

CLAIMS

1. A system comprising:
 - a source of electromagnetic radiation configured to emit electromagnetic radiation into an active playing area;
 - a sensing device configured to receive the electromagnetic radiation after being reflected from a retro-reflective material of an article positioned in the active playing area and configured to generate data based on receiving reflected electromagnetic radiation from a series of article positions, wherein the source of electromagnetic radiation and the sensing device are each in respective fixed positions and are completely disposed behind a window separating them from the active playing area, and the source of electromagnetic radiation and the sensing device are obscured from view through the window from the active playing area by camouflaging material; and
 - a controller configured to process the data generated by the sensing device to determine whether the series of article positions correlate to a stored gesture and output a control signal to actuate an effect when the series of article positions correlate to the stored gesture.
2. The system of claim 1, comprising the article including the retro-reflective material, wherein the retro-reflective material is a solid component of the article or the retro-reflective material is a coating on the article.
3. The system of claim 2, wherein the article comprises a wand.
4. The system of claim 1, wherein the controller is configured to interpolate between the series of article positions to facilitate determining whether the series of article positions correlate to the stored gesture.
5. The system of claim 1, wherein the source of electromagnetic radiation is configured to flood the active playing area with the electromagnetic radiation.
6. The system of claim 1, wherein the source of electromagnetic radiation is configured to emit a series of light beams into the active playing area.

7. The system of claim 1, wherein the source of electromagnetic radiation and the sensing device are located apart from one another.
8. The system of claim 1, wherein the active playing area includes a portion of a path for a ride vehicle, the source of electromagnetic radiation and the sensing device are at respective fixed positions located outside of the path, and the sensing device is configured to detect activity occurring in a passenger compartment of the ride vehicle when positioned on the portion of the path.
9. The system of claim 1, wherein the sensing device is within a ride vehicle.
10. The system of claim 1, comprising an effect device configured to perform the effect.
11. The system of claim 1, comprising a ride vehicle within the active playing area and an effect device configured to perform the effect and positioned outside of the active playing area.
12. The system of claim 1, wherein the sensing device and the controller are configured to communicate via one or more cables.
13. The system of claim 1, wherein the controller comprises a gesture recognition module including a plurality of pre-programmed gesture characteristics.
14. A method comprising:
 - emitting electromagnetic radiation into an active playing area from an emitter;
 - receiving the electromagnetic radiation at a sensing device after the electromagnetic radiation has been retro-reflected from a retro-reflective material of an article positioned in the active playing area, wherein the emitter and the sensing device are each in respective fixed positions and are completely disposed behind a window separating them from the active playing area, and the emitter and the sensing device are obscured from view through the window from the active playing area by camouflaging material;

generating data with the sensing device based on receiving reflected electromagnetic radiation from a series of article positions; and

processing the data generated by the sensing device with a controller to determine whether the series of article positions correlate to a stored gesture and outputting a control signal from the controller when the series of article positions correlate to the stored gesture.

15. The method of claim 14, comprising actuating an effect based on the control signal.

16. The method of claim 15, comprising receiving an actuation signal from the controller at an effect device and then actuating the effect.

17. The method of claim 14, comprising flooding the active playing area with the electromagnetic radiation.

18. The method of claim 14, comprising emitting light beams into the active playing area in series or simultaneously.

19. The method of claim 14, comprising generating the series of article positions with a wand comprising the article with the retro-reflective material.

20. A system, comprising:

an electromagnetic radiation emitter;

a sensing device configured to receive the electromagnetic radiation after being reflected from a retro-reflective material of a plurality of articles positioned in the active playing area and configured to generate data based on receiving reflected electromagnetic radiation from a series of article positions of the plurality of articles;

a controller communicatively coupled to the sensing device;

a processing engine of the controller;

a feature extraction module of the processing engine configured to extract relevant data from the data generated by the sensing device such that the controller is configured to simultaneously identify and track a respective series of positions of each

article of the plurality of articles and to treat each respective series of positions as a potential gesture performed using a respective article of the plurality of articles; and

a gesture recognition module of the processing engine configured to analyze the relevant data to determine whether any of the respective series of positions result in a respective gesture that adequately matches a stored gesture associated with an actuatable amusement park effect.

21. The system of claim 20, comprising a pre-processing module of the processing engine configured to modify operation of the sensing device based on light conditions in the active playing area.

CLAIMS

1. A system comprising:
 - a source of electromagnetic radiation configured to emit electromagnetic radiation into an active playing area;
 - a sensing device configured to receive the electromagnetic radiation after being reflected from a retro-reflective material of an article positioned in the active playing area and configured to generate data based on receiving reflected electromagnetic radiation from a series of article positions, wherein the source of electromagnetic radiation and the sensing device are each in respective fixed positions and are completely disposed behind a window separating them from the active playing area, and the source of electromagnetic radiation and the sensing device are obscured from view through the window from the active playing area by camouflaging material; and
 - a controller configured to process the data generated by the sensing device to determine whether the series of article positions correlate to a stored gesture and output a control signal to actuate an effect when the series of article positions correlate to the stored gesture.
2. The system of claim 1, comprising the article including the retro-reflective material, wherein the retro-reflective material is a solid component of the article or the retro-reflective material is a coating on the article.
3. The system of claim 2, wherein the article comprises a wand.
4. The system of claim 1, wherein the controller is configured to interpolate between the series of article positions to facilitate determining whether the series of article positions correlate to the stored gesture.
5. The system of claim 1, wherein the source of electromagnetic radiation is configured to flood the active playing area with the electromagnetic radiation.
6. The system of claim 1, wherein the source of electromagnetic radiation is configured to emit a series of light beams into the active playing area.
7. The system of claim 1, wherein the source of electromagnetic radiation and the sensing device are located apart from one another.

8. The system of claim 1, wherein the active playing area includes a portion of a path for a ride vehicle, the source of electromagnetic radiation and the sensing device are at respective fixed positions located outside of the path, and the sensing device is configured to detect activity occurring in a passenger compartment of the ride vehicle when positioned on the portion of the path.
9. The system of claim 1, wherein the sensing device is within a ride vehicle.
10. The system of claim 1, comprising an effect device configured to perform the effect.
11. The system of claim 1, comprising a ride vehicle within the active playing area and an effect device configured to perform the effect and positioned outside of the active playing area.
12. The system of claim 1, wherein the sensing device and the controller are configured to communicate via one or more cables.
13. The system of claim 1, wherein the controller comprises a gesture recognition module including a plurality of pre-programmed gesture characteristics.
14. A method comprising:
 - emitting electromagnetic radiation into an active playing area from an emitter;
 - receiving the electromagnetic radiation at a sensing device after the electromagnetic radiation has been retro-reflected from a retro-reflective material of an article positioned in the active playing area, wherein the emitter and the sensing device are each in respective fixed positions and are completely disposed behind a window separating them from the active playing area, and the emitter and the sensing device are obscured from view through the window from the active playing area by camouflaging material;
 - generating data with the sensing device based on receiving reflected electromagnetic radiation from a series of article positions; and
 - processing the data generated by the sensing device with a controller to determine whether the series of article positions correlate to a stored gesture and outputting a control signal from the controller when the series of article positions correlate to the stored gesture.

15. The method of claim 14, comprising actuating an effect based on the control signal.
16. The method of claim 15, comprising receiving an actuation signal from the controller at an effect device and then actuating the effect.
17. The method of claim 14, comprising flooding the active playing area with the electromagnetic radiation.
18. The method of claim 14, comprising emitting light beams into the active playing area in series or simultaneously.
19. The method of claim 14, comprising generating the series of article positions with a wand comprising the article with the retro-reflective material.
20. A system, comprising:
 - an electromagnetic radiation emitter;
 - a sensing device configured to receive the electromagnetic radiation after being reflected from a retro-reflective material of a plurality of articles positioned in the active playing area and configured to generate data based on receiving reflected electromagnetic radiation from a series of article positions of the plurality of articles, wherein the electromagnetic radiation emitter and the sensing device are each in respective fixed positions and are completely disposed behind a window separating them from the active playing area, and the electromagnetic radiation emitter and the sensing device are obscured from view through the window from the active playing area by camouflaging material;
 - a controller communicatively coupled to the sensing device;
 - a processing engine of the controller;
 - a feature extraction module of the processing engine configured to extract relevant data from the data generated by the sensing device such that the controller is configured to simultaneously identify and track a respective series of positions of each article of the plurality of articles and to treat each respective series of positions as a potential gesture performed using a respective article of the plurality of articles;
 - and
 - a gesture recognition module of the processing engine configured to analyze the relevant data to determine whether any of the respective series of positions result

in a respective gesture that adequately matches a stored gesture associated with an actuatable amusement park effect.

21. The system of claim 20, comprising a pre-processing module of the processing engine configured to modify operation of the sensing device based on light conditions in the active playing area.