CLAIMS

WHAT IS CLAIMED IS:

1. A safety check evaluation system for evaluating safety check actions of a driver of a vehicle, the safety check evaluation system comprising:

a vehicle-mounted device mounted in the vehicle; and

a processing device processing data acquired by the vehicle-mounted device,

wherein the vehicle-mounted device is provided with:

an angular velocity detection unit which detects an angular velocity of the vehicle, and a first time detection unit which detects a first time at which the angular velocity data detected by the angular velocity detection unit exceeds a prescribed angular velocity threshold, and

the processing device is provided with:

an intersection estimation unit which estimates an intersection entry time of the vehicle based on angular velocity data of the vehicle detected by the angular velocity detection unit during prescribed time periods before and after the first time detected by the first time detection unit; and

a safety check evaluation unit which evaluates the safety check actions of the driver during prescribed time periods before and after the intersection entry time estimated by the intersection estimation unit.

2. The safety check evaluation system as claimed in claim 1, wherein

the processing device is provided with:

an integral value calculation unit which calculates an integral value of the angular velocity data of prescribed time periods before and after the first time detected by the first time detection unit; and

a second time detection unit which detects a second time at which the

integral value calculated by the integral value calculation unit reaches a prescribed integral ratio, and

estimates the second time as the intersection entry time.

3. The safety check evaluation system as claimed in claim 2, wherein the integral value calculation unit calculates the integral value of angular velocity data equal to or greater than a prescribed angular velocity lower limit, among the angular velocity data of the prescribed time periods before and after the first time.

4. The safety check evaluation system as claimed in claim 2 or 3, wherein the processing device is provided with:

a cancellation unit which, in a case where an angle represented by the integral value calculated by the integral value calculation unit is not within a prescribed road intersection angle range, cancels detection of the second time.

5. The safety check evaluation system as claimed in claim 2 or 3, wherein the processing device is provided with:

a direction estimation unit which estimates a right/left turning direction of the vehicle based on a positive/negative sign of the integral value calculated by the integral value calculation unit.

6. The safety check evaluation system as claimed in any one of claims 1 to 3, wherein the vehicle-mounted device is provided with:

a location detection unit which detects a location of the vehicle;

a vehicle velocity calculation unit which calculates a velocity of the vehicle based on location data detected by the location detection unit; and

a first time cancellation unit which, in a case where the velocity of the vehicle at the first time detected by the first time detection unit is equal to or greater than a prescribed velocity, cancels the first time.

7. The safety check evaluation system as claimed in any one of claims 1 to

3, wherein the vehicle-mounted device is provided with:

a first time cancellation unit which, in a case where the first time detected by the first time detection unit does not pass a prescribed time period from a previously detected first time, cancels the first time.

8. A vehicle-mounted device, used in a safety check evaluation system which evaluates safety check actions of a driver of a vehicle, the vehicle-mounted device comprising:

an angular velocity detection unit which detects an angular velocity of the vehicle;

a first time detection unit which detects a first time at which angular velocity data detected by the angular velocity detection unit exceeds a prescribed angular velocity threshold;

a storage unit which stores the angular velocity data and the first time; and

an output unit which outputs data stored in the storage unit to a processing device used in the safety check evaluation system as claimed in any one of claims 1 to 3.

9. A processing device, used in a safety check evaluation system which evaluates safety check actions of a driver of a vehicle, the processing device comprising:

an intersection estimation unit which estimates an intersection entry time of the vehicle based on angular velocity data of the vehicle acquired by a vehicle-mounted device mounted in the vehicle during prescribed time periods before and after a first time when the angular velocity data exceeds a prescribed angular velocity threshold; and

a safety check evaluation unit which evaluates the safety check actions of the driver during prescribed time periods before and after the intersection entry time

estimated by the intersection estimation unit.

10. A safety check evaluation method for evaluating safety check actions of a driver of a vehicle by at least one computer, the safety check evaluation method executed by the at least one computer comprising:

an intersection estimation step of estimating an intersection entry time of the vehicle by the at least one computer based on angular velocity data of the vehicle during prescribed time periods before and after a first time when the angular velocity data exceeds a prescribed angular velocity threshold; and

a safety check evaluation step of evaluating the safety check actions of the driver during prescribed time periods before and after the intersection entry time estimated in the intersection estimation step by the at least one computer.

11. The safety check evaluation method as claimed in claim 10, wherein the intersection estimation step executed by the at least one computer comprises:

a first time detection step of detecting the first time;

an integral value calculation step of calculating an integral value of angular velocity data of prescribed time periods before and after the first time detected in the first time detection step; and

a second time detection step of detecting a second time at which the integral value calculated in the integral value calculation step reaches a prescribed integral ratio, and

the second time is estimated as the intersection entry time.

12. A safety check evaluation program for at least one computer to execute a process for evaluating safety check actions of a driver of a vehicle,

wherein the at least one computer executes:

an intersection estimation step of estimating an intersection entry time of the vehicle based on angular velocity data of the vehicle during prescribed time periods

before and after a first time when the angular velocity data exceeds a prescribed angular velocity threshold; and

a safety check evaluation step of evaluating the safety check actions of the driver during prescribed time periods before and after the intersection entry time estimated in the intersection estimation step.

13. A computer-readable storage medium, storing a safety check evaluation program for at least one computer to execute a process for evaluating safety check actions of a driver of a vehicle,

wherein the at least one computer executes:

an intersection estimation step of estimating an intersection entry time of the vehicle based on angular velocity data of the vehicle during prescribed time periods before and after a first time when the angular velocity data exceeds a prescribed angular velocity threshold; and

a safety check evaluation step of evaluating the safety check actions of the driver during prescribed time periods before and after the intersection entry time estimated in the intersection estimation step.