CLAIMS:

~~1.~~ 1. An attraction system, comprising:

a sensor configured to emit an output signal toward a ~~guest area~~ride vehicle of the attraction system and receive a reflected signal from the ~~guest area~~ride vehicle; and

a control system communicatively coupled to the sensor, wherein the control system is configured to:

receive data from the sensor, wherein the data is indicative of a distance of signal travel based on the output signal and the reflected signal;

compare the distance of signal travel with an unoccupied distance value corresponding to a distance between the sensor and the ~~guest area~~ride vehicle being unoccupied; and

determine whether the ~~guest area~~ride vehicle is occupied based on comparing a difference between the distance of signal travel and the unoccupied distance value with a threshold.

~~2.~~ 2. The attraction system of claim 1, wherein the control system is configured to determine the ~~guest area~~ride vehicle is occupied in response to determining the difference exceeds the threshold, wherein the threshold corresponds to a distance value for a body metric associated with a particular portion of the guest area toward which the sensor is configured to emit the output signal.

~~3.~~ 3. The attraction system of claim 1, wherein the control system is configured to determine the ~~guest area~~ride vehicle is unoccupied in response to determining the difference does not exceed the threshold.

~~4.~~ 4. The attraction system of claim 1, wherein the control system is configured to operate the attraction system in a calibration mode while the ~~guest area~~ride vehicle is an unoccupied ~~guest area,~~ride vehicle, and the control system, in the calibration mode, is configured to:

instruct the sensor or a separate sensor to emit output calibration signals toward the unoccupied ~~guest area~~ride vehicle and receive reflected calibration signals from the unoccupied ~~guest area~~ride vehicle;

receive calibration data from the sensor or the separate sensor, wherein the calibration data is based on the output calibration signals and reflected calibration signals;

determine a calibration distance associated with the calibration data; and ~~store the calibration distance as the unoccupied distance value.~~

store the calibration distance as the unoccupied distance value.

~~5.~~ 5. The attraction system of claim 1, wherein the ~~guest area~~ride vehicle is an unoccupied ~~guest area~~ride vehicle between an unloading area and a loading area, and the control system is configured to:

instruct the sensor or a separate sensor to emit output calibration signals toward the unoccupied ~~guest area~~ride vehicle and receive reflected calibration signals from the unoccupied ~~guest area~~ride vehicle;

receive calibration data from the sensor or the separate sensor, wherein the calibration data is based on the output calibration signals and reflected calibration signals;

determine a calibration distance associated with the calibration data; and ~~store the calibration distance as the unoccupied distance value.~~

store the calibration distance as the unoccupied distance value.

~~6.~~ 6. The attraction system of claim 1, wherein the sensor is a first sensor, the data is first data, the attraction system comprises a second sensor configured to determine a positioning of the first sensor relative to the ~~guest area~~ride vehicle, the second sensor is communicatively coupled to the control system, and the second sensor is configured to transmit second data indicative of an updated positioning of the first sensor relative to the ~~guest area~~ride vehicle.

~~7.~~ 7. The attraction system of claim 6, wherein the control system is configured to:

~~to:~~

set the unoccupied distance value to an updated unoccupied distance value based on the second data indicative of the updated positioning of the first sensor relative to the ~~guest area~~ride vehicle;

receive third data from the first sensor, wherein the third data is indicative of an additional distance of signal travel based on a second output signal from the first sensor and a second reflected signal detected by the first sensor while the first sensor is in the updated positioning relative to the ~~guest area~~ride vehicle;

compare the additional distance of signal travel with the updated unoccupied distance value; and

determine whether the ~~guest area~~ride vehicle is occupied based on the comparison between the additional distance of signal travel and the updated unoccupied distance value.

~~8. The attraction system of claim 1, wherein the guest area is a portion of a ride vehicle of the attraction system.~~

~~9.~~ 8. An attraction system, comprising:

a ride vehicle configured to travel along a ride path of the attraction system; ~~system;~~

a sensor configured to emit an output signal toward the ride vehicle and receive a reflected signal;

a control system communicatively coupled to the sensor, wherein the control system is configured to:

receive data from the sensor, wherein the data is based on the output signal and the reflected signal;

determine a current distance ~~between the sensor and the ride vehicle~~of signal travel based on the data;

compare the current distance with an unoccupied distance spanning between the ride vehicle and the sensor when the ride vehicle is unoccupied; and

determine whether the ride vehicle is occupied based on the comparison between the current distance and the unoccupied distance.

~~10.~~ 9. The attraction system of claim ~~9~~8, wherein the ride vehicle comprises a ride seat, and the sensor is configured to emit the output signal toward the ride seat.

~~11.~~ 10. The attraction system of claim ~~9~~8, wherein the control system is configured to determine the ride vehicle is occupied in response to a determination that the current distance is less than the unoccupied distance by an amount that exceeds a threshold distance.

~~12.~~ 11. The attraction system of claim ~~11~~10, wherein the control system is configured to determine a position of a guest in the ride vehicle, a size of the guest in the ride vehicle, or both, based on the output signal and the reflected signal.

~~13.~~ 12. The attraction system of claim ~~9~~8, wherein the control system is configured to store information associated with occupancy of the ride vehicle based on the determination of whether the ride vehicle is occupied.

~~14.~~ 13. The attraction system of claim ~~9~~8, wherein the sensor is not coupled to the ride vehicle.

~~15.~~ 14. The attraction system of claim ~~9~~8, wherein the control system is configured to determine whether a restraint is engaged based on the output signal and the reflected signal.

~~16.~~ 15. A non-transitory computer-readable medium comprising executable instructions, wherein the instructions, when executed by a processor, are configured to cause the processor to:

~~operate~~instruct a sensor to emit an output calibration signal to an unoccupied ride vehicle moving along a ride path of an attraction system ~~in~~during a calibration mode ~~to~~ of the attraction system;

receive a corresponding reflected calibration signal resulting from reflection of the output calibration signal during operation of the attraction system in the calibration mode;

receive first data associated with the output calibration signal and the corresponding reflected calibration signal from the sensor;

determine and store an unoccupied distance spanning between ~~a~~the sensor ~~of the attraction system~~ and ~~a guest area of~~ the ~~attraction system when the guest area is~~ unoccupied ride vehicle based on the first data;

~~operate~~instruct the sensor to emit an output signal to a ride vehicle moving along the ride path of the attraction system during an operating mode of the attraction system;

receive a corresponding reflected signal resulting from reflection of the output signal during operation of the attraction system in ~~an~~the operating mode ~~to~~ ;

receive second data associated with the output signal and the corresponding reflected signal from the sensor;

determine a current distance ~~spanning between the sensor or a separate sensor and the guest area~~of signal travel based on the second data;

compare the current distance with the unoccupied distance; and

determine whether the ~~guest area~~ride vehicle is occupied in the operating mode of the attraction system based on the comparison between the current distance and the unoccupied distance.

~~17.~~ 16. The non-transitory computer-readable medium of claim ~~16~~15, wherein the instructions, when executed by the processor, are configured to cause the processor to:

~~instruct the sensor to emit an output calibration signal toward the guest area and~~ receive ~~a corresponding reflected calibration signal;~~

~~receive~~third data associated with ~~the output calibration signal and the corresponding reflected calibration signal from the sensor; and~~an updated positioning of the sensor relative to the ride vehicle;

~~determine and store~~set the unoccupied distance to an updated unoccupied distance based on the third data ~~received from~~;

determine a subsequent current distance of signal travel when the sensor is in the updated positioning relative to the ride vehicle;

compare the ~~sensor.~~subsequent current distance with the updated unoccupied distance; and

determine whether the ride vehicle is occupied based on the comparison between the subsequent current distance and the updated unoccupied distance.

~~18.~~ 17. The non-transitory computer-readable medium of claim ~~17~~15, wherein the instructions, when executed by the processor, are configured to cause the processor to:

~~cause the separate sensor to emit an output signal toward the guest area and receive a corresponding reflected signal;~~

~~receive data associated with the output signal and the corresponding reflected signal from the separate sensor; and~~

~~determine the current distance based on the data received from the separate sensor.~~

19. The non-transitory computer-readable medium of claim 16, wherein the instructions, when executed by the processor, are configured to cause the processor to:

receive additional data associated with an updated positioning of the sensor relative to the guest area;

setmove the unoccupied distance to an updated unoccupied distance based on the additional data;

determine a subsequent current distance spanning between the sensor and the guest area when the sensor is in the updated positioning relative to the guest area;

compare the subsequent current distance with the updated unoccupied distance; and

determine whether the guest area is occupied based on the comparison between the subsequent current distance and the updated unoccupied distance.

20. The non-transitory computer-readable medium of claim 16, wherein ride vehicle along the ride path of the attraction system comprises a ride vehicle and a ride path, and in the calibration mode of the attraction system; and the operation mode, the instructions, when executed by the processor, are configured to cause the processor to

move the ride vehicle throughalong the ride path of the attraction system in the operating mode of the attraction system along the ride path..