CLAIMS

Claim 1. A vehicle traveling control method for causing a vehicle to travel along a traveling road where markers are arrayed at intervals, the vehicle traveling control method comprising:

an azimuth measuring process of measuring a vehicle azimuth indicating an orientation of the vehicle;

a control process of controlling the vehicle so that a measured azimuth, which is the vehicle azimuth measured by the azimuth measuring process, is matched with a target azimuth corresponding to a direction of the traveling road; and

a correction process of correcting a degree of control by the control process, in order to bring a lateral shift amount of the vehicle with reference to each of the markers closer to zero, in accordance with the lateral shift amount or a magnitude of a physical quantity obtained by performing a process on the lateral shift amount, wherein

the azimuth measuring process is a process of measuring the vehicle azimuth by performing a process on a sensor output outputted from a gyro sensor which measures angular velocity about an axis in a vertical direction.

Claim 2. The vehicle traveling control method in claim 1, comprising:

an information obtaining process of reading, from an information providing part annexed to the each of the markers to provide marker information including position information indicating a laying position of the each of the markers, the marker information; and

a target azimuth setting process of obtaining a direction connecting laying positions of adjacent two of the markers and setting the direction as the target azimuth.

Claim 3. The vehicle traveling control method in claim 1, comprising:

an information obtaining process of reading, from an information providing part annexed to the each of the markers to provide marker information including azimuth information indicating a direction of the traveling road, the marker information; and

a target azimuth setting process of setting, as the target azimuth, the direction of the traveling road in accordance with the azimuth information included in the marker information read in the information obtaining process.

Claim 4. The vehicle traveling control method in claim 2 or 3, wherein the information providing part is a wireless tag annexed to the each of the markers.

Claim 5. The vehicle traveling control method in any one of claims 1 to 4, wherein the physical quantity is a quantity obtained by performing a filter process for attenuating high-frequency components on a temporal change in the lateral shift amount.

Claim 6. The vehicle traveling control method in any one of claims 1 to 5, comprising:

a correction information generation process of performing a process on a difference between the measured azimuth and the vehicle azimuth with reference to the markers estimated by using the markers arranged along the traveling road and obtaining correction information; and

a correction process of correcting the sensor output or the measured azimuth by using the correction information.

Claim 7. The vehicle traveling control method in claim 6, wherein the correction information is information indicating a temporal change of the difference, and

the correction process of correcting the measured azimuth is a process of correcting the sensor output or the measured azimuth by a correction amount based on the correction information.

Claim 8. The vehicle traveling control method in claim 6, wherein the correction information is a temporal average value of the difference, and

the correction process of correcting the measured azimuth is a process of subtracting a correction amount corresponding to the temporal average value of the difference from the measured azimuth.

Claim 9. A vehicle control system for causing a vehicle to travel along a traveling road where markers are arrayed at intervals, comprising:

an azimuth measuring part which measures a vehicle azimuth, which is an orientation of the vehicle;

a control part which controls the vehicle so that a measured azimuth, which is the vehicle azimuth measured by the azimuth measuring part, is matched with a target azimuth corresponding to a direction of the traveling road; and

a correcting part which corrects a degree of control by the control part, in order to bring a lateral shift amount of the vehicle with reference to each of the markers closer to zero, in accordance with the lateral shift amount or a magnitude of a physical quantity obtained by performing a process on the lateral shift amount, wherein

the azimuth measuring part includes a gyro sensor which measures angular velocity about an axis in a vertical direction and a generation processing part which performs a process on a

sensor output outputted from the gyro sensor and generates the vehicle azimuth.

Claim 10. The vehicle control system in claim 9, comprising:

an information obtaining part which reads, from an information providing part annexed to the each of the markers to provide marker information including position information indicating a laying position of the each of the markers, the marker information; and

a target azimuth setting part which obtains a direction connecting laying positions of adjacent two of the markers and setting the direction as the target azimuth.

Claim 11. The vehicle control system in claim 9, comprising

an information obtaining part which reads, from an information providing part annexed to the each of the markers to provide marker information including azimuth information indicating a direction of the traveling road, the marker information; and

a target azimuth setting part which sets, as the target azimuth, the direction of the traveling road regarding the azimuth information included in the marker information read by the information obtaining part.

Claim 12. The vehicle traveling control method in Claim 6, wherein

the correction information is information indicating a temporal change of the difference, and

the correction process of correcting the measured azimuth is a process of correcting the sensor output or the measured azimuth by a correction amount based on the correction information.

Claim 13. The vehicle traveling control method in Claim 12, wherein

the correction information includes at least a gradient a of a straight line approximating the temporal change of the difference, and

the correction process of correcting the measured azimuth is a process of subtracting the correction amount corresponding to the gradient a from the sensor output of the gyro sensor.

Claim 14. The vehicle traveling control method in Claim 12, wherein

the correction information includes at least a gradient a and an intercept b of a straight line approximating the temporal change of the difference, and

the correction process of correcting the measured azimuth is a process of subtracting the correction amount, which is obtained by multiplying a value of the gradient a by an elapsed time T from a starting point of the temporal change of the difference and adding a value of the intercept b, from the measured azimuth.

Claim 15. The vehicle traveling control method in any one of Claims 1 to 8 and 12 to 14, wherein

the azimuth measuring process is a process of measuring the vehicle azimuth by setting the vehicle azimuth with reference to the markers based on a shift angle of the vehicle azimuth with respect to a direction of a line segment connecting two of the markers arranged along the traveling road and a designed value of the direction of the line segment as an initial value.

Claim 16. The vehicle traveling control method in any one of Claims 1 to 8 and 12 to 15, wherein

the correction process is a process of correcting the degree

of control by the control process in accordance with a magnitude of the physical quantity obtained by performing a filter process for attenuating high-frequency components on a change in the lateral shift amount, and

the measured azimuth which is a control target of the control process is the vehicle azimuth itself measured by the azimuth measuring process.

Claim 17. The vehicle traveling control method in any one of Claims 1 to 8 and 12 to 15, wherein

the target azimuth in the control process is an azimuth calculated, based on the direction of the traveling road, by an arithmetic equation in which a specification value of the vehicle is set as a variable.