CLAIMS

1. A system comprising:

a ride seat disposed within an amusement park ride and having a support against which a rider can be restrained;

a restraint associated with the ride seat and configured to restrain the rider within the ride seat, wherein the restraint comprises a first portion having a first connector, a second portion having a second connector, a first retro-reflective marker disposed on the first connector and a second retro-reflective marker disposed on the second connector, wherein the first connector and the second connector are configured to couple to one another to secure the restraint and thereby restrain the rider within the ride seat; and

a tracking system configured to determine whether the restraint is secured based at least on identification and tracking of the first and second retro-reflective markers, wherein the tracking system comprises:

an emitter configured to emit light toward the first and second retro- reflective markers; a detector configured to detect retro-reflected light from the first and second retro-reflective markers; and

a controller coupled to the detector and configured to identify respective positions of the first and second retro-reflective markers based on detection of the retro-reflected light, wherein the controller is configured to determine a status of the restraint indicative of whether the first and second connectors are coupled based on relative positioning of the first and second retro-reflective markers, and wherein the controller is configured to adjust an operational parameter of the amusement park ride based on the status of the restraint.

2. The system of claim 1, wherein the controller is further configured to determine the position of the first connector relative to the second connector based on a distance between the first retro-reflective marker and the second retro-reflective marker.

3. The system of claim 1, wherein the controller is further configured to determine whether the restraint is secured based on a change in distance between the first retro-reflective marker and the second retro-reflective marker, wherein the first connector is connected to the second connector when the restraint is secured.

4. The system of claim 3, wherein the controller is further configured to associate a decrease in the distance between the first retro-reflective marker and the second retro-reflective marker from a first distance to a predetermined distance with securement of the restraint.

5. The system of claim 3, wherein the controller is further configured to associate an increase in the distance between the first retro-reflective marker and the second retro-reflective marker with a configuration in which the restraint is not secured.

6. The system of claim 1, wherein the controller is further configured to monitor a distance between the first retro-reflective marker and the second retro-reflective marker during operation of the amusement park ride to monitor the position of the first connector relative to the second connector and thereby continuously evaluate proper restraint of the rider.

7. The system of claim 1, wherein the controller is further configured to actuate an audible or visual alert via an interface communicatively coupled to the controller based on a change in a distance between the first connector and the second connector during operation of the amusement park ride.

8. The system of claim 1, wherein the first retro-reflective marker reflects light at a first wavelength and the second retro-reflective marker reflects light at a second wavelength that is different from the first wavelength.

9. The system of claim 1, wherein the restraint is a belt formed by the first portion and the second portion, wherein the first portion comprises a first end portion having the first connector and a second end portion having the second connector.

10. The system of claim 1, wherein the first retro-reflective marker comprises a first plurality of retro-reflective markers and the second retro-reflective marker comprises a second plurality of retro-reflective markers.

11. A method comprising:

emitting electromagnetic radiation from an emitter of a tracking system toward a plurality of retro-reflective markers disposed on a ride seat of an amusement park ride, wherein the ride seat comprises a restraint comprising a first connector and a second connector, wherein a first portion of the plurality of retro-reflective markers is disposed on the first connector and a second portion of the plurality of retro-reflective markers is disposed on the second connector, wherein the first connector and the second connector are configured to couple to one another to secure the restraint and thereby restrain a rider within the ride seat, and wherein the tracking system is configured to identify and track the plurality of retro-reflective markers;

retro-reflecting the electromagnetic radiation with the plurality of retro-reflective markers; detecting the retro-reflected electromagnetic radiation with a detector of the tracking system;

identifying respective positions of the first and second portions of the plurality of retro-reflective markers based on detection of the retro-reflected electromagnetic radiation;

determining a status of the restraint indicative of whether the first and second connectors are coupled based on relative positioning of the first and second portions of the plurality of retro-reflective markers using a controller communicatively coupled to the tracking system;

providing, using the controller, a user-perceivable indication of whether the restraint is secured or not secured based on the relative positioning of the first and second portions of the plurality of retro-reflective markers; and adjusting an operational parameter of the amusement park ride based on the status of the restraint.

12. The method of claim 11, further comprising determining, using the controller, the relative positioning of the first and second portions of the plurality of retro-reflective markers based on a distance between the first and second portions of the plurality of retro-reflective markers, and associating a decrease in the distance between the first portion of the plurality of retro-reflective markers and the second portion of the plurality of retro-reflective markers with securement of the restraint.

13. The method of claim 11, further comprising determining, using the controller, a position of the first and second connectors based on a distance between the first and second portions of the plurality of retro-reflective markers, and associating, using the controller, an increase in the distance between the first portion of the plurality of retro-reflective markers and the second

portion of the plurality of retro-reflective markers with a configuration in which the restraint is not secured.

14. The method of claim 13, further comprising monitoring, using the controller, a change in the distance between the first portion of the plurality of retro-reflective markers and the second portion of the plurality of retro-reflective markers during operation of the amusement park ride to monitor whether the first connector and the second connector are coupled and thereby evaluate proper restraint of the rider.

15. The method of claim 11, further comprising actuating a device in response to determining the position of the first connector relative to the second connector, wherein the device is communicatively coupled to the amusement park ride.

16. A system comprising:

a ride system disposed within an amusement park ride, wherein the ride system comprises: a ride seat having a support against which a rider can be restrained;

a restraint associated with the ride seat and having a secured and unsecured configuration, wherein the secured configuration is configured to prevent the rider from exiting the ride seat;

a first plurality of retro-reflective markers configured to reflect light at a first wavelength; and a second plurality of retro-reflective markers configured to reflect light at a second wavelength different from the first wavelength;

a tracking system configured to determine whether the restraint is secured based at least on identification and tracking of the first and second plurality of retro-reflective markers, wherein the tracking system comprises:

an emitter configured to emit light toward the first and second plurality of the retro-reflective markers;

a detector configured to detect the reflected light from the first and second plurality of the retro-reflective markers; and

a controller coupled to the detector and configured to identify respective positions of the first and second plurality of retro-reflective markers based on detection of the reflected light, wherein the controller is configured to determine whether the restraint is in the secured or unsecured configuration based on relative positioning of the first and second plurality

of retro-reflective markers, and wherein the controller is configured to adjust an operational parameter of the amusement park ride based on a status of the restraint.

17. The system of claim 16, wherein the restraint comprises a belt comprising a first portion having a first end portion and a first connector disposed on the first end portion and a second portion having a second end portion and a second connector disposed on the second end portion, and wherein the first plurality of retro-reflective markers are disposed on the first connector and the second plurality of retro-reflective markers are disposed on the second connector.

18. The system of claim 17, wherein the controller is further configured to determine a position of the first and second connectors based on a distance between the first and second pluralities of retro-reflective markers and associate a decrease to a predetermined distance between the first plurality of retro-reflective markers and the second plurality of retro-reflective markers with the securement of the restraint.

19. The system of claim 17, wherein the controller is further configured to determine a position of the first and second connectors based on a distance between the first and second portions of the plurality of retro-reflective markers and associate an increase in the distance between the first plurality of retro-reflective markers and the second plurality of retro-reflective markers with the unsecured configuration.