

CLAIMS:

1. A projection system for displaying projected images, comprising:
a projection device configured to project one or more images onto a receiver surface;
a viewing device configured to be worn by a user and comprising a frame holding a screen and a focusing lens, wherein:
the screen comprises the receiver surface and a viewing surface disposed opposite the receiver surface, and the screen is configured to permit transmission of the projected one or more images through the screen from the receiver surface to the viewing surface such that the projected one or more images are viewable on the viewing surface; and
the focusing lens is configured to focus the projected one or more images viewable on the viewing surface for the user when wearing the viewing device; and
a tracking system configured to determine a location and orientation of the receiver surface of the viewing device,
wherein the projection device is configured to adjust image properties of the projected one or more images based at least in part on the determined location and orientation of the receiver surface.
2. The projection system of claim 1, wherein the image properties comprise a distortion, an offset, a scale, or some combination thereof.
3. The projection system of claim 1, wherein the viewing device comprises an infrared transceiver configured to output infrared location signals to the tracking system, wherein the tracking system is configured to receive the infrared location signals and determine the location and orientation of the viewing device based at least in part on the infrared location signals.
4. The projection system of claim 1, wherein the viewing device comprises a passive infrared tracking feature, wherein the tracking system comprises an infrared device configured to detect the passive infrared tracking feature and determine the location and orientation of the viewing device based at least in part on detection of the passive infrared

tracking feature.

5. The projection system of claim 4, wherein the passive infrared tracking feature comprises an infrared ink pattern, infrared LED illuminators, or both.

6. The projection system of claim 1, wherein the tracking system comprises a camera configured to detect an optically visible tracking feature disposed on the viewing device, wherein the tracking system is configured to determine the location and orientation of the viewing device based at least in part on the detected optically visible tracking feature.

7. The projection system of claim 6, wherein the optically visible tracking feature comprises a retroreflective marker, QR codes, optically visible ink patterns, or some combination thereof.

8. The projection system of claim 1, wherein the viewing device comprises a global positioning system (GPS) device configured to output a GPS signal to the tracking system, and wherein the tracking system is configured to determine the location of the viewing device based at least in part on the GPS signal.

9. The projection system of claim 1, wherein the projection device is configured to project the one or more images based on image projection instructions received from a control system.

10. The projection system of claim 1, wherein the one or more images are configured to communicate a text-based message, a picture, a video, or some combination thereof.

11. The projection system of claim 1, comprising a reflective surface configured to reflect the projected one or more images onto the receiver surface of the screen of the viewing device.

12. The projection system of claim 1, comprising a projection device

actuator configured to move the projection device based at least in part on the location and orientation of the viewing device.

13. A projection system for displaying projected images, comprising:
a control system configured to generate image projection instructions based at least in part on a location and an orientation of a receiver surface;
a plurality of projection devices, wherein each projection device of the plurality of projection devices is configured to project a unique image onto at least a portion of the receiver surface based on the image projection instructions;
a viewing device configured to be worn by a user and comprising a frame holding a screen and a focusing lens, wherein:
the screen comprises the receiver surface and a viewing surface, and the screen is configured to permit transmission of a blended image from the receiver surface, through the screen, to the viewing surface such that the blended image is viewable on the viewing surface, and the blended image is formed from the unique images projected onto the receiver surface from the plurality of projection devices; and
the focusing lens is configured to focus the blended image for the user associated with the viewing device; and
a tracking system configured to determine a location and an orientation of the receiver surface,
wherein the plurality of projection devices are configured to adjust respective image properties of the unique images based at least in part on the image projection instructions to form the blended image.

14. The projection system of claim 13, wherein the screen comprises a rear projection material, and wherein the rear projection material is at least partially translucent such that the screen permits transmission of the blended image through the screen from the receiver surface to the viewing surface.

15. The projection system of claim 13, wherein the viewing device comprises glasses configured to be worn by the user.

16. The projection system of claim 13, wherein the screen is removably mounted to the viewing device.

17. The projection system of claim 15, wherein the viewing surface comprises a surface of the screen facing toward the user such that the blended image is viewable for the user.

18. The projection system of claim 13, wherein each projection device of the plurality of projection devices is configured to project the unique images to a plurality of viewing devices.

19. A method for displaying projected images, comprising:
determining a location and orientation of a viewing device via a tracking system, wherein the viewing device is configured to be worn by a user and comprises a frame configured to hold a screen and a focusing lens;
adjusting image properties of one or more images, via one or more projection devices, based at least in part on the location and orientation of the viewing device; and
projecting the one or more images, via the one or more projection devices, onto a receiver surface of the screen of the viewing device, wherein a viewing surface of the screen is disposed opposite the receiver surface, wherein the screen is configured to permit transmission of the one or more images through the screen from the receiver surface to the viewing surface such that the one or more images are viewable for the user on the viewing surface through the focusing lens.

20. The method of claim 19, wherein the image properties comprise a distortion, an offset, a scale, or some combination thereof.