

CLAIMS

1. A traveling vehicle system comprising:

a plurality of traveling vehicles;

a track in which a plurality of first tracks extending in a first direction and a plurality of second tracks extending in a second direction intersecting with the first direction are provided in a grid pattern, and on which the traveling vehicles can selectively proceed either in the first direction or in the second direction; and

a controller that is capable of communicating mutually with the plurality of traveling vehicles and that controls the plurality of traveling vehicles,

wherein the controller can set either an occupied state in which occupation permission is granted to a predetermined traveling vehicle or an unoccupied state in which occupation permission is not granted to any traveling vehicle to each cell that is defined by two first tracks adjacent to each other and two second tracks adjacent to each other as seen in a plan view, wherein the controller determines, when the traveling vehicle that is to proceed in the first direction from the predetermined cell toward a destination is present, whether or not to grant the traveling vehicle occupation permission for the cell adjacent to the predetermined cell in the first direction,

wherein the traveling vehicle proceeds in the first direction if occupation permission for the adjacent cell has been granted from the controller, whereas the traveling vehicle stops at the predetermined cell if occupation permission has not been granted, ~~and~~

wherein the controller assigns to the traveling vehicle a traveling instruction in which the cell situated at a plurality first predetermined number, which is more

than one, of cells ahead of the predetermined cell in the second direction is designated as a waypoint to the destination if the traveling vehicle has not obtained occupation permission for the adjacent cell and has continuously been in a stop state at the predetermined cell for a predetermined period of time,

wherein, when assigning the traveling instruction to the traveling vehicle, a traveling instruction is assigned to the traveling vehicle in which the cell situated at a second predetermined number, which is less than the first predetermined number, of cells ahead of the predetermined cell in the second direction if the cell is not present at the first predetermined number of cells ahead of the predetermined cell in the second direction, or if another traveling vehicle is present between the predetermined cell and the cell situated at the first predetermined number of cells ahead thereof in the second direction, and

wherein the second predetermined number is a maximum number by which the traveling vehicle can proceed from the predetermined cell in the second direction.

~~2. (Canceled)~~

~~23.~~ 23. The traveling vehicle system according to claim 1 or ~~2~~, wherein

in a case where the traveling vehicle has not obtained occupation permission for the adjacent cell and has continuously been in a stop state at the predetermined cell for a predetermined period of time, the controller cancels a traveling instruction to the destination that has been assigned to the traveling vehicle while maintaining the traveling instruction under management of its own.

34. The traveling vehicle system according to claim 32, wherein

when the traveling vehicle has reached or approached the waypoint, the controller assigns to the traveling vehicle a traveling instruction from the waypoint to the destination designated in the canceled traveling instruction.

45. A traveling vehicle control method for controlling a traveling vehicle in a traveling vehicle system including

a plurality of traveling vehicles, and

a track in which a plurality of first tracks extending in a first direction and a plurality of second tracks extending in a second direction intersecting with the first direction are provided in a grid pattern, and on which the traveling vehicles can selectively proceed either in the first direction or in the second direction,

the method comprising:

setting either an occupied state in which occupation permission is granted to a predetermined traveling vehicle or an unoccupied state in which occupation permission is not granted to any traveling vehicle to each cell that is defined by two first tracks adjacent to each other and two second tracks adjacent to each other as seen in a plan view;

determining, when the traveling vehicle that is to proceed in the first direction from the predetermined cell toward a destination is present, whether or not to grant the traveling vehicle occupation permission for the cell adjacent to the predetermined cell in the first direction;

causing the traveling vehicle to proceed in the first direction if occupation permission for the adjacent cell has been granted to the traveling vehicle, and causing the traveling vehicle to stop at the predetermined cell if occupation permission for the adjacent cell has not been granted to the traveling vehicle; and

assigning to the traveling vehicle a traveling instruction in which the cell situated at a ~~plurality~~ first predetermined number, which is more than one, of cells ahead of the predetermined cell in the second direction is designated as a waypoint to the destination if the traveling vehicle has not obtained occupation permission for the adjacent cell and has continuously been in a stop state at the predetermined cell for a predetermined period of time~~+~~,

wherein when assigning the traveling instruction to the traveling vehicle, a traveling instruction is assigned to the traveling vehicle in which the cell situated at a second predetermined number, which is less than the first predetermined number, of cells ahead of the predetermined cell in the second direction if the cell is not present at the first predetermined number of cells ahead of the predetermined cell in the second direction, or if another traveling vehicle is present between the predetermined cell and the cell situated at the first predetermined number of cells ahead thereof in the second direction, and

wherein the second predetermined number is a maximum number by which the traveling vehicle can proceed from the predetermined cell in the second direction.