a microdisplay. The system **320** includes a microdisplay and backlight assembly **330**, a projection lens system **326**, a reflective screen **328** and optional retractable sun screens **324**. The device has a thickness **322** of less than 2 inches, preferably about 1 inch, a height **336** of less than 8 inches, preferably about 5-6 inches and a display diagonal **334** of 4 inches or less, preferably about 3 inches. This provides a system volume that is preferably less than about 40 inches. The rear reflective screen **328** is shown in the front view of **FIG. 13C** at **338** and are surrounded on **3** sides by retractable shades **332** (**324**). The handle portion can include speakers **338** and an earphone jack **325**.

[**0219**] A body worn hand-held display system is shown in **FIGS. 16A and 16B**. The hand-held unit **650** includes a microdisplay viewed through port **652** that is controlled by control element **656** and connected by cable **654** to a body worn communications pod **640**.

[**0220**] **FIG. 16C** illustrates another preferred embodiment of the invention including the use of a microdisplay in the viewfinder **674** of a camcorder **660**. The camera lens **664** is positioned at the opposite end with tape or recording disk **672** access on one side and a control panel on the top and opposite side. Shown in **FIG. 16D** is a pistol grip camcorder having a sliding **670** QVGA microdisplay viewer **668** opposite to the camera lens **662**. Control element **666** operates the record function of the camera for the rapid sequential recording of images.

[**0221**] A digital camera **678** for still photographs is illustrated in **FIGS. 16E and 16F**. The digital camera **678** has a lens **680** located in front of an image sensor **682** and a photosensitive semiconductor such as a charge-coupled device (CCD) or CMOS image sensor. Interposed between the lens **680** and the image sensor **682** is a shutter which is controlled on the digital camera **678** by a shutter release button **684**. A second display panel **686** is located on the top or backside of the digital camera **678**.

[**0222**] The digital camera **678** has a microdisplay **688** which is seen through a viewfinder **690** as illustrated in **FIG. 16F**. The viewfinder **690** has a lens **692** for viewing the microdisplay **688**. The microdisplay **688** is located on its own chip **694** which is connected to a logic controller on a main or mother board **696** of the digital camera **678**. It is recognized that the information typically displayed on the second display panel **686** can also be displayed on the microdisplay.

[**0223**] A preferred embodiment of a display control circuit **1600** for a color sequential microdisplay **1602** for a camera is illustrated in **FIG. 16G**. The display control circuit **1600** receives an analog composite signal **1604** at an analog signal processor **1606** from an image sensor **1608**. The analog signal processor **1606** can be a commercially available chip, such as the Sony CXA1585, which separates the signal **1604** into red, green and blue components.

[**0224**] The image is sent from the analog signal processor **1606** directly to the microdisplay **1602**. At the same time, the three analog color components are converted into digital signals by analog to digital (A/D) converters **1612**. The digital signals are further processed by a digital signal processor **1614** and stored in a memory circuit **1616**. The signal stored in the memory circuit **1616** can be enhanced or altered such as compression, gamma correction, smoothing and/or dithering. The enchanting or altering uses commercially available software, such as that marketed by Photoshop, Inc.

[**0225**] In addition to viewing directly from the analog-signal processor **1606** associated with the image sensor **1608**, the microdisplay **1602** can display what is stored in the memory **1616** by the digital signals going through the digital signal processor **1614** to a digital-to-analog converter **1620** to convert the digital signal back into an analog signal. The display control circuit **1600** has an analog signal processor **1622** for separating the signal into red, green and blue components.

[**0226**] The display control circuit **1600** has a logic circuit **1624** including a timing circuit. The logic circuit **1624** is connected to the image sensor, the microdisplay, the digital signal processor and the memory for controlling the flow of the video signal.

[**0227**] When taking the images directly from the image sensor to the microdisplay **1602** through the analog signal processor **1606**, the logic circuit **1624** synchronizes the signal into red, green and blue signals which the microdisplay **1602** uses. This synchronization can include the use of various filters to gather image data in a synchronized color order to be fed to the microdisplay **1602** and coordinating actuation of the backlight **1626**.

[**0228**] The logic circuit **1624** controls the sequential flow of each color frame onto the display by sending video data from the memory **1616** onto the display **1602** and coordinating actuation of the backlight **1626** along lines for each primary color.

[**0229**] The digital camera **678** shown in **FIGS. 16E and 16F** uses the microdisplay **688** to view the image prior to shooting the picture. **FIG. 16H** illustrates a digital camera **1630** having a pair of mirrors **1632** and **1634** so that the user can view the image through the camera lens **1636** rather than from the microdisplay **1638** if preferred. The first mirror **1632** is located between a shutter **1640** and the image sensor **1642**. The first mirror **1632** directs the image that is seen through the lens **1636** up to the second mirror **1634**, which is located between the microdisplay **1638** and a lens **1644** of the viewfinder **1646**.

[**0230**] When the shutter release button is pushed, both mirrors **1632** and **1634** flip to a substantially horizontal position as seen in phantom in **FIG. 16H**. The image that passes through the camera lens **1636** is seen by the image