Claims

1. A vehicle number data processing system that processes vehicle number data including information regarding a vehicle number of a number plate of a vehicle obtained by performing optical character recognition on an image, the vehicle number data processing system comprising:

a plurality of imaging devices which are installed so that imaging areas of the plurality of imaging devices overlap each other and which are configured to continuously capture an image of a road; and

a vehicle number data processing device configured to process the vehicle number data,

wherein the vehicle number data processing device includes a vehicle number data integration unit configured to reserve one of one piece of vehicle number data and another piece of vehicle number data along with deleting the other of the one piece of vehicle number data and the another piece of vehicle number data to thereby integrate the vehicle number data including information regarding the same vehicle,

wherein the one piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by one of the imaging devices, and the another piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices.

2. The vehicle number data processing system according to Claim 1,

wherein the vehicle number data processing device further includes a

same-vehicle-number searching unit configured to retrieve vehicle number data including the same information as information regarding the vehicle number included in vehicle number data obtained by performing the optical character recognition on the image captured by one of the imaging devices, among vehicle number data obtained by performing the optical character recognition on the images captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices, and

wherein the vehicle number data integration unit integrates (i) vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices and (ii) the vehicle number data retrieved by the same-vehicle-number searching unit.

3. The vehicle number data processing system according to Claim 2,

wherein the vehicle number data processing device further includes an optical character recognition determination unit configured to determine whether a portion unrecognizable through the optical character recognition is contained in a vehicle number obtained by performing the optical character recognition on the image captured by the one of the imaging devices, and

wherein the same-vehicle-number searching unit retrieves vehicle number data including the same information as information regarding the vehicle number if the optical character recognition determination unit determines that a portion unrecognizable through the optical character recognition is not contained in the vehicle number.

4. The vehicle number data processing system according to Claim 3,

wherein the vehicle number data processing device further includes a vehicle

number position determination unit configured to determine whether a position of a vehicle number obtained by performing the optical character recognition on the image captured by the one of the imaging devices in the image is within the imaging area of another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices, and

wherein the optical character recognition determination unit determines whether a portion unrecognizable through the optical character recognition is contained in the vehicle number if the vehicle number position determination unit determines that the position of the vehicle number is within the imaging area of another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices.

5. The vehicle number data processing system according to Claim 4,

wherein the vehicle number data processing device further includes an integrated data determination unit configured to determine whether the vehicle number data is the vehicle number data integrated by the vehicle number data integration unit, and

wherein the vehicle number position determination unit determines whether a position of a vehicle number included in the vehicle number data in the image is within the imaging area of another of the imaging devices if the integrated data determination unit determines that the vehicle number data is not the integrated vehicle number data.

6. The vehicle number data processing system according to Claim 5, further comprising:

a plurality of vehicle number data generation devices installed in one-to-one

correspondence with the imaging devices and configured to generate the vehicle number data by performing the optical character recognition on images captured by the corresponding imaging devices,

wherein the vehicle number data processing device further includes:

a check data reception unit configured to receive check data used to check soundness of a network from the vehicle number data generation devices;

a vehicle number data reception unit configured to receive the vehicle number data from the vehicle number data generation devices; and

a reception or non-reception determination unit configured to determine, after the vehicle number data reception unit receives the vehicle number data, whether the check data reception unit receives the check data, and

wherein, if the reception or non-reception determination unit determines that the check data reception unit receives the check data after the vehicle number data reception unit receives the vehicle number data, the integrated data determination unit determines whether the vehicle number data is the vehicle number data integrated by the vehicle number data integration unit.

7. The vehicle number data processing system according to Claim 6,

wherein, when the vehicle number data generation device performs the optical character recognition on an image captured by the corresponding imaging device and generates the vehicle number data including the information regarding the vehicle number of the number plate of the vehicle, the vehicle number data generation device generates the vehicle number data further including information regarding an initial time and information regarding a final time at which the vehicle is detected by the corresponding imaging device,

wherein the vehicle number data processing device further includes:

a character complementing unit configured to supplement a character of the vehicle number of a portion unrecognizable through the optical character recognition if the optical character recognition determination unit determines that the portion unrecognizable through the optical character recognition is contained in the vehicle number; and

a same-period-of-time searching unit configured to retrieve vehicle number data including the information regarding the initial time or the information regarding the final time corresponding to a period of time from the initial time to the final time included in vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices, among vehicle number data obtained by performing the optical character recognition on images captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices, if (i) the optical character recognition determination unit determines that a portion unrecognizable through the optical character recognition is contained in the vehicle number or (ii) the same-vehicle-number searching unit fails to retrieve vehicle number data including information regarding the same vehicle number, and

wherein the same-vehicle-number searching unit retrieves vehicle number data including the same information as information regarding the vehicle number in which the character is supplemented by the character complementing unit, among the vehicle number data retrieved by the same-period-of-time searching unit.

8. The vehicle number data processing system according to Claim 7,

wherein, when the vehicle number data generation device performs the optical character recognition on an image captured by the corresponding imaging device and

generates the vehicle number data including the information regarding the vehicle number of the number plate of the vehicle, the vehicle number data generation device generates the vehicle number data further including information regarding a kind of number plate of the vehicle,

wherein the vehicle number data processing device further includes a same-kind-of-number-plate searching unit configured to retrieve vehicle number data including the same information as information regarding the kind of number plate included in vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices, among vehicle number data obtained by performing the optical character recognition on images captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices, if the same-vehicle-number searching unit fails to retrieve vehicle number data including information regarding the same vehicle number among the vehicle number data retrieved by the same-period-of-time searching unit, and

wherein, if the same-kind-of-number-plate searching unit retrieves one of vehicle number data, the vehicle number data integration unit integrates the retrieved vehicle number data and vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices.

9. The vehicle number data processing system according to Claim 8,

wherein, when the vehicle number data generation device performs the optical character recognition on an image captured by the corresponding imaging device and generates the vehicle number data including the information regarding the vehicle number of the number plate of the vehicle, the vehicle number data generation device generates the vehicle number data further including information regarding a vehicle

speed of the vehicle,

wherein the vehicle number data processing device further includes a vehicle speed estimation unit configured to estimate a degree of accordance between the vehicle speed indicated by information included in vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices and the vehicle speed indicated by information included in vehicle number data obtained by performing the optical character recognition on the image captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices, if the same-kind-of-number-plate searching unit retrieves the plurality of vehicle number data, and

wherein the vehicle number data integration unit integrates the vehicle number data including information regarding the vehicle speeds of which the degree of accordance estimated by the vehicle speed estimation unit is high.

10. The vehicle number data processing system according to Claim 8 or 9,

wherein the vehicle number data processing device further includes a period-of-time estimation unit configured to estimate a degree of accordance between a period of time from the initial time to the final time indicated by information included in vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices and a period of time from the initial time to the final time indicated by information included in vehicle number data obtained by performing the optical character recognition on the image captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices, if the same-kind-of-number-plate searching unit retrieves the plurality of vehicle number data, and

wherein the vehicle number data integration unit integrates the vehicle number data including information regarding the times of which the degree of accordance estimated by the period-of-time estimation unit is high.

11. The vehicle number data processing system according to any one of Claims 8 to 10,

wherein, when the vehicle number data generation device performs the optical character recognition on an image captured by the corresponding imaging device and generates the vehicle number data including the information regarding the vehicle number of the number plate of the vehicle, the vehicle number data generation device generates the vehicle number data further including information regarding a detection position of the vehicle, in regard to detection positions of all vehicles detected during a period of time in which the vehicle is detected by the corresponding imaging device,

wherein the vehicle number data processing device further includes a detection position estimation unit configured to estimate a degree of accordance between the detection position indicated by information included in vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices and the detection position indicated by information included in vehicle number data obtained by performing the optical character recognition on the image captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices, if the same-kind-of-number-plate searching unit retrieves the plurality of vehicle number data, and

wherein the vehicle number data integration unit integrates the vehicle number data including information regarding the detection positions of which the degree of accordance estimated by the detection position estimation unit is high.

12. The vehicle number data processing system according to any one of Claims 8 to 11,

wherein the vehicle number data processing device further includes an imaging time determination unit configured to determine whether an imaging time of an image which is being subjected to the optical character recognition by each of the vehicle number data generation devices is a time prior to a final time at which a vehicle included in vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices is detected, if the same-period-of-time searching unit or the same-kind-of-number-plate searching unit fails to retrieve the vehicle number data, and

wherein, if the imaging time determination unit determines that the imaging time is not the time prior to the final time, the vehicle number data integration unit sets vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices as the integrated vehicle number data.

13. A vehicle number data processing method of processing vehicle number data including information regarding a vehicle number of a number plate of a vehicle obtained by performing optical character recognition on an image, the vehicle number data processing method comprising:

a vehicle number data integration step of reserving one of one piece of vehicle number data and another piece of vehicle number data along with deleting the other of the one piece of vehicle number data and the another vehicle number data to thereby integrate the vehicle number data including information regarding the same vehicle,

wherein the one piece of vehicle number data include information regarding a

vehicle number obtained by performing the optical character recognition on an image captured by one of the imaging devices installed so that imaging areas of a plurality of the imaging devices overlap each other and configured to continuously capture an image of a road, and the another piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices.

14. A vehicle number data processing device of processing vehicle number data including information regarding a vehicle number of a number plate of a vehicle obtained by performing optical character recognition on an image, the vehicle number data processing device comprising:

a vehicle number data integration unit configured to reserve one of one piece of vehicle number data and another piece of vehicle number data along with deleting the other of the one piece of vehicle number data and the another vehicle number data to thereby integrate the vehicle number data including information regarding the same vehicle,

wherein the one piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by one of the imaging devices installed so that imaging areas of a plurality of the imaging devices overlap each other and configured to continuously capture an image of a road, and the another piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices.

15. A program causing a computer to function as a vehicle number data processing device that processes vehicle number data including information regarding a vehicle number of a number plate of a vehicle obtained by performing optical character recognition on an image, the program causing the computer to function as:

a vehicle number data integration unit configured to reserve one of one piece of vehicle number data and another piece of vehicle number data along with deleting the other of the one piece of vehicle number data and the another piece of vehicle number data to thereby integrate the vehicle number data including information regarding the same vehicle,

wherein the one piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by one of the imaging devices installed so that imaging areas of a plurality of the imaging devices overlap each other and configured to continuously capture an image of a road, and the another piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices.

16. A recording medium that records a program causing a computer to function as a vehicle number data processing device that processes vehicle number data including information regarding a vehicle number of a number plate of a vehicle obtained by performing optical character recognition on an image, the recording medium that records the program causing the computer to function as:

a vehicle number data integration unit configured to reserve one of one piece of

vehicle number data and another piece of vehicle number data along with deleting the other of the one piece of vehicle number data and the another vehicle number data to thereby integrate the vehicle number data including information regarding the same vehicle,

wherein the one piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by one of the imaging devices installed so that imaging areas of a plurality of the imaging devices overlap each other and configured to continuously capture an image of a road, and the another piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices.

Amended Claims

[Accepted on July 25, 2013 (25. 07. 2013) by the International Bureau of the WIPO]

1. (Amended) A vehicle number data processing system that processes vehicle number data including information regarding a vehicle number of a number plate of a vehicle obtained by performing optical character recognition on an image, the vehicle number data processing system comprising:

a plurality of imaging devices which are installed so that imaging areas of the plurality of imaging devices overlap each other and which are configured to continuously capture an image of a road; and

a vehicle number data processing device configured to process the vehicle number data, wherein the vehicle number data processing device includes:

a vehicle number data integration unit configured to reserve one of one piece of vehicle number data and another piece of vehicle number data along with deleting the other of the one piece of vehicle number data and the another piece of vehicle number data to thereby integrate the vehicle number data including information regarding the same vehicle, wherein the one piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by one of the imaging devices, and the another piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices;

a same-vehicle-number searching unit configured to retrieve vehicle number data including the same information as information regarding the vehicle number included in vehicle number data obtained by performing the optical character recognition

on the image captured by the one of the imaging devices, among vehicle number data obtained by performing the optical character recognition on the images captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices;

an optical character recognition determination unit configured to determine whether a portion unrecognizable through the optical character recognition is contained in a vehicle number obtained by performing the optical character recognition on the image captured by the one of the imaging devices; and

a vehicle number position determination unit configured to determine whether a position of a vehicle number obtained by performing the optical character recognition on the image captured by the one of the imaging devices in the image is within the imaging area of another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices;

wherein the vehicle number data integration unit integrates (i) vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices and (ii) the vehicle number data retrieved by the same-vehicle-number searching unit,

the same-vehicle-number searching unit retrieves vehicle number data including the same information as information regarding the vehicle number if the optical character recognition determination unit determines that a portion unrecognizable through the optical character recognition is not contained in the vehicle number, and

the optical character recognition determination unit determines whether a portion unrecognizable through the optical character recognition is contained in the vehicle number if the vehicle number position determination unit determines that the position of the vehicle number is within the imaging area of another of the imaging

devices having the imaging area overlapping the imaging area of the one of the imaging devices.

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Amended) The vehicle number data processing system according to Claim 1,

wherein the vehicle number data processing device further includes an integrated data determination unit configured to determine whether the vehicle number data is the vehicle number data integrated by the vehicle number data integration unit, and

wherein the vehicle number position determination unit determines whether a position of a vehicle number included in the vehicle number data in the image is within the imaging area of another of the imaging devices if the integrated data determination unit determines that the vehicle number data is not the integrated vehicle number data.

6. The vehicle number data processing system according to Claim 5, further comprising:

a plurality of vehicle number data generation devices installed in one-to-one correspondence with the imaging devices and configured to generate the vehicle number data by performing the optical character recognition on images captured by the corresponding imaging devices,

wherein the vehicle number data processing device further includes:

a check data reception unit configured to receive check data used to check

soundness of a network from the vehicle number data generation devices;

a vehicle number data reception unit configured to receive the vehicle number data from the vehicle number data generation devices; and

a reception or non-reception determination unit configured to determine, after the vehicle number data reception unit receives the vehicle number data, whether the check data reception unit receives the check data, and

wherein, if the reception or non-reception determination unit determines that the check data reception unit receives the check data after the vehicle number data reception unit receives the vehicle number data, the integrated data determination unit determines whether the vehicle number data is the vehicle number data integrated by the vehicle number data integration unit.

7. The vehicle number data processing system according to Claim 6,

wherein, when the vehicle number data generation device performs the optical character recognition on an image captured by the corresponding imaging device and generates the vehicle number data including the information regarding the vehicle number of the number plate of the vehicle, the vehicle number data generation device generates the vehicle number data further including information regarding an initial time and information regarding a final time at which the vehicle is detected by the corresponding imaging device,

wherein the vehicle number data processing device further includes:

a character complementing unit configured to supplement a character of the vehicle number of a portion unrecognizable through the optical character recognition if the optical character recognition determination unit determines that the portion unrecognizable through the optical character recognition is contained in the vehicle

number; and

a same-period-of-time searching unit configured to retrieve vehicle number data including the information regarding the initial time or the information regarding the final time corresponding to a period of time from the initial time to the final time included in vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices, among vehicle number data obtained by performing the optical character recognition on images captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices, if (i) the optical character recognition determination unit determines that a portion unrecognizable through the optical character recognition is contained in the vehicle number or (ii) the same-vehicle-number searching unit fails to retrieve vehicle number data including information regarding the same vehicle number, and

wherein the same-vehicle-number searching unit retrieves vehicle number data including the same information as information regarding the vehicle number in which the character is supplemented by the character complementing unit, among the vehicle number data retrieved by the same-period-of-time searching unit.

8. The vehicle number data processing system according to Claim 7,

wherein, when the vehicle number data generation device performs the optical character recognition on an image captured by the corresponding imaging device and generates the vehicle number data including the information regarding the vehicle number of the number plate of the vehicle, the vehicle number data generation devices generates the vehicle number data further including information regarding a kind of number plate of the vehicle,

wherein the vehicle number data processing device further includes a

same-kind-of-number-plate searching unit configured to retrieve vehicle number data including the same information as information regarding the kind of number plate included in vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices, among vehicle number data obtained by performing the optical character recognition on images captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices, if the same-vehicle-number searching unit fails to retrieve vehicle number data including information regarding the same vehicle number among the vehicle number data retrieved by the same-period-of-time searching unit, and

wherein, if the same-kind-of-number-plate searching unit retrieves one of vehicle number data, the vehicle number data integration unit integrates the retrieved vehicle number data and vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices.

9. The vehicle number data processing system according to Claim 8,

wherein, when the vehicle number data generation device performs the optical character recognition on an image captured by the corresponding imaging device and generates the vehicle number data including the information regarding the vehicle number of the number plate of the vehicle, the vehicle number data generation devices generates the vehicle number data further including information regarding a vehicle speed of the vehicle,

wherein the vehicle number data processing device further includes a vehicle speed estimation unit configured to estimate a degree of accordance between the vehicle speed indicated by information included in vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices

and the vehicle speed indicated by information included in vehicle number data obtained by performing the optical character recognition on the image captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices, if the same-kind-of-number-plate searching unit retrieves the plurality of vehicle number data, and

wherein the vehicle number data integration unit integrates the vehicle number data including information regarding the vehicle speeds of which the degree of accordance estimated by the vehicle speed estimation unit is high.

10. The vehicle number data processing system according to Claim 8 or 9,

wherein the vehicle number data processing device further includes a period-of-time estimation unit configured to estimate a degree of accordance between a period of time from the initial time to the final time indicated by information included in vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices and a period of time from the initial time to the final time indicated by information included in vehicle number data obtained by performing the optical character recognition on the image captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices, if the same-kind-of-number-plate searching unit retrieves the plurality of vehicle number data, and

wherein the vehicle number data integration unit integrates the vehicle number data including information regarding the times of which the degree of accordance estimated by the period-of-time estimation unit is high.

11. The vehicle number data processing system according to any one of Claims 8 to

10,

wherein, when the vehicle number data generation device performs the optical character recognition on an image captured by the corresponding imaging device and generates the vehicle number data including the information regarding the vehicle number of the number plate of the vehicle, the vehicle number data generation device generates the vehicle number data further including information regarding a detection position of the vehicle, in regard to detection positions of all vehicles detected during a period of time in which the vehicle is detected by the corresponding imaging device,

wherein the vehicle number data processing device further includes a detection position estimation unit configured to estimate a degree of accordance between the detection position indicated by information included in vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices and the detection position indicated by information included in vehicle number data obtained by performing the optical character recognition on the image captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices, if the same-kind-of-number-plate searching unit retrieves the plurality of vehicle number data, and

wherein the vehicle number data integration unit integrates the vehicle number data including information regarding the detection positions of which the degree of accordance estimated by the detection position estimation unit is high.

12. The vehicle number data processing system according to any one of Claims 8 to 11,

wherein the vehicle number data processing device further includes an imaging time determination unit configured to determine whether an imaging time of an image

which is being subjected to the optical character recognition by each of the vehicle number data generation devices is a time prior to a final time at which a vehicle included in vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices is detected, if the same-period-of-time searching unit or the same-kind-of-number-plate searching unit fails to retrieve the vehicle number data, and

wherein, if the imaging time determination unit determines that the imaging time is not the time prior to the final time, the vehicle number data integration unit sets vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices as the integrated vehicle number data.

13. (Amended) A vehicle number data processing method of processing vehicle number data including information regarding a vehicle number of a number plate of a vehicle obtained by performing optical character recognition on an image, the vehicle number data processing method comprising:

a vehicle number data integration step of reserving one of one piece of vehicle number data and another piece of vehicle number data along with deleting the other of the one piece of vehicle number data and the another piece of vehicle number data to thereby integrate the vehicle number data including information regarding the same vehicle, wherein the one piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by one of the imaging devices installed so that imaging areas of a plurality of the imaging devices overlap each other and configured to continuously capture an image of a road, and the another piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image

captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices;

a same-vehicle-number retrieving step of retrieving vehicle number data including the same information as information regarding the vehicle number included in vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices, among vehicle number data obtained by performing the optical character recognition on the images captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices;

an optical character recognition determination step of determining whether a portion unrecognizable through the optical character recognition is contained in a vehicle number obtained by performing the optical character recognition on the image captured by the one of the imaging devices; and

a vehicle number position determination step of determining whether a position of a vehicle number obtained by performing the optical character recognition on the image captured by the one of the imaging devices in the image is within the imaging area of another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices;

wherein in the vehicle number data integration step, the vehicle number data integration unit integrates (i) vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices and (ii) the vehicle number data retrieved by the same-vehicle-number searching unit,

in the same-vehicle-number retrieving step, the same-vehicle-number searching unit retrieves vehicle number data including the same information as information regarding the vehicle number if the optical character recognition determination unit

determines that a portion unrecognizable through the optical character recognition is not contained in the vehicle number, and

in the optical character recognition determination step, the optical character recognition determination unit determines whether a portion unrecognizable through the optical character recognition is contained in the vehicle number if the vehicle number position determination unit determines that the position of the vehicle number is within the imaging area of another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices.

14. (Amended) A vehicle number data processing device of processing vehicle number data including information regarding a vehicle number of a number plate of a vehicle obtained by performing optical character recognition on an image, the vehicle number data processing device comprising:

a vehicle number data integration unit configured to reserve one of one piece of vehicle number data and another piece of vehicle number data along with deleting the other of the one piece of vehicle number data and the another piece of vehicle number data to thereby integrate the vehicle number data including information regarding the same vehicle, wherein the one piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by one of the imaging devices installed so that imaging areas of a plurality of the imaging devices overlap each other and configured to continuously capture an image of a road, and the another piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices;

a same-vehicle-number searching unit configured to retrieve vehicle number data including the same information as information regarding the vehicle number included in vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices, among vehicle number data obtained by performing the optical character recognition on the images captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices;

an optical character recognition determination unit configured to determine whether a portion unrecognizable through the optical character recognition is contained in a vehicle number obtained by performing the optical character recognition on the image captured by the one of the imaging devices; and

a vehicle number position determination unit configured to determine whether a position of a vehicle number obtained by performing the optical character recognition on the image captured by the one of the imaging devices in the image is within the imaging area of another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices;

wherein the vehicle number data integration unit integrates (i) vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices and (ii) the vehicle number data retrieved by the same-vehicle-number searching unit,

the same-vehicle-number searching unit retrieves vehicle number data including the same information as information regarding the vehicle number if the optical character recognition determination unit determines that a portion unrecognizable through the optical character recognition is not contained in the vehicle number, and

the optical character recognition determination unit determines whether a

portion unrecognizable through the optical character recognition is contained in the vehicle number if the vehicle number position determination unit determines that the position of the vehicle number is within the imaging area of another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices.

15. (Amended) A program causing a computer to function as a vehicle number data processing device that processes vehicle number data including information regarding a vehicle number of a number plate of a vehicle obtained by performing optical character recognition on an image, the program causing the computer to function as:

a vehicle number data integration unit configured to reserve one of one piece of vehicle number data and another piece of vehicle number data along with deleting the other of the one piece of vehicle number data and the another piece of vehicle number data to thereby integrate the vehicle number data including information regarding the same vehicle, wherein the one piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by one of the imaging devices installed so that imaging areas of a plurality of the imaging devices overlap each other and configured to continuously capture an image of a road, and the another piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices;

a same-vehicle-number searching unit configured to retrieve vehicle number data including the same information as information regarding the vehicle number included in vehicle number data obtained by performing the optical character recognition

on the image captured by the one of the imaging devices, among vehicle number data obtained by performing the optical character recognition on the images captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices;

an optical character recognition determination unit configured to determine whether a portion unrecognizable through the optical character recognition is contained in a vehicle number obtained by performing the optical character recognition on the image captured by the one of the imaging devices; and

a vehicle number position determination unit configured to determine whether a position of a vehicle number obtained by performing the optical character recognition on the image captured by the one of the imaging devices in the image is within the imaging area of another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices;

wherein the vehicle number data integration unit integrates (i) vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices and (ii) the vehicle number data retrieved by the same-vehicle-number searching unit,

the same-vehicle-number searching unit retrieves vehicle number data including the same information as information regarding the vehicle number if the optical character recognition determination unit determines that a portion unrecognizable through the optical character recognition is not contained in the vehicle number, and

the optical character recognition determination unit determines whether a portion unrecognizable through the optical character recognition is contained in the vehicle number if the vehicle number position determination unit determines that the position of the vehicle number is within the imaging area of another of the imaging

devices having the imaging area overlapping the imaging area of the one of the imaging devices.

16. (Amended) A recording medium that records a program causing a computer to function as a vehicle number data processing device that processes vehicle number data including information regarding a vehicle number of a number plate of a vehicle obtained by performing optical character recognition on an image, the recording medium that records the program causing the computer to function as:

a vehicle number data integration unit configured to reserve one of one piece of vehicle number data and another piece of vehicle number data along with deleting the other of the one piece of vehicle number data and the another piece of vehicle number data to thereby integrate the vehicle number data including information regarding the same vehicle, wherein the one piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by one of the imaging devices installed so that imaging areas of a plurality of the imaging devices overlap each other and configured to continuously capture an image of a road, and the another piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices;

a same-vehicle-number searching unit configured to retrieve vehicle number data including the same information as information regarding the vehicle number included in vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices, among vehicle number data obtained by performing the optical character recognition on the images captured by

another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices;

an optical character recognition determination unit configured to determine whether a portion unrecognizable through the optical character recognition is contained in a vehicle number obtained by performing the optical character recognition on the image captured by the one of the imaging devices; and

a vehicle number position determination unit configured to determine whether a position of a vehicle number obtained by performing the optical character recognition on the image captured by the one of the imaging devices in the image is within the imaging area of another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices;

wherein the vehicle number data integration unit integrates (i) vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices and (ii) the vehicle number data retrieved by the same-vehicle-number searching unit,

the same-vehicle-number searching unit retrieves vehicle number data including the same information as information regarding the vehicle number if the optical character recognition determination unit determines that a portion unrecognizable through the optical character recognition is not contained in the vehicle number, and

the optical character recognition determination unit determines whether a portion unrecognizable through the optical character recognition is contained in the vehicle number if the vehicle number position determination unit determines that the position of the vehicle number is within the imaging area of another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices.

Claims

1. A vehicle number data processing system that processes vehicle number data including information regarding a vehicle number of a number plate of a vehicle obtained by performing optical character recognition on an image, the vehicle number data processing system comprising:

a plurality of imaging devices which are installed so that imaging areas of the plurality of imaging devices overlap each other and which are configured to continuously capture an image of a road; and

a vehicle number data processing device configured to process the vehicle number data, wherein the vehicle number data processing device includes:

a vehicle number data integration unit configured to reserve one of one piece of vehicle number data and another piece of vehicle number data along with deleting the other of the one piece of vehicle number data and the another piece of vehicle number data to thereby integrate the vehicle number data including information regarding the same vehicle, wherein the one piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by one of the imaging devices, and the another piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices;

a same-vehicle-number searching unit configured to retrieve vehicle number data including the same information as information regarding the vehicle number included in vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices, among vehicle number data obtained by performing the optical character recognition on the images captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices;

an optical character recognition determination unit configured to determine whether a portion unrecognizable through the optical character recognition is contained in a vehicle number obtained by performing the optical character recognition on the image captured by the one of the imaging devices;

a vehicle number position determination unit configured to determine whether a position of a vehicle number obtained by performing the optical character recognition on the

image captured by the one of the imaging devices in the image is within the imaging area of another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices; and

an integrated data determination unit configured to determine whether the vehicle number data is the vehicle number data integrated by the vehicle number data integration unit,

wherein the vehicle number data integration unit integrates (i) vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices and (ii) the vehicle number data retrieved by the same-vehicle-number searching unit,

the same-vehicle-number searching unit retrieves vehicle number data including the same information as information regarding the vehicle number if the optical character recognition determination unit determines that a portion unrecognizable through the optical character recognition is not contained in the vehicle number,

the optical character recognition determination unit determines whether a portion unrecognizable through the optical character recognition is contained in the vehicle number if the vehicle number position determination unit determines that the position of the vehicle number is within the imaging area of another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices, and

the vehicle number position determination unit determines whether a position of a vehicle number included in the vehicle number data in the image is within the imaging area of another of the imaging devices if the integrated data determination unit determines that the vehicle number data is not the integrated vehicle number data.

2. The vehicle number data processing system according to Claim 1, further comprising:

a plurality of vehicle number data generation devices installed in one-to-one correspondence with the imaging devices and configured to generate the vehicle number data by performing the optical character recognition on images captured by the corresponding imaging devices,

wherein the vehicle number data processing device further includes:

a check data reception unit configured to receive check data used to check soundness of a network from the vehicle number data generation devices;

a vehicle number data reception unit configured to receive the vehicle number

data from the vehicle number data generation devices; and

a reception or non-reception determination unit configured to determine, after the vehicle number data reception unit receives the vehicle number data, whether the check data reception unit receives the check data, and

wherein, if the reception or non-reception determination unit determines that the check data reception unit receives the check data after the vehicle number data reception unit receives the vehicle number data, the integrated data determination unit determines whether the vehicle number data is the vehicle number data integrated by the vehicle number data integration unit.

3. The vehicle number data processing system according to Claim 2,

wherein, when the vehicle number data generation device performs the optical character recognition on an image captured by the corresponding imaging device and generates the vehicle number data including the information regarding the vehicle number of the number plate of the vehicle, the vehicle number data generation device generates the vehicle number data further including information regarding an initial time and information regarding a final time at which the vehicle is detected by the corresponding imaging device,

wherein the vehicle number data processing device further includes:

a character complementing unit configured to supplement a character of the vehicle number of a portion unrecognizable through the optical character recognition if the optical character recognition determination unit determines that the portion unrecognizable through the optical character recognition is contained in the vehicle number; and

a same-period-of-time searching unit configured to retrieve vehicle number data including the information regarding the initial time or the information regarding the final time corresponding to a period of time from the initial time to the final time included in vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices, among vehicle number data obtained by performing the optical character recognition on images captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices, if (i) the optical character recognition determination unit determines that a portion unrecognizable through the optical character recognition is contained in the vehicle number or (ii) the same-vehicle-number searching unit fails to retrieve vehicle number data including information regarding the same vehicle number, and

wherein the same-vehicle-number searching unit retrieves vehicle number data

including the same information as information regarding the vehicle number in which the character is supplemented by the character complementing unit, among the vehicle number data retrieved by the same-period-of-time searching unit.

4. The vehicle number data processing system according to Claim 3,

wherein, when the vehicle number data generation device performs the optical character recognition on an image captured by the corresponding imaging device and generates the vehicle number data including the information regarding the vehicle number of the number plate of the vehicle, the vehicle number data generation devices generates the vehicle number data further including information regarding a kind of number plate of the vehicle,

wherein the vehicle number data processing device further includes a same-kind-of-number-plate searching unit configured to retrieve vehicle number data including the same information as information regarding the kind of number plate included in vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices, among vehicle number data obtained by performing the optical character recognition on images captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices, if the same-vehicle-number searching unit fails to retrieve vehicle number data including information regarding the same vehicle number among the vehicle number data retrieved by the same-period-of-time searching unit, and

wherein, if the same-kind-of-number-plate searching unit retrieves one of vehicle number data, the vehicle number data integration unit integrates the retrieved vehicle number data and vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices.

5. The vehicle number data processing system according to Claim 4,

wherein, when the vehicle number data generation device performs the optical character recognition on an image captured by the corresponding imaging device and generates the vehicle number data including the information regarding the vehicle number of the number plate of the vehicle, the vehicle number data generation devices generates the vehicle number data further including information regarding a vehicle speed of the vehicle,

wherein the vehicle number data processing device further includes a vehicle speed estimation unit configured to estimate a degree of accordance between the vehicle

speed indicated by information included in vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices and the vehicle speed indicated by information included in vehicle number data obtained by performing the optical character recognition on the image captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices, if the same-kind-of-number-plate searching unit retrieves the plurality of vehicle number data, and

wherein the vehicle number data integration unit integrates the vehicle number data including information regarding the vehicle speeds of which the degree of accordance estimated by the vehicle speed estimation unit is high.

6. The vehicle number data processing system according to Claim 4 or 5,

wherein the vehicle number data processing device further includes a period-of-time estimation unit configured to estimate a degree of accordance between a period of time from the initial time to the final time indicated by information included in vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices and a period of time from the initial time to the final time indicated by information included in vehicle number data obtained by performing the optical character recognition on the image captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices, if the same-kind-of-number-plate searching unit retrieves the plurality of vehicle number data, and

wherein the vehicle number data integration unit integrates the vehicle number data including information regarding the times of which the degree of accordance estimated by the period-of-time estimation unit is high.

7. The vehicle number data processing system according to any one of Claims 4 to 6,

wherein, when the vehicle number data generation device performs the optical character recognition on an image captured by the corresponding imaging device and generates the vehicle number data including the information regarding the vehicle number of the number plate of the vehicle, the vehicle number data generation device generates the vehicle number data further including information regarding a detection position of the vehicle, in regard to detection positions of all vehicles detected during a period of time in which the vehicle is detected by the corresponding imaging device,

wherein the vehicle number data processing device further includes a detection position estimation unit configured to estimate a degree of accordance between the detection position indicated by information included in vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices and the detection position indicated by information included in vehicle number data obtained by performing the optical character recognition on the image captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices, if the same-kind-of-number-plate searching unit retrieves the plurality of vehicle number data, and

wherein the vehicle number data integration unit integrates the vehicle number data including information regarding the detection positions of which the degree of accordance estimated by the detection position estimation unit is high.

8. The vehicle number data processing system according to any one of Claims 4 to 7,

wherein the vehicle number data processing device further includes an imaging time determination unit configured to determine whether an imaging time of an image which is being subjected to the optical character recognition by each of the vehicle number data generation devices is a time prior to a final time at which a vehicle included in vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices is detected, if the same-period-of-time searching unit or the same-kind-of-number-plate searching unit fails to retrieve the vehicle number data, and

wherein, if the imaging time determination unit determines that the imaging time is not the time prior to the final time, the vehicle number data integration unit sets vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices as the integrated vehicle number data.

9. A vehicle number data processing method of processing vehicle number data including information regarding a vehicle number of a number plate of a vehicle obtained by performing optical character recognition on an image, the vehicle number data processing method comprising:

a vehicle number data integration step of reserving one of one piece of vehicle number data and another piece of vehicle number data along with deleting the other of the one piece of vehicle number data and the another piece of vehicle number data to thereby

integrate the vehicle number data including information regarding the same vehicle, wherein the one piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by one of the imaging devices installed so that imaging areas of a plurality of the imaging devices overlap each other and configured to continuously capture an image of a road, and the another piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices;

a same-vehicle-number retrieving step of retrieving vehicle number data including the same information as information regarding the vehicle number included in vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices, among vehicle number data obtained by performing the optical character recognition on the images captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices;

an optical character recognition determination step of determining whether a portion unrecognizable through the optical character recognition is contained in a vehicle number obtained by performing the optical character recognition on the image captured by the one of the imaging devices;

a vehicle number position determination step of determining whether a position of a vehicle number obtained by performing the optical character recognition on the image captured by the one of the imaging devices in the image is within the imaging area of another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices; and

an integrated data determination step of determining whether the vehicle number data is the vehicle number data integrated in the vehicle number data integration step,

wherein the vehicle number data integration step includes integrating (i) vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices and (ii) the vehicle number data retrieved in the same-vehicle-number retrieving step,

the same-vehicle-number retrieving step includes retrieving vehicle number data including the same information as information regarding the vehicle number if it is determined in the optical character recognition determination step that a portion

unrecognizable through the optical character recognition is not contained in the vehicle number,

the optical character recognition determination step includes determining whether a portion unrecognizable through the optical character recognition is contained in the vehicle number if it is determined in the vehicle number position determination step that the position of the vehicle number is within the imaging area of another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices, and

the vehicle number position determination step includes determining whether a position of a vehicle number included in the vehicle number data in the image is within the imaging area of another of the imaging devices if it is determined in the integrated data determination step that the vehicle number data is not the integrated vehicle number data.

10. A vehicle number data processing device of processing vehicle number data including information regarding a vehicle number of a number plate of a vehicle obtained by performing optical character recognition on an image, the vehicle number data processing device comprising:

a vehicle number data integration unit configured to reserve one of one piece of vehicle number data and another piece of vehicle number data along with deleting the other of the one piece of vehicle number data and the another piece of vehicle number data to thereby integrate the vehicle number data including information regarding the same vehicle, wherein the one piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by one of the imaging devices installed so that imaging areas of a plurality of the imaging devices overlap each other and configured to continuously capture an image of a road, and the another piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices;

a same-vehicle-number searching unit configured to retrieve vehicle number data including the same information as information regarding the vehicle number included in vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices, among vehicle number data obtained by performing the optical character recognition on the images captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the

imaging devices;

an optical character recognition determination unit configured to determine whether a portion unrecognizable through the optical character recognition is contained in a vehicle number obtained by performing the optical character recognition on the image captured by the one of the imaging devices;

a vehicle number position determination unit configured to determine whether a position of a vehicle number obtained by performing the optical character recognition on the image captured by the one of the imaging devices in the image is within the imaging area of another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices; and

an integrated data determination unit configured to determine whether the vehicle number data is the vehicle number data integrated by the vehicle number data integration unit,

wherein the vehicle number data integration unit integrates (i) vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices and (ii) the vehicle number data retrieved by the same-vehicle-number searching unit,

the same-vehicle-number searching unit retrieves vehicle number data including the same information as information regarding the vehicle number if the optical character recognition determination unit determines that a portion unrecognizable through the optical character recognition is not contained in the vehicle number,

the optical character recognition determination unit determines whether a portion unrecognizable through the optical character recognition is contained in the vehicle number if the vehicle number position determination unit determines that the position of the vehicle number is within the imaging area of another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices, and

the vehicle number position determination unit determines whether a position of a vehicle number included in the vehicle number data in the image is within the imaging area of another of the imaging devices if the integrated data determination unit determines that the vehicle number data is not the integrated vehicle number data.

11. A program causing a computer to function as a vehicle number data processing device that processes vehicle number data including information regarding a vehicle number of a number plate of a vehicle obtained by performing optical character recognition on an

image, the program causing the computer to function as:

a vehicle number data integration unit configured to reserve one of one piece of vehicle number data and another piece of vehicle number data along with deleting the other of the one piece of vehicle number data and the another piece of vehicle number data to thereby integrate the vehicle number data including information regarding the same vehicle, wherein the one piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by one of the imaging devices installed so that imaging areas of a plurality of the imaging devices overlap each other and configured to continuously capture an image of a road, and the another piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices;

a same-vehicle-number searching unit configured to retrieve vehicle number data including the same information as information regarding the vehicle number included in vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices, among vehicle number data obtained by performing the optical character recognition on the images captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices;

an optical character recognition determination unit configured to determine whether a portion unrecognizable through the optical character recognition is contained in a vehicle number obtained by performing the optical character recognition on the image captured by the one of the imaging devices;

a vehicle number position determination unit configured to determine whether a position of a vehicle number obtained by performing the optical character recognition on the image captured by the one of the imaging devices in the image is within the imaging area of another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices; and

an integrated data determination unit configured to determine whether the vehicle number data is the vehicle number data integrated by the vehicle number data integration unit,

wherein the vehicle number data integration unit integrates (i) vehicle number data obtained by performing the optical character recognition on the image captured by the

one of the imaging devices and (ii) the vehicle number data retrieved by the same-vehicle-number searching unit,

the same-vehicle-number searching unit retrieves vehicle number data including the same information as information regarding the vehicle number if the optical character recognition determination unit determines that a portion unrecognizable through the optical character recognition is not contained in the vehicle number,

the optical character recognition determination unit determines whether a portion unrecognizable through the optical character recognition is contained in the vehicle number if the vehicle number position determination unit determines that the position of the vehicle number is within the imaging area of another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices, and

the vehicle number position determination unit determines whether a position of a vehicle number included in the vehicle number data in the image is within the imaging area of another of the imaging devices if the integrated data determination unit determines that the vehicle number data is not the integrated vehicle number data.

12. A recording medium that records a program causing a computer to function as a vehicle number data processing device that processes vehicle number data including information regarding a vehicle number of a number plate of a vehicle obtained by performing optical character recognition on an image, the recording medium that records the program causing the computer to function as:

a vehicle number data integration unit configured to reserve one of one piece of vehicle number data and another piece of vehicle number data along with deleting the other of the one piece of vehicle number data and the another piece of vehicle number data to thereby integrate the vehicle number data including information regarding the same vehicle, wherein the one piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by one of the imaging devices installed so that imaging areas of a plurality of the imaging devices overlap each other and configured to continuously capture an image of a road, and the another piece of vehicle number data include information regarding a vehicle number obtained by performing the optical character recognition on an image captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices;

a same-vehicle-number searching unit configured to retrieve vehicle number data

including the same information as information regarding the vehicle number included in vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices, among vehicle number data obtained by performing the optical character recognition on the images captured by another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices;

an optical character recognition determination unit configured to determine whether a portion unrecognizable through the optical character recognition is contained in a vehicle number obtained by performing the optical character recognition on the image captured by the one of the imaging devices;

a vehicle number position determination unit configured to determine whether a position of a vehicle number obtained by performing the optical character recognition on the image captured by the one of the imaging devices in the image is within the imaging area of another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices; and

an integrated data determination unit configured to determine whether the vehicle number data is the vehicle number data integrated by the vehicle number data integration unit,

wherein the vehicle number data integration unit integrates (i) vehicle number data obtained by performing the optical character recognition on the image captured by the one of the imaging devices and (ii) the vehicle number data retrieved by the same-vehicle-number searching unit,

the same-vehicle-number searching unit retrieves vehicle number data including the same information as information regarding the vehicle number if the optical character recognition determination unit determines that a portion unrecognizable through the optical character recognition is not contained in the vehicle number,

the optical character recognition determination unit determines whether a portion unrecognizable through the optical character recognition is contained in the vehicle number if the vehicle number position determination unit determines that the position of the vehicle number is within the imaging area of another of the imaging devices having the imaging area overlapping the imaging area of the one of the imaging devices, and

the vehicle number position determination unit determines whether a position of a vehicle number included in the vehicle number data in the image is within the imaging area of another of the imaging devices if the integrated data determination unit determines that the

vehicle number data is not the integrated vehicle number data.