CLAIMS:

1. A ride vehicle, comprising:

a riding assembly configured to carry a rider;

a base configured to couple to the riding assembly, wherein the base comprises a surface movement system configured to move the ride vehicle along a surface, a vertical movement system configured to move the riding assembly vertically relative to the base, and a roll system configured to move the riding assembly angularly relative to the base; ~~and~~

a control system configured to control the coordination of movements of the ride vehicle with movements of separate ride vehicles; and

wherein the vertical movement system comprises a vertical position sensor configured to output a signal indicative of a vertical position of the riding assembly and the control system is configured to coordinate actuation of the vertical movement system based on the vertical position and data received by the control system regarding vertical positioning of one or more of the separate ride vehicles.

2. The ride vehicle of claim 1, wherein the control system is configured to instruct the surface movement system to maneuver the ride vehicle with respect to the separate ride vehicles based on a common choreographed routine that includes transitioning the ride vehicle between a ride path and a rider boarding area.

3. The ride vehicle of claim 2, wherein the common choreographed routine includes a respective choreographed ride path for each ride vehicle of the ride vehicle and the separate ride vehicles.

4. The ride vehicle of claim 1, wherein the control system is configured to continuously control adjustment of a course of the ride vehicle based on positioning feedback for at least a subset of the separate ride vehicles.

5. The ride vehicle of claim 1, wherein the surface movement system is configured to turn the ride vehicle, spin the ride vehicle, and move the ride vehicle linearly.

6. The ride vehicle of claim 1, comprising a surface position sensor configured to output a signal indicative of a surface position of the ride vehicle along the surface.

7. The ride vehicle of claim 6, wherein the control system is configured to determine a relative position of the ride vehicle, with respect to one or more of the separate ride vehicles, based on the signal indicative of the surface position and data received by the control system regarding the one or more of the separate ride vehicles.

~~8. The ride vehicle of claim 1, wherein the vertical movement system comprises a vertical position sensor configured to output a signal indicative of a vertical position of the riding assembly and the control system is configured to coordinate actuation of the vertical movement system based on the vertical position and data received by the control system regarding vertical positioning of one or more of the separate ride vehicles.~~

~~9~~8. ~~A~~ The ride vehicle of claim 1, comprising:

~~a riding assembly configured to carry a rider;~~

~~a~~the base ~~configured to couple to the riding assembly,~~ wherein the base comprises ~~a surface movement system configured to move the ride vehicle along a surface and~~ a riding assembly movement system configured to move the riding assembly with respect to the base; and

the control system comprising a ride vehicle control system configured to:

receive a signal indicative of a position of the ride vehicle from a sensor; determine that a distance between the position of the ride vehicle and a corresponding position along a ride path exceeds a threshold distance; and

output a signal to the surface movement system indicative of instructions to adjust the position of the ride vehicle in response to determining that the distance exceeds the threshold distance.

~~10~~9. The ride vehicle of claim ~~9~~8, wherein the ride vehicle control system is configured to:

receive an indication of an obstacle positioned along the ride path; and output an additional signal to the surface movement system to adjust the position of the ride vehicle based on the obstacle along the ride path.

~~11~~10. The ride vehicle of claim ~~9~~8, wherein the ride vehicle control system is configured to determine whether the distance between the position of the ride vehicle and the corresponding position along the ride path exceeds the threshold distance at periodic intervals during operation of the ride vehicle.

~~12~~11. The ride vehicle of claim ~~9~~8, wherein the ride vehicle control system is configured to instruct the surface movement system and the riding assembly movement system to coordinate maneuvers with corresponding systems on separate ride vehicles based on a choreographed routine.

~~13~~12. The ride vehicle of claim ~~9~~8, wherein the ride vehicle control system is configured to determine the threshold distance based on the ride path, a weight of the ride vehicle, a type of the ride vehicle, a size of the ride vehicle, an additional weight of the rider, one or more rider inputs indicative of a desired experience, or a combination thereof.

~~14~~13. The ride vehicle of claim ~~9~~8, wherein the ride vehicle control system is configured to continuously control the adjustments of the position of the ride vehicle based on positioning feedback of at least one separate ride vehicle.

~~15~~14. The ride vehicle of claim ~~9~~8, wherein the ride vehicle control system is configured to receive data indicative of the ride path, the threshold distance, or both, from a ride control system.

~~16.~~ 15. A ride system, comprising:

a plurality of trackless ride vehicles configured to traverse a surface, wherein each trackless ride vehicle comprises:

a control system; and

a vertical movement system comprising a vertical position sensor configured to output a signal indicative of a vertical position of a riding assembly, wherein the control system is configured to coordinate actuation of the vertical movement system based on the vertical position and data received by the control system regarding vertical positioning of the trackless ride vehicle; and

a ride control system configured to:

send one or more choreographed ride paths to the plurality of trackless ride vehicles;

detect respective positions of the plurality of trackless ride vehicles relative to one another and relative to the one or more choreographed ride paths within a ride area; and

send a plurality of commands to the plurality of trackless ride vehicles to control movement of the plurality of trackless ride vehicles based on the respective positions of the plurality of trackless ride vehicles relative to one another and relative to the one or more choreographed ride paths.

~~17.~~ 16. The ride system of claim ~~16~~ 15, wherein the ride control system is configured to:

determine that a distance between the respective positions of the plurality of trackless ride vehicles is less than a threshold distance; and

send a signal to at least one ride vehicle of the plurality of trackless ride vehicles to adjust at least one position of the at least one ride vehicle within the ride area in response to determining that the distance is less than the threshold distance.

~~18.~~ 17. The ride system of claim ~~17~~ 16, wherein the ride control system is configured to determine the threshold distance based on the choreographed ride paths, a plurality of weights of the plurality of trackless ride vehicles, a plurality of types of the plurality of trackless ride vehicles, a plurality of sizes of the plurality of trackless ride vehicles, one or more weights of one or more riders riding the trackless ride vehicles, one or more rider inputs indicative of desired experiences for the one or more riders, or a combination thereof.

~~19.~~ 18. The ride system of claim ~~16~~ 15, wherein the ride control system is configured to send the plurality of commands to the plurality of trackless ride vehicles to

control movement of the plurality of trackless ride vehicles based on a common choreographed routine that includes the one or more choreographed ride paths, and transition the plurality of trackless ride vehicles between the one or more choreographed ride paths and a rider boarding area.

~~20.~~ 19. The ride system of claim ~~16~~ 15, wherein each of the one or more choreographed paths is representative of a movement of a respective ride vehicle of each of the plurality of trackless ride vehicles along the surface and representative of a movement of a riding assembly of the respective ride vehicle vertically and angularly with respect to a base of the respective ride vehicle.