CLAIMS

1. A vehicle control device comprising:

a learning part configured to calculate, via machine learning, a model formula representing a relationship between an error between a predetermined stopping position and an actually-stopped position of a vehicle indicating a result of an automatic stop control, which controls the vehicle to stop at the predetermined stopping position using running-condition parameters, and the running-condition parameters used for the automatic stop control;

a predictor configured to predict a stopping error with respect to a next stopping position, at which the vehicle currently running is going to stop, according to the model formula which is calculated in the past; and

a controller configured to specify a changing parameter to be changed among the running-condition parameters and to update the changing parameter used for the automatic stop control with a correction value configured to correct the stopping error of the vehicle.

2. The vehicle control device according to claim 1, wherein the controller updates the changing parameter with the correction value configured to correct the stopping error of the vehicle, thus carrying out a calculation for the automatic stop control using the running-condition parameters including the changing parameter.

3. The vehicle control device according to claim 1, further comprising a stopping error calculation part configured to calculate the error between the predetermined stopping position and the actually-stopped position.

4. The vehicle control device according to claim 3, wherein the stopping error calculation part is configured to calculate the error between the predetermined stopping position and the actually-stopped position based on an amount of machine operation achieved by the vehicle in a period of time between a time to detect a ground mark, which is located a predetermined distance before the predetermined stopping position, and a time to stop the vehicle.

5. The vehicle control device according to claim 3, wherein the stopping error calculation part is configured to correct the stopping error calculated according to a relational formula which is set using a plurality of relationships between an actual error

and the error predicted by the predictor in the past.

6. The vehicle control device according to claim 1, wherein the learning part is configured to calculate the model formula via the machine learning using the error and the running-condition parameters used for low-velocity control.

7. The vehicle control device according to claim 1, wherein the learning part is configured to calculate the model formula using a machine-learning method adapted to a performance of the vehicle control device.

8. The vehicle control device according to claim 3, wherein the stopping error calculation part is configured to record a value of the changing parameter before correction and a corrected value as the running-condition parameters.

9. A vehicle control method comprising:

calculating, via machine learning, a model formula representing a relationship between an error between a predetermined stopping position and an actually-stopped position of a vehicle indicating a result of an automatic stop control, which controls the vehicle to stop at the predetermined stopping position using running-condition parameters, and the running-condition parameters used for the automatic stop control;

predicting a stopping error with respect to a next stopping position, at which the vehicle currently running is going to stop, according to the model formula which is calculated in the past; and

specifying a changing parameter to be changed among the running-condition parameters, thus updating the changing parameter used for the automatic stop control with a correction value configured to correct the stopping error of the vehicle.

10. A computer-readable storage medium having stored therein a program causing a computer of a vehicle control device to implement:

a learning process configured to calculate, via machine learning, a model formula representing a relationship between an error between a predetermined stopping position and an actually-stopped position of a vehicle indicating a result of an automatic stop control, which controls the vehicle to stop at the predetermined stopping position using running-condition parameters, and the running-condition parameters used for the automatic stop control;

a prediction process configured to predict a stopping error with respect to a

next stopping position, at which the vehicle currently running is going to stop, according to the model formula which is calculated in the past; and

a control process configured to specify a changing parameter to be changed among the running-condition parameters and to update the changing parameter used for the automatic stop control with a correction value configured to correct the stopping error of the vehicle.