[0065] **FIG. 13U** illustrates another preferred embodiment of the docking station shown in FIGS. **13**Q-**13**S.

[0066] FIGS. **13**V-**13**W illustrate another preferred embodiment of a display docking system.

[0067] **FIG. 13X** is a functional block diagram of a preferred docking station with cellular telephone according to the invention.

[0068] FIGS. **14**A-**14**C illustrates the use of a microdisplay rear projection system for a telephone video conferencing station.

[0069] FIGS. **15**A-C are side cross-sectional, front, and front cross-sectional views of a hand held rear projection display system in accordance with the invention.

[0070] FIGS. **16**A-**16**B illustrate a body worn, hand operated display system in accordance with the invention.

[0071] FIGS. **16**C-**16**D illustrate the use of a microdisplay as a viewfinder for a camcorder in another preferred embodiment of the invention.

[0072] FIGS. **16**E-**16**F illustrate the use of a microdisplay as a viewfinder for a digital still camera in another preferred embodiment of the invention.

[0073] **FIG. 16G** illustrates a display control circuit for a camera.

[0074] **FIGS. 16H and 16I** illustrate cameras with moving mirrors for through the lens viewing.

[0075] **FIGS. 16J and 16K** illustrate a camera/imager with a microdisplay as a viewfinder.

[0076] FIGS. **17**A-**17**C illustrate the use of a microdisplay in a card reader system in accordance with another preferred embodiment of the invention.

[0077] **FIG. 18** is a schematic circuit diagram for a portable card reader system.

[0078] **FIG. 19A** illustrates another preferred embodiment of a card reader system.

[0079] **FIG. 19B** shows another preferred embodiment of a card reader system.

[0080] FIGS. **19**C-**19**C*b* is a schematic circuit diagram of a memory card for a card reader or imager.

[0081] **FIGS. 19D, 19E***a* and **19**E*b* is a schematic circuit diagram of the controller within the reader or imager

[0082] **FIG. 19F** is a schematic circuit diagram of an alternative embodiment of a switcher in the controller.

[0083] **FIG. 20A** is a perspective view of a head-mounted display system of the invention.

[0084] **FIG. 20B** is a partial schematic perspective view of the system of **FIG. 20A** emphasizing additional features of the invention.

[0085] **FIG. 20C** is a schematic perspective view of the system of **FIG. 20A** which emphasizes certain aspects of the invention.

[0086] **FIG. 20D** is a schematic perspective view of the headband and pads of **FIG. 20C**.

[0087] **FIG. 20E** is a partial schematic side view of the system of **FIG. 20A**.

DETAILED DESCRIPTION OF THE INVENTION

[0088] High Resolution Active Matrix Microdisplay

[0089] A preferred embodiment of the invention utilizes a process of making a plurality of flat panel displays **10** in which a large number of active matrix arrays **14** are fabricated on a single wafer **12** as illustrated in connection with **FIG. 1**. The number of displays fabricated on a single wafer depends upon the size of the wafer and the size of each display. A preferred embodiment of the invention, for example, uses a high resolution display having an imaging area of the display with a diagonal of 0.5 inches (12.7 mm) or less. For a four inch wafer, forty separate displays can be fabricated on a single four inch wafer. Where each display has a diagonal of about 0.25 inches (6.35 mm), 80 displays can be fabricated on a single wafer, over 120 displays can be fabricated on a five inch wafer, over 180 displays on a six inch wafer, and 400 displays can be fabricated on an 8 inch wafer.

[0090] By fabricating a large number of small high resolution displays on a single wafer the manufacturing yield can be substantially increased and the cost per display can be substantially reduced.

[0091] To obtain monochrome resolutions of at least 75,000 pixels (e.g. a 320×240 array) suitable for displaying an NTSC television signal on a 0.25 inch diagonal display the pixel electrodes are preferably on the order of about 15 microns in width or less. To obtain a monochrome resolution of at least 300,000 pixels (e.g. 640×480 array) on a 0.25 inch diagonal display the pixel electrodes preferably have a width of about 8-10 microns.

[0092] These small high resolution displays require magnification such that when held in a user's hand within the range of 0.5 inches to 10 inches of the user's eye, a clear image is provided.

[0093] Referring now to **FIG. 2**A, an integrated circuit active matrix display die is shown schematically which has been diced from a single wafer along with selected number of replicated circuits. Incorporated into the circuit **100** are scanner circuits **42***a*, **42***b*, **42***c*, **42***d*, along with pixel driven circuits **44***a*, **44***b*, **44***c*, **44***d*, select scanner circuits **46***a*, **46***b* and a display matrix circuit **90**.

[0094] Further details regarding the fabrication of each die on a wafer can use the methods described in U.S. Pat. No. 5,256,562, the contents of which incorporated herein its entirety by reference. Additional details regarding the fabrication of the active matrix and use within communication systems is described in U.S. patent application Ser. No.______, filed Oct. 31, 1997 of Matthew Zavracky and titled "Color Display with Thin Gap Liquid Crystal" the contents of which is incorporated herein in its entirety by reference.

[0095] By fabricating a selected number of circuits **100** on a single wafer, the circuit yield from a single wafer is greatly enhanced at the expense of reduced display area. However, this area disadvantage is overcome by magnifying and projecting the display image as will be described herein.