CLAIMS

1. A system comprising:

one or more control computing devices configured to send first commands to one or more actuators of a vehicle in order to control deceleration, acceleration, and steering of the vehicle, and wherein the vehicle includes one or more user input devices operable by a driver to send second commands to control the one or more actuators in order to control the deceleration, acceleration, and steering of the vehicle;

wherein the vehicle is configured to operate in:

a manual driving mode in which the one or more input devices is operable by the driver to send the second commands to control the one or more actuators, wherein the second commands are prioritized over the first commands;

a first autonomous driving mode including a semi-autonomous driving configuration in which the one or more control computing devices are configured to send the first commands to control the one or more actuators, wherein the second commands are prioritized over the first commands; and

a second autonomous driving mode including a fully driverless configuration, in which the one or more control computing devices are configured to send the first commands to control the one or more actuators and wherein the first commands are prioritized over the second commands such that the second commands are not permitted to transition the vehicle from the fully driverless configuration to the first autonomous driving mode.

2. The system of claim 1, wherein the one or more computing devices are configured such that the first autonomous driving mode includes different requirements for entering than the second autonomous driving mode.

3. The system of claim 1, wherein the one or more computing devices are configured to prevent transitions from the manual driving mode to the second autonomous driving mode when the vehicle is in motion.

4. The system of claim 1, wherein the one or more computing devices are configured such that the first autonomous driving mode includes different requirements for transitioning to the manual driving mode than the second autonomous driving mode.

5. The system of claim 1, wherein the one or more computing devices are configured to transition from the first autonomous driving mode to the manual driving mode when any of the one or more actuators is operating in the manual driving mode.

6. The system of claim 5, wherein the one or more computing devices are configured such that when any of the one or more actuators is operating in the manual driving mode, the commands are ignored.

7. The system of claim 5, wherein the one or more actuators include a deceleration actuator configured to cause the vehicle to deceleration, an acceleration actuator configured to cause the vehicle to accelerate, and a steering actuator configured to change an orientation of the vehicle.

8. The system of claim 1, wherein the one or more computing devices are configured to prevent direct transitions from the first autonomous driving mode to the second autonomous driving mode.

9. The system of claim 1, wherein the one or more computing devices are configured to prevent direct transitions from the second autonomous driving mode to the first autonomous driving mode.

10. The system of claim 1, wherein the one or more computing devices are configured to operate the vehicle in a third autonomous driving mode, which allows the vehicle to transition from a fully autonomous configuration to the manual driving mode.

11. The system of claim 10, wherein the one or more computing devices are configured to operate the vehicle in the third autonomous driving mode based on a current location of the vehicle relative to a depot location.

12. The system of claim 11, wherein the one or more computing devices are configured to operate the vehicle in the third autonomous driving mode based whether the vehicle is at a specific location within the depot location.

13. The system of claim 11, wherein the one or more computing devices are configured to automatically transition the vehicle into the third autonomous driving mode when the vehicle reaches the depot location.

14. The system of claim 11, wherein the one or more computing devices are configured to prevent the vehicle from leaving the depot location until the one or more computing devices receive an instruction from a dispatching server computing device indicating that the vehicle is needed for providing transportation services.

15. The system of claim 1, wherein the one or more computing devices are configured to operate the vehicle in a first configuration of the second autonomous driving mode where the vehicle provides transportation services to passengers.

16. The system of claim 1, wherein the one or more computing devices are configured to operate the vehicle in a second configuration of the second autonomous driving mode where the vehicle provides transportation services using restrictions defined by a current status of the vehicle.

17. The system of claim 1, wherein the one or more computing devices are configured to allow transitions into the second autonomous driving mode only when a door of the vehicle is open.

18. The system of claim 1, wherein the manual driving mode is configured such that commands from the one or more control computing devices are invalidated and ignored by the one or more actuators.

19. The system of claim 1, further comprising the one or more user input devices.

20. The system of claim 1, further comprising the vehicle.