CLAIMS:

What is claimed is:

1. A ride control system, comprising:

   a. a plurality of vehicle path sensors deployed at a predetermined location about a predefined vehicle path, each vehicle path sensor of the plurality of vehicle path sensors comprising a unique position identifier;

   b. a plurality of ride vehicles deployable about the predefined vehicle path, each ride vehicle comprising a ride vehicle controller, a ride vehicle communication system, and a ride vehicle detector configured to be interoperative with the plurality of vehicle path sensors;

   c. a data communication system deployed proximate the predefined vehicle path, the data communication system operatively in communication with the plurality of vehicle path sensors and with the plurality of ride vehicles;

   d. a control system operatively in communication with the data communication system, with the plurality of vehicle path sensors, and with the plurality of ride vehicles deployed about the predefined vehicle path; and

   e. software operatively resident in the control system, the software comprising:

      i. deterministic location software, comprising a deterministic algorithm able to determine a current location of each ride vehicle of the plurality of ride vehicles currently deployed along the predefined vehicle path using the unique position identifiers of the plurality of vehicle path sensors;

      ii. deterministic spatial software, comprising a deterministic algorithm able to create a dynamic set of spatial coordinates describing a virtual space in real time around each ride vehicle of the plurality of ride vehicles, the virtual space defining a three-dimensional set of spatial coordinates in real-time,

based in part on the speed at which each ride vehicle is currently moving along the predefined ride vehicle path, which each ride vehicle of the plurality of ride vehicles is operable at or below a predetermined probability of physical contact with another ride vehicle of the plurality of ride vehicles; and

iii. vehicle control software, comprising a deterministic algorithm operative to:

a. adjust a plurality of physical characteristics from a predetermined set of physical characteristics of each ride vehicle of the plurality of ride vehicles based on the dynamic set of spatial coordinates and the determined current location of each ride vehicle of the plurality of ride vehicles; and

b. issue a command to change either or both of (a) a set of ride vehicle directives related to the plurality of physical characteristics for a first ride vehicle of the plurality of ride vehicles and (b) a set of ride vehicle directives related to the plurality of physical characteristics for a second ride vehicle of the plurality of ride vehicles to place the first ride vehicle and the second ride vehicle at a distance within which the first ride vehicle can operate without the probability of physical contact with the second ride vehicle.

2. The ride control system of Claim 1, wherein the ride vehicle communication system comprises a transceiver.

3. The ride control system of Claim 1, wherein:

a. the vehicle path sensor comprises an active sensor; and

b. the ride vehicle detector comprises a passive ride trigger operative to trigger the active sensor.

4. The ride control system of Claim 1, wherein:

a. the ride vehicle detector comprises an active sensor;

b. the vehicle path sensor comprises a passive sensor operative to trigger the active sensor.

5. The ride control system of Claim 4, wherein the passive sensor comprises a magnetically encoded strip.

6. The ride control system of Claim 1, wherein the vehicle path sensor comprises an acoustic positioning operator station (APOS) sensor.

7. The ride control system of Claim 1, wherein the data communication system comprises a high data rate communication system.

8. The ride control system of Claim 1, wherein the data communication system comprises a leaky coaxial communication system.

9. The ride control system of Claim 1, wherein the predefined vehicle path comprises a tracked vehicle path, a non-tracked vehicle path, or a combination thereof.

10. The ride control system of Claim 1, wherein the unique position identifier further comprises a predefined set of spatial coordinates related to a current position of the vehicle path sensor with respect to the predefined vehicle path.

11. The ride control system of Claim 1, wherein the control system is disposed proximate the predefined vehicle path.