

CLAIMS

1. A method of controlling a vehicle in an autonomous driving mode, the method comprising:
 - maneuvering, by one or more processors, a vehicle in the autonomous driving mode using pre-stored map information identifying traffic flow directions;
 - receiving, by the one or more processors, data from a perception system of the vehicle identifying objects in an external environment of the vehicle related to a traffic redirection not identified in the map information;
 - using, by the one or more processors, the received data to identify two or more corridors of the traffic redirection, the two or more corridors being not identified in the map information and separated by at least one of the identified objects;
 - determining a direction of traffic flow through at least one of the two or more corridors;
 - selecting, by the one or more processors, one of the two or more corridors based on the determined direction of traffic flow through the at least one of the two or more corridors; and
 - controlling, by the one or more processors, the vehicle in the autonomous driving mode to enter and follow the selected one of the two or more corridors.
2. The method of claim 1, wherein determining the direction of traffic flow through the at least one of the two or more corridors comprises analyzing how opposing traffic relative to the vehicle would enter and pass through at least one of the two or more corridors.
3. The method of claim 1, wherein determining the direction of traffic flow through the at least one of the two or more corridors comprises analyzing signs proximate to any of the two or more corridors.
4. The method of claim 1, wherein determining the direction of traffic flow through the at least one of the two or more corridors comprises observing traffic through at least one of the two or more corridors.
5. The method of claim 1, further comprising:
 - receiving information from one or more computing devices of a second vehicle identifying the two or more corridors; and
 - determining the direction of traffic flow through at least one of the two or more corridors based on the received information.
6. The method of claim 1, further comprising:
 - after using the received data to identify the two or more corridors, sending a request to a computing device remote from the vehicle for instructions as to how to proceed; and
 - receiving the instructions, and wherein selecting the selected one of the one or more corridors is further based on the received instructions.

7. The method of claim 1, wherein using the received data to identify the two or more corridors of the traffic redirection, the two or more corridors separated by at least one of the identified objects, comprises:

responsive to determining, based on a proximity of two of the identified objects, that the vehicle is unable to pass through the two of the identified objects, identifying the two of the identified objects as a first cluster; and

identifying two or more corridors separated by at least the first cluster.

8. The method of claim 7, wherein using the received data to identify the two or more corridors of the traffic redirection, the two or more corridors separated by at least one of the identified objects, comprises:

identifying, based on the physical geometry of the location of at least the first cluster, at least one unclustered object not included in the at least first cluster,

identifying two sub-corridors of at least one of the two or more corridors, the two sub-corridors separated by the at least one unclustered object.

9. A system for controlling a vehicle in an autonomous driving mode, the system comprising one or more processors configured to:

maneuver a vehicle in the autonomous driving mode using pre-stored map information identifying traffic flow directions;

receive data from a perception system of the vehicle identifying objects in an external environment of the vehicle related to a traffic redirection not identified in the map information;

use the received data to identify two or more corridors of a traffic redirection, the one or more corridors being not identified in the map information and separated by at least one of the identified objects;

determine a direction of traffic flow through at least one of the two or more corridors;

select one of the two or more corridors based on the determined direction of traffic flow through the at least one of the two or more corridors; and

control the vehicle in the autonomous driving mode to enter and follow the selected one of the two or more corridors.

10. The system of claim 9, wherein the one or more processors are further configured to determine the direction of traffic flow through at least one of the two or more corridors by analyzing how opposing traffic relative to the vehicle would enter and pass through at least one of the two or more corridors.

11. The system of claim 9, wherein the one or more processors are further configured to determine the direction of traffic flow through at least one of the two or more corridors by analyzing signs proximate to any of the two or more corridors.

12. The system of claim 9, wherein the one or more processors are further configured to determine the direction of traffic flow through at least one of the two or more corridors by observing traffic through at least one of the two or more corridors.

13. The system of claim 9, wherein the one or more processors are further configured to:
receive information from one or more computing devices of a second vehicle identifying the two or more corridors; and
determine the direction of traffic flow through at least one of the two or more corridors based on the received information.

14. The system of claim 9, wherein the one or more processors are further configured to:
after using the received data to identify the two or more corridors, send a request to a computing device remote from the vehicle for instructions as to how to proceed; and
receive the instructions, and wherein selecting the one of the two or more corridors is further based on the received instructions.

15. The system of claim 9, wherein, to use the received data to identify the two or more corridors of the traffic redirection, the two or more corridors separated by at least one of the identified objects, the one or more processors are further configured to:
determine, based on a proximity of two of the identified objects, that the vehicle is unable to pass through the two of the identified objects and identify the two of the identified objects as a first cluster; and
identify two or more corridors separated by at least the first cluster.

16. The system of claim 15, wherein, to use the received data to identify the two or more corridors of the traffic redirection, the two or more corridors separated by at least one of the identified objects, the one or more processors are further configured to:
identify, based on the physical geometry of the location of at least the first cluster, at least one unclustered object not included in the at least first cluster,
identify two sub-corridors of at least one of the two or more corridors, the two sub-corridors separated by the at least one unclustered object.

17. The system of claim 9, further comprising the vehicle.

18. A non-transitory computer readable medium on which instructions are stored, the instructions, when executed by one or more processors, cause the one or more processors to perform a method of controlling a vehicle in an autonomous driving mode, the method comprising:
maneuvering a vehicle in the autonomous driving mode using pre-stored map information identifying traffic flow directions;

receiving data from a perception system of the vehicle identifying objects in an external environment of the vehicle related to a traffic redirection not identified in the map information;

using the received data to identify two or more corridors of a traffic redirection, the two or more corridors being not identified in the map information and separated by at least one of the identified objects;

determining a direction of traffic flow through at least one of the two or more corridors;

selecting one of the two or more corridors based on the determined direction of traffic flow through the at least one of the two or more corridors; and

controlling the vehicle in the autonomous driving mode to enter and follow the selected one of the two or more corridors.

19. The medium of claim 18, wherein determining the direction of traffic flow through the at least one of the two or more corridors comprises analyzing how opposing traffic relative to the vehicle would enter and pass through at least one of the two or more corridors.

20. The medium of claim 18, wherein determining the direction of traffic flow through the at least one of the two or more corridors comprises observing traffic through at least one of the two or more corridors.