

CLAIMS

1.

A traveling vehicle system comprising:

a host controller; and

a plurality of traveling vehicles that travel on a track having an intersection in a form of either a branching part or a merging part, that transmit to the host controller a passage permission request for the intersection through which the traveling vehicle is scheduled to pass, and that pass through the intersection if a passage permission for the passage permission request is received from the host controller but stop before the intersection if the passage permission is not received;

wherein

the host controller includes:

a memory storage that stores traveling vehicle information in which the passage permission request received from the traveling vehicle is associated with the traveling vehicle of the transmission origin thereof;

a priority traveling vehicle selector that selects a priority traveling vehicle from the plurality of traveling vehicles;

a first deriver that derives a first traveling vehicle, which is the transmission origin of the passage permission request for the branching part, from the traveling vehicle information already stored in the memory storage, at the time of receiving the passage permission request for the branching part from the priority traveling vehicle;

a merging part deriver that derives, from the traveling vehicle information stored in the memory storage,

a merging part through which the first traveling vehicle is scheduled to pass after the branching part; and

an intersection controller that transmits the passage permission for the derived merging part to the first traveling vehicle in priority to a second traveling vehicle that is scheduled to pass through the merging part from a direction different from a direction from which the first traveling vehicle is scheduled to pass through the merging part.

2.

The traveling vehicle system according to claim 1, comprising:

a second deriver that derives the second traveling vehicle, which is the transmission origin of the passage permission request for the branching part, from the traveling vehicle information already stored in the memory storage, at the time of receiving the passage permission request for the branching part from the priority traveling vehicle wherein

the intersection controller suspends transmission of the passage permission for the merging part to the second traveling vehicle in a case where the passage permission request for the merging part is received from the second traveling vehicle derived by the second deriver.

3.

The traveling vehicle system according to claim 1 or 2, wherein

the traveling vehicle includes:

a determiner that determines whether or not there is the intersection within a predetermined distance of

scheduled traveling of the traveling vehicle, on the basis of a current location of the traveling vehicle; and

a communicator that transmits the passage permission request for the intersection to the host controller if there is the intersection within this distance.

4.

The traveling vehicle system according to claim 3, wherein

the priority traveling vehicle has the predetermined distance that is relatively long among the plurality of traveling vehicles.

5.

The traveling vehicle system according to any one of claims 1 to 4, wherein

in a case where one of a plurality of directions toward the merging part can be set as a priority direction for which the passage permission is not granted to the traveling vehicle traveling toward the merging part from another direction so long as the passage permission request for the direction is present, the intersection controller suspends transmission of the passage permission for the merging part to the second traveling vehicle by setting the traveling direction of the first traveling vehicle traveling toward the merging part as a priority direction.

6.

The traveling vehicle system according to any one of claims 1 to 5, wherein:

when suspending transmission of the passage permission for the merging part to the second traveling vehicle, in a

case where the passage permission has been transmitted to a third traveling vehicle preceding the second traveling vehicle, the intersection controller transmits to the third traveling vehicle cancellation information to cancel the passage permission for the third traveling vehicle; and

the third traveling vehicle stops before the merging part if the merging part has not been passed when the cancellation information is received.

7.

A control method for a traveling vehicle system that comprises:

a host controller; and

a plurality of traveling vehicles that travel on a track having an intersection in a form of either a branching part or a merging part, that transmit to the host controller a passage permission request for the intersection through which the traveling vehicle is scheduled to pass, and that pass through the intersection if a passage permission for the passage permission request is received from the host controller but stop before the intersection if the passage permission is not received;

the control method comprising:

receiving the passage permission request from the traveling vehicle;

transmitting the passage permission to one of the plurality of traveling vehicles requesting the passage permission;

storing traveling vehicle information in which the passage permission request received from the traveling vehicle is associated with the traveling vehicle of the transmission origin thereof;

selecting a priority traveling vehicle from the plurality of traveling vehicles;

deriving a first traveling vehicle, which is the transmission origin of the passage permission request for the branching part, from the traveling vehicle information already stored, at the time of receiving the passage permission request for the branching part from the priority traveling vehicle;

deriving, from the stored traveling vehicle information, the merging part through which the first traveling vehicle is scheduled to pass after the branching part; and

transmitting the passage permission for the derived merging part to the first traveling vehicle in priority to a second traveling vehicle that is scheduled to pass through the merging part from a direction different from a direction from which the first traveling vehicle is scheduled to pass through the merging part.