CLAIMS

1. An illusion system, comprising:

an image source configured to project light beams; a retroreflector;

a beam splitter positioned between the retroreflector and a viewing area, wherein the beam splitter is configured to receive the light beams from the image source and reflect the light beams toward the retroreflector, the retroreflector being configured to reflect the light beams back toward and through the beam splitter to define a real image for a viewer in the viewing area; ~~and~~

a controller configured to control the image source to adjust the real image based on a control parameter detected by at least one sensor~~.~~; and

an additional image source configured to coordinate with the beam splitter to provide a Pepper's Ghost Effect in conjunction with the real image being provided by the image source, the beam splitter, and the retroreflector.

2. The illusion system of claim 1, comprising the at least one sensor configured to detect a location of a display object, wherein the controller is configured to control the image source to provide the real image such that it appears spatially associated with the display object.

3. The illusion system of claim 2, wherein the controller is configured to instruct an actuator to move the image source such that a location of intersecting light beams defining the real image correlates to the location of the display object.

4. The illusion system of claim 1, wherein the at least one sensor comprises a camera configured to detect a location including an orientation of a display object.

5. The illusion system of claim 1, wherein the image source comprises a light assembly and an actuator configured to mechanically move at least a portion of the light assembly based on instructions from the controller.

6. The illusion system of claim 1, wherein the image source comprises a light assembly configured to manipulate outputs to control imagery provided by the image

source based on instructions from the controller.

7. The illusion system of claim 6, wherein the light assembly comprises a liquid crystal display, a light matrix, a plurality of light strings, a strip of light emitting diodes, a projector, or a combination thereof.

8. The illusion system of claim 1, wherein the beam splitter comprises glass, plexiglass, plastic, water, a dihedral corner reflector array (DCRA), or any combination thereof.

9. The illusion system of claim 1, comprising a ride vehicle operable to pass through a location of intersecting light beams defining the real image, wherein the controller is configured to change or disable presentation of the real image in response to a location of the ride vehicle relative to the location of the intersecting light beams.

10. The illusion system of claim 1, wherein the beam splitter is rotatable and the controller is configured to control movement of the beam splitter based on detected movement of a guest or ride vehicle.

~~11. The illusion system of claim 1, comprising an additional image source configured to coordinate with the beam splitter to provide a Pepper's Ghost effect in conjunction with the real image being provided by the image source, the beam splitter, and the retroreflector.~~

11. ~~12.~~ The illusion system of claim 1, wherein the beam splitter is configured to reflect at least 80% of the light beams toward the retroreflector.

12. ~~13.~~ An illusion system, comprising:

one or more sensors configured to detect a location of a handheld object or person within a viewing area;

a ride vehicle configured to trigger the one or more sensors when transitioning along a section of a ride track;

a beam splitter comprising a layer of material configured to both reflect and transmit light, wherein the beam splitter is positioned between the viewing area and a

retroreflector;

an image source configured to direct light beams toward the beam splitter such that at least a portion of the light beams are reflected from the beam splitter toward the retroreflector ~~and then reflected from the retroreflector back through the beam splitter to define a real image; and~~

and then reflected from the retroreflector back through the beam splitter to define a real image; and

a controller configured to control presentation of the real image based on data from the one or more sensors indicative of the location.

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13. ~~14.~~ The illusion system of claim ~~13, comprising a ride vehicle configured to trigger the one or more sensors when transitioning along a section of a ride track.~~

~~15.~~ ~~The illusion system of claim 13~~, wherein the beam splitter comprises a transparent film and the retroreflector comprises a layer of retroreflective material.

14. ~~16.~~ The illusion system of claim ~~13~~ 12, wherein the one or more sensors comprise a camera configured to detect the location and orientation of the handheld object.

15. The illusion system of claim 12, wherein the controller is configured to determine an expected position of the real image and further control presentation of the real image based on the expected position.

16. The illusion system of claim 15, wherein the controller is configured to determine the expected position of the real image in response to detecting motion data associated with the location of the person.

17. The illusion system of claim 12, wherein the image source is configured to turn off based on a location of the ride vehicle, the location of the person, or any combination thereof.

18. ~~17.~~ A method of providing a real image with an illusion system, the method comprising:

projecting light beams from an image source;

receiving the light beams from the image source at a beam splitter positioned between a retroreflector and a viewing area and reflecting the light beams from the beam splitter toward the retroreflector;

reflecting the light beams from the retroreflector back toward and through the beam splitter to define a real image for a viewer in the viewing area; ~~and~~

controlling the image source to adjust the real image based on a control parameter

detected by at least one sensor; and

providing a Pepper's Ghost effect by projecting additional light beams onto the beam splitter from an additional image source.

19. ~~18.~~ The method of claim ~~17~~ 18, wherein reflecting the light beams from the beam splitter toward the retroreflector comprises reflecting approximately 90% of the light beams and allowing approximately 10% of the light beams to pass through the beam splitter.

20. ~~19.~~ The method of claim ~~17, comprising~~ 18 ~~providing a Pepper's Ghost effect by projecting additional light beams onto the beam splitter from an additional image source.~~

~~20. The method of claim 17~~, comprising actuating a physical effect in conjunction with controlling the image source based on the control parameter.