CLAIMS

1. An on-board unit comprising:

a positioning section configured to output first position data showing a current position of a vehicle based on a positioning signal received from an artificial satellite; and

a processing section configured to acquire a second position data showing a current position of the vehicle based on a radio signal which is different from the positioning signal, and to detect a spoofing based on a position shown by the first position data and a position shown by the second position data.

2. The on-board unit according to claim 1, wherein the processing section is configured to acquire the second position data from a roadside unit which is provided for a side of a road on which the vehicle runs.

3. The on-board unit according to claim 1, further comprising:

a cellular communication section configured to receive identification data for specifying a base station in a cellular communication through the base station,

wherein the processing section is configured to acquire the second position data based on the identification data.

4. The on-board unit according to any one of claims 1 to 3, wherein the processing section is configured to determine that the spoofing has been carried out when a difference between a position shown by the first position data and a position shown by the second position data.

5. A spoofing detecting method of an on-board unit, comprising:

outputting first position data showing a current position of a vehicle based on a positioning signal received from an artificial satellite;

acquiring second position data showing a current position of the vehicle by a radio signal which is different from the positioning signal; and

detecting a spoofing based on the position shown by the first position data and the position shown by the second position data.

6. The spoofing detecting method according to claim 5, wherein the second position data is acquired from a roadside unit provided for a roadside of a road on which the vehicle runs.

7. The spoofing detecting method according to claim 5, further comprising:

receiving identification data for specifying a base station, in a cellular communication through the base station,

wherein the acquiring the second position data comprises:

acquiring the second position data based on the identification data.

8. The spoofing detecting method according to any one of claims 5 to 7, wherein the detecting the spoofing comprises:

determining that the spoofing has been carried out when a difference between the position shown by the first position data and the position shown by the second position data is equal to or more than a given reference value.

CLAIMS

1. An on-board unit comprising:

a positioning section configured to output first position data showing a current position of a vehicle based on a positioning signal received from an artificial satellite; and

a processing section configured to acquire second position data showing a current position of the vehicle based on a radio signal which is different from the positioning signal, to detect an existence of a current spoofing suspicion based on a position shown by the first position data and a position shown by the second position data, to extract a past spoofing suspicion, and to detect a spoofing when a period for which the spoofing suspicion continues is determined to be longer than a predetermined threshold based on the past spoofing suspicion and the current spoofing suspicion.

2. The on-board unit according to claim 1, wherein the processing section is configured to acquire the second position data from a roadside unit provided for a side of a road on which a vehicle runs.

3. The on-board unit according to claim 1, further comprising:

a cellular communication section configured to receive identification data for specifying a base station in a cellular communication through the base station,

wherein the processing section is configured to acquire the second position data based on the identification data.

4. The on-board unit according to any one of claims 1 to 3, wherein the first position data includes first time data and the second position data includes second time data, and

wherein the processing section is configured to determine that the spoofing has been carried out when a difference between the first time data and the second time data is greater than a predetermined time threshold.

5. A spoofing detecting method of an on-board unit, comprising:

outputting first position data showing a current position of a vehicle based on a positioning signal received from an artificial satellite;

acquiring second position data showing a current position of the vehicle by a radio signal which is different from the positioning signal;

detecting an existence of a current spoofing suspicion based on the position shown by the first position data and the position shown by the second position data;

extracting a past spoofing suspicion; and

detecting a spoofing when a period for which the spoofing suspicion continues is determined to be longer than a predetermined

threshold based on the past spoofing suspicion and the current spoofing suspicion.

6. The spoofing detecting method according to claim 5, wherein the second position data is acquired from a roadside unit provided for a roadside of a road on which a vehicle runs.

7. The spoofing detecting method according to claim 5, further comprising:

receiving identification data for specifying a base station, in a cellular communication through the base station,

wherein the acquiring the second position data comprises:

acquiring the second position data based on the identification data.

8. The spoofing detecting method according to any one of claims 5 to 7, wherein the first position data includes first time data and the second position data includes second time data, and

wherein the spoofing detecting method further comprises:

determining that the spoofing has been carried out when a difference between the first time data and the second time data is equal to or more than a given time reference value.