CLAIMS

1. An on-board device loaded in a moving vehicle traveling on a track, comprising a control device configured to control the traveling of the moving vehicle,

wherein the control device comprises:

a traveling route securement determining section configured to determine whether or not a traveling route has been secured, based on station related data that indicates data related to a branch on the traveling route of the moving vehicle and that is acquired from a station interface device of a station to which the branch belongs, and different moving vehicle related data that indicates data related to a different moving vehicle and that is acquired from the different moving vehicle on the traveling route; and

a traveling determining section configured to determine the traveling of the moving vehicle on the secured traveling route based on the different moving vehicle related data.

2. The on-board device according to claim 1, wherein the traveling route securement determining section comprises:

a different train state checking section configured to inquire the different moving vehicle related data to the different moving vehicle; and

a station state checking section configured to inquire the station related data to the station to which the branch belongs.

3. The on-board device according to claim 1 or 2, wherein the different moving vehicle related data comprises traveling permission limit position data indicating a range where the moving vehicle succeeding

to the different moving vehicle is permitted to travel, and

wherein the traveling determining section determines the traveling of the moving vehicle within the range where the traveling of the moving vehicle is permitted, based on the traveling permission limit position data.

4. The on-board device according to any one of claims 1 to 3, further comprising:

a radio LAN communication device configured to acquire the moving vehicle related data and the station related data through a radio LAN.

5. A signaling system comprising:

a plurality of the on-board devices, each of which is according to any one of claims 1 to 4 and is loaded in one of a plurality of moving vehicles traveling on the track; and

a plurality of station interface devices, each of which is bi-directionally communicable with the plurality of on-board devices, and is arranged in one of a plurality of the stations provided along the track to control the branch belonging to the station.

6. A control method of a moving vehicle traveling on a track, comprising:

securing a traveling route by an on-board device of the moving vehicle, based on station related data that indicates data related to a branch on a traveling route of the moving vehicle and that is acquired from a station interface device of a station to which the branch belongs, and different moving vehicle related data that indicates data related to a different moving vehicle and that is acquired from the different moving vehicle on the traveling route; and

determining the traveling of the moving vehicle on the secured traveling route based on the different moving vehicle related data.

7. The control method of the moving vehicle according to claim 6, wherein the securing the traveling route comprises:

inquiring the different moving vehicle related data to the different moving vehicle by the on-board device; and

inquiring the station related data to the station to which the branch belongs, by the on-board device.

8. The control method of the moving vehicle according to claim 6 or 7, wherein the different moving vehicle related data comprises traveling permission limit position data indicating a range where the moving vehicle succeeding to the different moving vehicle is permitted to travel, and

wherein the determining the traveling comprises:

determining the traveling of the moving vehicle in the range where the traveling of the moving vehicle is permitted, by the on-board vehicle, based on the traveling permission limit position data.

9. The control method of the moving vehicle according to any one of claims 6 to 8, further comprising:

acquiring the moving vehicle related data and the station related data through a radio LAN by the on-board device.

CLAIMS

1. An on-board device loaded in a moving vehicle traveling on a track, comprising a control device configured to control the traveling of the moving vehicle,

wherein the control device comprises:

a traveling route securement determining section configured to receive data indicating an operation mode from an operation control device, station related data related to a branch on a traveling route of the moving vehicle from a station interface device of a station to which the branch belongs, and different moving vehicle related data related to a different moving vehicle from the different moving vehicle preceding the moving vehicle on the traveling route, and to determine whether the traveling route has been secured, based on the station related data and the different moving vehicle related data, depending on the operation mode;

wherein the station related data comprises data indicating a switching position of the branch and data indicating whether or not the branch is locked, and the different moving vehicle related data comprises data indicating a position of the different moving vehicle and traveling permission limit position data indicating a range where the moving vehicle behind the different moving vehicle is permitted to travel; and

a traveling determining section configured to determine the traveling of the moving vehicle on the secured traveling route based on the different moving vehicle related data, depending on the operation mode.

2. The on-board device according to claim 1, wherein the traveling route securement determining section comprises:

a different train state checking section configured to inquire the different moving vehicle related data to the different moving vehicle; and

a station state checking section configured to inquire the station related data to the station to which the branch belongs.

3. The on-board device according to claim 1 or 2,

wherein the traveling determining section determines the traveling of the moving vehicle within the range where the moving vehicle is permitted to travel, based on the traveling permission limit position data.

4. The on-board device according to any one of claims 1 to 3, further comprising:

a radio LAN communication device configured to acquire the different moving vehicle related data and the station related data through a radio LAN.

5. A signaling system comprising:

a plurality of the on-board devices, each of which is according to any one of claims 1 to 4 and is loaded in one of a plurality of the moving vehicles traveling on the track; and

a plurality of said station interface devices, each of which is bi-directionally communicable with the plurality of on-board devices, and is arranged in one of a plurality of the stations provided along the traveling route to control the branch belonging to the station.

6. A control method of a moving vehicle traveling on a track, comprising:

receiving data indicating an operation mode mode from an operation control device by an on-board device of the moving vehicle;

receiving, by the on-board device, station related data related to a branch on a traveling route of the moving vehicle from a station interface device of a station to which the branch belongs and different moving vehicle related data related to a different moving vehicle preceding the moving vehicle from the different moving vehicle on the traveling route;

wherein the station related data comprises data indicating a switching position of the branch and data indicating whether or not the branch is locked, and the different moving vehicle related data comprises data indicating a position of the different moving vehicle and traveling permission limit position data indicating a range where the moving vehicle behind the different moving vehicle is permitted to travel;

determining, by the on-board device, whether the traveling route has been secured, based on the station related data and the different moving vehicle related data, depending on the operation mode; and

determining, by the on-board device, the traveling of the moving vehicle on the secured traveling route based on the different moving vehicle related data, depending on the operation mode.

7. The control method of the moving vehicle according to claim 6, wherein the securing the traveling route comprises:

inquiring the different moving vehicle related data to the different moving vehicle by the on-board device; and

inquiring the station related data to the station to which the branch belongs, by the on-board device.

8. The control method of the moving vehicle according to claim 6 or 7,

wherein the determining the traveling comprises:

determining the traveling of the moving vehicle in the range where the moving vehicle is permitted to travel, by the on-

board vehicle, based on the traveling permission limit position data.

9. The control method of the moving vehicle according to any one of claims 6 to 8, further comprising:

acquiring the moving vehicle related data and the station related data through a radio LAN by the on-board device.