

What is claimed is:

1. A method for operating an autonomous vehicle, the method being implemented by one or more processors and comprising:
 - determining a confidence level for the autonomous vehicle, the confidence level indicating an ability of the autonomous vehicle to safely progress on a planned or current route to a destination;
 - when the confidence level is determined to be below a threshold value, identifying a second vehicle to guide the autonomous vehicle through at least a portion of the planned or current route; and
 - controlling the autonomous vehicle to track the second vehicle while progressing through the portion of the planned or current route.
2. The method of claim 1, wherein controlling the autonomous vehicle includes controlling the autonomous vehicle to follow the second vehicle.
3. The method of claim 1, wherein controlling the autonomous vehicle includes:
 - communicating a position of the second vehicle to the autonomous vehicle, and
 - using position information determined on the autonomous vehicle to track the second vehicle.
4. The method of claim 3, wherein controlling the autonomous vehicle includes:
 - communicating a visual identifier of the second vehicle to the autonomous vehicle, and
 - using the visual identifier as detected on the autonomous vehicle to track the second vehicle.
5. The method of claim 1, further comprising:
 - selecting a safe route to the destination which accommodates the ability of the autonomous vehicle; and
 - communicating at least a portion of the safe route to the second vehicle.

6. The method of claim 1, wherein identifying the second vehicle includes:
identifying a human driven vehicle which has a destination or route that is known.
7. The method of claim 6, wherein identifying the human driven vehicle includes identifying the second vehicle to be a human driven transport vehicle with a planned route that includes at least a first route position which overlaps or is sufficiently proximate to either (i) the autonomous vehicle, or (ii) to a location of the planned or current route of the autonomous vehicle.
8. The method of claim 1, wherein controlling the autonomous vehicle includes controlling the autonomous vehicle in performing one or more actions to locate and track the second vehicle.
9. The method of claim 8, wherein the one or more actions include:
parking the autonomous vehicle on the planned to current route, (ii) guiding the autonomous vehicle to a location that is not on the planned or current route to locate the second vehicle, or (iii) guiding the autonomous vehicle on an alternative route to locate the second vehicle.
10. The method of claim 1, wherein the second vehicle corresponds to a third-party vehicle that is independently driven.
11. The method of claim 1, further comprising:
providing a notification to the second vehicle which indicates that the autonomous vehicle is or will be tracking the second vehicle.
12. The method of claim 1, further comprising generating a record that identifies the portion of the planned or current route for which the confidence level of the autonomous vehicle is determined to be below the threshold value.
13. The method of claim 12, further comprising updating a map of a region which includes the planned or current route, and distributing the updated map to one or more other autonomous vehicles for route planning.

14. The method of claim 12, further comprising:
- dispatching a human driven vehicle with one or more sensors to drive through the portion of the planned or current route for which the confidence level of the autonomous vehicle is determined to be below the threshold value;
 - collecting information from the one or more sensors of the dispatched human driven vehicle; and
 - updating a map of a region which includes a road segment of the planned or current route to include information for enabling other autonomous vehicle to progress through the road segment.
15. A method for operating an autonomous vehicle, the method being implemented by one or more processors and comprising:
- collecting information from the one or more sensors of a human driven vehicle as the human driven vehicle is driven in a given region;
 - determining, from the sensor information, one or more road segments which have a road condition that have a sufficiently high likelihood of impairing an autonomous vehicle in safely navigating through the one or more road segments; and
 - communicating information about the one or more road segments to one or more autonomous vehicles.
16. The method of claim 15, further comprising:
- analyzing the sensor information to determine data for guiding the autonomous vehicle through the one or more road segments; and
 - communicating instructions based on the information to the autonomous vehicle.
17. A non-transitory computer-readable medium that stores instructions, which when executed by one or more processors, cause the one or more processors to perform operations comprising:
- determining a confidence level for the autonomous vehicle, the confidence level indicating an ability of the autonomous vehicle to safely progress on a planned or current route to a destination;

when the confidence level is determined to be below a threshold value, identifying a second vehicle to guide the autonomous vehicle through at least a portion of the planned or current route; and

controlling the autonomous vehicle to track the second vehicle while progressing through the portion of the planned or current route.

18. The non-transitory computer-readable medium of claim 17, wherein controlling the autonomous vehicle includes controlling the autonomous vehicle to follow the second vehicle.

19. The non-transitory computer-readable medium of claim 17, wherein controlling the autonomous vehicle includes:

communicating a position of the second vehicle to the autonomous vehicle, and

using position information determined on the autonomous vehicle to track the second vehicle.

20. The non-transitory computer-readable medium of claim 19, wherein controlling the autonomous vehicle includes:

communicating a visual identifier of the second vehicle to the autonomous vehicle, and

using the visual identifier as detected on the autonomous vehicle to track the second vehicle.

21. A system for arranging transport, the system comprising:

a memory that stores a set of instructions;

one or more processors which use the instructions from the set of instructions to:

receive a transport request from a user; and

make a selection of a vehicle type for the user based at least in part on a destination specified with the transport request, the selection specifying whether a selected vehicle is an autonomous vehicle.

22. The system of claim 21, wherein the one or more processors make the selection based at least in part on a preference of the user for the vehicle type.

23. The system of claim 21, wherein the one or more processors make the selection based at least in part on an added requirement of the user.

24. The system of claim 21, wherein the one or more processors make the selection by (i) determining one or more routes for the autonomous vehicle to the destination, and (ii) comparing the one or more routes to an optimal route that can be provided by a human driven vehicle.

25. The system of claim 24, wherein the one or more processors make the selection by:

comparing lowest estimated time of arrival for the autonomous vehicle with a lowest estimated time of arrival for the human driven vehicle.

26. The system of claim 24, wherein the one or more processors make the selection by:

comparing a distance traveled to the destination for the autonomous vehicle with a distance traveled to the destination for the human driven vehicle.

27. The system of claim 24, wherein the one or more processors make the selection by:

comparing a road type for a selected route of the autonomous vehicle with a road type for a selected route of the human driven vehicle.

28. The system of claim 24, wherein the one or more processors make the selection by determining an availability parameter for a second vehicle to lead the autonomous vehicle through at least a portion of a selected route.

29. The system of claim 24, wherein the one or more processors:
determine one of an alternative pickup location or destination for the transport request in order to (i) determine a route that accommodates an ability of the

autonomous vehicle, (ii) reduce an estimated time of arrival in using the autonomous vehicle for the transport request, and/or (iii) reduce a distance traveled in using the autonomous vehicle for the transport request.

30. The system of claim 21, wherein the one or more processors make the selection of the vehicle type by (i) determining a route using the destination, and (ii) predicting whether the autonomous vehicle will need to request assistance on the route.

31. The system of claim 30, wherein the one or more processor predict whether the autonomous vehicle will need to request assistance based on geographic specific information about a temporal event or condition affecting one or more road segments of the route.

32. The system of claim 21, wherein the one or more processors make the selection of the vehicle type by (i) determining a route using the destination, and (ii) predicting whether the autonomous vehicle will need to request a human driven vehicle to provide guide assistance.

33. The system of claim 32, wherein the one or more processors make the selection by calculating a cost for providing the autonomous vehicle as compared to a human driven vehicle.

34. The system of claim 21, wherein the one or more processors make the selection against the preference of the user, by providing a suggestion in favor of one of the autonomous vehicle or a human driven vehicle.

35. The system of claim 21, wherein the suggestion is based on a comparison of one or more of a cost or time of trip for the autonomous vehicle and the human driven vehicle.

36. A non-transitory computer-readable medium that stores instructions, which when executed by one or more processors, cause the one or more processors to perform operations comprising:

receiving a transport request from a user; and

making a selection of a vehicle type for the user based at least in part on a destination specified with the transport request, the selection specifying whether a selected vehicle is an autonomous vehicle.

37. The non-transitory computer-readable medium of claim 36, wherein making the selection is based at least in part on a preference of the user for the vehicle type.

38. The non-transitory computer-readable medium of 36, wherein making the selection is based at least in part on an added requirement of the user.

39. The non-transitory computer-readable medium of 36, wherein making the selection includes (i) determining one or more routes for the autonomous vehicle to the destination, and (ii) comparing the one or more routes to an optimal route that can be provided by a human driven vehicle.

40. A method for arranging transport, the method being implemented by one or more processors and comprising:
receiving a transport request from a user; and
making a selection of a vehicle type for the user based at least in part on a destination specified with the transport request, the selection specifying whether a selected vehicle is an autonomous vehicle.

41. A method for operating an autonomous vehicle, the method being implemented by one or more processors and comprising:
(a) detecting an event that impairs a confidence level of the autonomous vehicle in progressing through a current route;
(b) communicating information about the event to a remote source of guidance;
(c) receiving instructions from the remote source of guidance on handling the event; and
(d) implementing the instructions.

42. The method of claim 41, further comprising:
determining, on the autonomous vehicle, a set of alternative options for handling the event; and
communicating the set of alternative options to the remote source of guidance;
wherein receiving instructions includes receiving a selection of one of the alternative options of the set from the remote source of guidance.
43. The method of claim 41, wherein when (a) through (d) are performed in a duration that exceeds a threshold time limit, the autonomous vehicle decreases velocity.
44. The method of claim 43, wherein the threshold time limit is about 2 seconds.
45. The method of claim 41, wherein communicating information about the event includes selecting input from a subset of available sensors to communicate as information to the remote source of guidance.
46. The method of claim 45, wherein selecting input from the subset of available sensors to communicate as information to the remote source of guidance is based at least in part on a type of road segment on which the autonomous vehicle is traveling on.
47. The method of claim 45, wherein selecting input from a subset of available sensors to communicate as information to the remote source of guidance is based at least in part on a sensor characteristic of a sensor which detected the event.
48. The method of claim 45, wherein selecting input from a subset of available sensors to communicate as information to the remote source of guidance is based on a pre-determined rule based logic.
49. The method of claim 45, wherein selecting input from a subset of available sensors to communicate as information includes sequencing

communication of the information so that information from a first set of sensors is communicated during an initial duration, and information from a second set of sensors is communicated during a second duration.

50. The method of claim 41, further comprising generating an interface for a human operator at the remote source to respond to the communicated information.

51. The method of claim 50, wherein the interface includes a plurality of directional indicators, each directional indicator being selectable by the human operator to provide instructions to the autonomous vehicle for a directional movement that is responsive to detecting the event.

52. The method of claim 51, wherein the interface includes one or more indicators that are each selectable by the human operator to provide instructions to the autonomous vehicle for a velocity adjustment that is responsive to detecting the event.

53. The method of claim 51, wherein the interface includes an approximate time for a human operator at the remote source to provide input through the interface.

54. The method of claim 41, wherein detecting the event includes detecting an object in a roadway of the autonomous vehicle that is not recognized or recognized with a level of certainty that is below a threshold.

55. The method of claim 54, wherein detecting the object in the roadway includes detecting the object using a long range sensor.

56. A method for guiding an autonomous vehicle, the method being implemented by one or more processors and comprising:

(a) processing an alert from an autonomous vehicle, the alert including sensor information which indicates an uncertainty in how the autonomous vehicle should proceed on a trip;

(b) displaying an interface for a human operator based on the sensor information, the interface including a set of indicators, each indicator in the set indicating a direction or velocity adjustment;

(c) detecting a selection input from the human operator of one of the indicators in the set of indicators; and

(d) communicating an instruction to the autonomous vehicle to take an action in accordance with the direction or velocity adjustment indicated by the selection input of the human operator.

57. The method of claim 56, wherein one of the indicators in the set indicates a null direction or velocity adjustment.

58. The method of claim 56, wherein displaying the interface includes superimposing the interface on content generated from the sensor information.

59. The method of claim 56, wherein displaying the interface includes displaying a time remaining for the human operator to provide the selection input before the autonomous vehicle performs a default action.

60. A non-transitory computer-readable medium that stores instructions for guiding an autonomous vehicle, the instructions, when executed by one or more processors, causing the one or more processors to perform operations comprising:

(a) processing an alert from an autonomous vehicle, the alert including sensor information which indicates an uncertainty in how the autonomous vehicle should proceed on a trip;

(b) displaying an interface for a human operator based on the sensor information, the interface including a set of indicators, each indicator in the set indicating a direction or velocity adjustment;

(c) detecting a selection input from the human operator of one of the indicators in the set of indicators; and

(d) communicating an instruction to the autonomous vehicle to take an action in accordance with the direction or velocity adjustment indicated by the selection input of the human operator.