

flat-panel display screen and pointed toward said screen, allowing said camera to view the area on and in front of the screen.

11. The self-contained interactive video display system as recited in claim 1 further comprising a series of mirror strips positioned at a distance from said screen to correct distortion of a view of said camera.

12. The self-contained interactive video display system as recited in claim 1 further comprising a Fresnel lens positioned adjacent to said screen to correct distortion of a view of said camera.

13. The self-contained interactive video display system as recited in claim 1 further comprising a wavelength-based diffuser positioned adjacent to said flat-panel display screen.

14. The self-contained interactive video display system as recited in claim 13, where said wavelength-based diffuser is substantially transparent to infrared light and substantially translucent to visible light.

15. The self-contained interactive video display system as recited in claim 13, where said wavelength-based diffuser is a material that causes Rayleigh scattering.

16. The self-contained interactive video display system as recited in claim 1 further comprising a diffuser positioned adjacent to said flat-panel display screen, wherein said diffuser is substantially translucent to light passing through said diffuser at an oblique angle and substantially transparent to light passing through said diffuser at a substantially perpendicular angle, wherein said first illuminator is placed at an oblique angle to said diffuser.

17. The self-contained interactive video display system as recited in claim 1 further comprising a scattering polarizer positioned adjacent to said flat-panel display screen and for scattering light from said first illuminator, and wherein said camera is sensitive to light of a polarization not scattered by said scattering polarizer.

18. The self-contained interactive video display system as recited in claim 17, wherein said flat-panel display is a liquid crystal display panel, and wherein said scattering polarizer is oriented such that light polarized in a direction for which said scattering polarizer scatters light passes through said liquid crystal display panel and light polarized in a direction for which said scattering polarizer does not scatter light is absorbed by said liquid crystal display panel.

19. The self-contained interactive video display system as recited in claim 17, further comprising a linear polarizer for polarizing light received at said camera at wavelengths to which said camera is sensitive, so as to allow said camera to ignore light scattered by said scattering polarizer.

20. The self-contained interactive video display system as recited in claim 1 further comprising a diffusing material that can change from substantially translucent to substantially transparent, wherein said diffusing material is substantially translucent when said first illuminator is visible to a human user on said front side of said flat-panel display screen, and is substantially transparent when said camera is detecting objects in front of said flat-panel display screen, wherein said diffusing material is placed behind said flat-panel display screen.

21. The self-contained interactive video display system as recited in claim 1, wherein said second illuminator is strobed in time with exposures of said camera.

22. The self-contained interactive video display system as recited in claim 1 wherein an image of said camera is calibrated to said visual image such that said interaction

caused by said object is matched to a physical position of said object proximate to said the screen.

23. The self-contained interactive video display system as recited in claim 1 wherein said self-contained interactive video display system is operable to determine information about the distance of said object from the said screen.

24. The self-contained interactive video display system as recited in claim 23 wherein said camera is a stereo camera.

25. The self-contained interactive video display system as recited in claim 23 wherein said camera is a time-of-flight camera.

26. The self-contained interactive video display system as recited in claim 25 wherein said time-of-flight camera is positioned such that said time-of-flight camera does not reflect back onto itself.

27. The self-contained interactive video display system as recited in claim 1 wherein said self-contained interactive video display system provides touchscreen functionality when said object is proximate said screen.

28. The self-contained interactive video display system as recited in claim 27 further comprising a transparent touchscreen adjacent said front side of said screen.

29. The self-contained interactive video display system as recited in claim 27 further comprising an edge-lit transparent sheet adjacent said front side of said screen, and wherein said camera is operable to distinguish light created when said object comes in contact with said edge-lit transparent sheet.

30. The self-contained interactive video display system as recited in claim 1 wherein said object is a body part of a human user.

31. The self-contained interactive video display system as recited in claim 1, wherein said camera and said second illuminator comprise a time-of-flight camera.

32. The self-contained interactive video display system as recited in claim 1, wherein a plurality of time-of-flight cameras are placed in a manner so as to provide complete coverage of the area in front of the display and angled so as to prevent specular reflection into said time-of-flight cameras due to said screen.

33. A method for presenting an interactive visual image using a self-contained interactive video display system, said method comprising:

displaying a visual image on a flat-panel display screen, wherein said visual image is for presentation to a user on a front side of said flat-panel display screen;

illuminating a back side of said flat-panel display screen with visible light;

illuminating an object on said front side of said flat-panel display screen;

detecting interaction of said object with said visual image through said flat-panel display screen; and

changing said visual image in response to said interaction.

34. The method as recited in claim 33 wherein illuminating said object comprises illuminating said object with infrared illumination, and wherein said detecting said interaction comprises detecting infrared illumination projected onto said object.

35. The method as recited in claim 33 wherein said self-contained interactive video display system is comprised within an enclosure, and wherein one side of said enclosure comprises said flat-panel display screen.