

CLAIMS

[Claim 1]

A management method for a mobile object, comprising:

a step of acquiring movement conditions for a first mobile object that automatically moves; and

a step of setting based on the movement conditions a safety region as a region on a traveling direction side of the first mobile object in which an object is not expected to be positioned, wherein

the step of setting the safety region includes setting the safety region so that the safety region is widened in a lateral direction intersecting with the traveling direction as a speed of the first mobile object increases, and

the management method is further comprising:

a step of determining, in a case in which the first mobile object is scheduled to move toward a first direction in a passage in which a first route running toward the first direction and a second route arranged side by side with the first route in the lateral direction are set, whether a second mobile object is scheduled to move in the passage in the same time period; and

a step of causing, in a case in which the second mobile object is not scheduled to move in the passage in the same time period, a center route positioned to be closer to the second route side than the first route to be a route for the first mobile object.

[Claim 2]

The management method for the mobile object according to claim 1, wherein

the step of acquiring the movement conditions includes acquiring a reference value of a steering angle command for the first mobile object, and

the step of setting the safety region includes setting the safety region to include an assumed arrival position at which the first mobile object is assumed to arrive at a time of stoppage in a case in which the reference value of a steering angle command is input.

[Claim 3]

The management method for the mobile object according to claim 2, wherein

the step of acquiring the movement conditions includes acquiring a reference value of a torque command for stopping the first mobile object,

the step of setting the safety region includes setting the safety region to include the assumed arrival position at which the first mobile object is assumed to arrive at the time of

stoppage in a case in which the reference value of a steering angle command and the reference value of the torque command are input.

[Claim 4]

The management method for the mobile object according to any one of claims 1 to 3, further comprising:

a step of setting an upper limit speed of the first mobile object, wherein
the step of setting the upper limit speed includes setting the upper limit speed so that the object is not positioned in the safety region in a case in which the first mobile object moves at the upper limit speed.

[Claim 5]

The management method for the mobile object according to any one of claims 1 to 4, further comprising:

a step of causing, in a case in which the second mobile object is scheduled to move in the passage in the same time period, the first route to be a route for the first mobile object and causing the second route to be a route for the second mobile object.

[Claim 6]

The management method for the mobile object according to any one of claims 1 to 4, wherein,

in a case in which the second mobile object is scheduled to move in the passage in the same time period, and in a case in which preference information indicating that the first mobile object is preferentially caused to move is acquired, the center route is caused to be a route for the first mobile object.

[Claim 7]

A control method for a mobile object, comprising:

a step of acquiring movement conditions for the mobile object that automatically moves; and

a step of setting based on the movement conditions a safety region as a region on a traveling direction side of the mobile object in which an object is not expected to be positioned, wherein

the step of setting the safety region includes setting the safety region so that the safety region is widened in a lateral direction intersecting with the traveling direction as a speed of the mobile object increases, and

the control method is further comprising:

- a step of acquiring information on the safety region;
- a step of causing the mobile object to move while detecting whether the object is not positioned in the safety region;
- a step of detecting whether another mobile object is present in a first distance range on the traveling direction side of the mobile object;
- a step of detecting whether the object the position of which is fixed is present in a second distance range on the lateral direction side of the mobile object; and
- a step of switching a route along which the mobile object moves to the lateral direction side in a case in which another mobile object is absent in the first distance range and the object is absent in the second distance range.

[Claim 8]

A mobile object that automatically moves, comprising:

- a safety region acquisition unit that acquires information on a safety region that is set based on movement conditions for the mobile object as a region on a traveling direction side of the mobile object in which an object is not expected to be positioned; and
- a movement control unit that causes the mobile object to move while detecting whether the object is not positioned in the safety region, wherein
 - the safety region is widened in a lateral direction intersecting with the traveling direction as a speed of the mobile object increases, wherein
 - the mobile object determines, in a case in which the mobile object is scheduled to move toward a first direction in a passage in which a first route running toward the first direction and a second route arranged side by side with the first route in the lateral direction are set, whether a second mobile object different from the mobile object is scheduled to move in the passage in the same time period; and
 - causes, in a case in which the second mobile object is not scheduled to move in the passage in the same time period, a center route positioned to be closer to the second route side than the first route to be a route for the mobile object.

[Claim 9]

A mobile object that automatically moves, comprising:

- a safety region acquisition unit that acquires information on a safety region that is set based on movement conditions for the mobile object as a region on a traveling direction side of the mobile object in which an object is not expected to be positioned; and
- a movement control unit that causes the mobile object to move while detecting

whether the object is not positioned in the safety region, wherein

the safety region is widened in a lateral direction intersecting with the traveling direction as a speed of the mobile object increases, wherein

the movement control unit is comprising:

acquiring information on the safety region;

causing the mobile object to move while detecting whether the object is not positioned in the safety region;

detecting whether another mobile object is present in a first distance range on the traveling direction side of the mobile object;

detecting whether the object the position of which is fixed is present in a second distance range on the lateral direction side of the mobile object; and

switching a route along which the mobile object moves to the lateral direction side in a case in which another mobile object is absent in the first distance range and the object is absent in the second distance range.

[Claim 10]

A computer program that causes a computer to execute:

a step of acquiring movement conditions for a first mobile object that automatically moves; and

a step of setting based on the movement conditions a safety region as a region on a traveling direction side of the first mobile object in which an object is not expected to be positioned, wherein

the step of setting the safety region includes setting the safety region so that the safety region is widened in a lateral direction intersecting with the traveling direction as a speed of the first mobile object increases, and

the computer program is further comprising:

a step of determining, in a case in which the first mobile object is scheduled to move toward a first direction in a passage in which a first route running toward the first direction and a second route arranged side by side with the first route in the lateral direction are set, whether a second mobile object is scheduled to move in the passage in the same time period; and

a step of causing, in a case in which the second mobile object is not scheduled to move in the passage in the same time period, a center route positioned to be closer to the second route side than the first route to be a route for the first mobile object.

[Claim 11]

A computer program that causes a computer to execute:

- a step of acquiring movement conditions for a mobile object that automatically moves; and

- a step of setting based on the movement conditions a safety region as a region on a traveling direction side of the mobile object in which an object is not expected to be positioned, wherein

- the step of setting the safety region includes setting the safety region so that the safety region is widened in a lateral direction intersecting with the traveling direction as a speed of the mobile object increases, and

- the computer program is further executing:

- a step of acquiring information on the safety region;

- a step of causing the mobile object to move while detecting whether the object is not positioned in the safety region;

- a step of detecting whether another mobile object is present in a first distance range on the traveling direction side of the mobile object;

- a step of detecting whether the object the position of which is fixed is present in a second distance range on the lateral direction side of the mobile object; and

- a step of switching a route along which the mobile object moves to the lateral direction side in a case in which another mobile object is absent in the first distance range and the object is absent in the second distance range.