

36. The method as recited in claim 33, wherein said illuminating said object comprises projecting illumination through said flat-panel display screen onto said object.

37. The method as recited in claim 33 further comprising correcting distortion using a Fresnel lens positioned adjacent to said screen.

38. The method as recited in claim 33 further comprising an infrared-transparent visible light-translucent screen positioned adjacent to said flat-panel display screen.

39. The method as recited in claim 33 further comprising a transparent screen having a physical texture positioned adjacent to said flat-panel display screen and for scattering light from said illuminating said back side of said flat-panel display screen with visible light.

40. The method as recited in claim 33 further comprising a transparent screen of Rayleigh scattering material positioned adjacent to said flat-panel display screen and for scattering light from said illuminating said back side of said flat-panel display screen with visible light.

41. The method as recited in claim 33 further comprising a scattering polarizer positioned adjacent to said flat-panel display screen and for scattering light from said illuminating said back side of said flat-panel display screen with visible light.

42. The method as recited in claim 33 wherein said self-contained interactive video display system further comprises a wavelength-based diffuser positioned adjacent to said flat-panel display screen.

43. The method as recited in claim 33 wherein said self-contained interactive video display system further comprises a diffusing material that can change from substantially translucent to substantially transparent, wherein said diffusing material is substantially translucent during said illuminating said back side of said flat-panel display screen with visible light, and is substantially transparent during said detecting interaction of said object with said visual image through said flat-panel display screen, wherein said diffusing material is placed behind said flat-panel display screen.

44. The method as recited in claim 33, wherein said illuminating said object is strobed in time with said detecting.

45. The method as recited in claim 33 further comprising calibrating an image captured at said detecting to said visual image such that said interaction caused by said object is matched to a physical position of said object proximate to said screen.

46. The method as recited in claim 33 further comprising determining information about a distance of said object from said screen.

47. The method as recited in claim 46 wherein said detecting is performed by a stereo camera.

48. The method as recited in claim 46 wherein detecting is performed by a time-of-flight camera.

49. The method as recited in claim 48 further comprising positioning said time-of-flight camera such that the time-of-flight camera does not reflect back onto itself.

50. The method as recited in claim 33 wherein further comprising providing touchscreen functionality when said object is proximate said screen.

51. The method as recited in claim 50 further comprising providing a transparent touchscreen adjacent said front side of said screen.

52. The method as recited in claim 50 further comprising providing an edge-lit transparent sheet adjacent said front

side of said screen, and wherein said detecting is operable to distinguish light created when said object comes in contact with said edge-lit transparent sheet.

53. The method as recited in claim 33 wherein said object is a body part of a human user.

54. A self-contained interactive video display system comprising:

a liquid crystal display screen for displaying a visual image for presentation to a user on a front side of said liquid crystal display screen;

a visible light illuminator for illuminating said liquid crystal display screen with visible light;

a infrared illuminator for illuminating an object;

a infrared camera for detecting interaction of an illuminated object with said visual image, wherein said infrared camera is operable to view said object through said liquid crystal display screen; and

a computer system for directing said liquid crystal display screen to change said visual image in response to said interaction;

wherein said infrared camera, said visible light illuminator, said infrared illuminator, and said computer system are comprised within an enclosure, and wherein one side of said enclosure comprises said liquid crystal display screen.

55. The self-contained interactive video display system as recited in claim 54 further comprising a diffusing screen for diffusing light of said visible light illuminator.

56. The self-contained interactive video display system as recited in claim 54, wherein said infrared illuminator projects illumination through said liquid crystal display screen onto said object.

57. The self-contained interactive video display system as recited in claim 56, wherein said infrared illuminator is positioned so as to reduce potential for glare effects on said infrared camera.

58. The self-contained interactive video display system as recited in claim 54 wherein said infrared illuminator is located next to said liquid crystal display screen such that said infrared illuminator does not project illumination through said liquid crystal display screen.

59. The self-contained interactive video display system as recited in claim 54 comprising a plurality of said infrared illuminators, wherein said infrared illuminators are located next to said flat-panel display screen and do not project illumination through said flat-panel display screen and are also located behind said screen.

60. The self-contained interactive video display system as recited in claim 54 wherein said infrared camera is located behind said liquid crystal display screen and pointed toward said screen, allowing said infrared camera to view the area on and in front of the screen.

61. The self-contained interactive video display system as recited in claim 54 further comprising a series of mirror strips positioned at a distance from said screen to correct distortion of a view of said infrared camera.

62. The self-contained interactive video display system as recited in claim 54 further comprising a Fresnel lens positioned adjacent to said screen to correct distortion of a view of said infrared camera.