CLAIMS

1. A control system for an autonomous driving vehicle, comprising:

an operation device configured to be operated by a driver;

a notification device configured to give notification to the driver; and

an electronic control unit comprising:

a driving control part configured to perform autonomous driving, and to terminate autonomous driving and switch vehicle driving to manual driving when the driver operates the operation device during autonomous driving; and

a notification control part configured to control the notification device to first notify a request for preparing for manual driving to the driver and then notify a request for terminating autonomous driving to the driver when the driver should be requested to terminate autonomous driving during autonomous driving,

wherein the request for preparing for manual driving requests the driver to establish conditions for preparing for manual driving while the autonomous driving continues,

wherein the request for terminating autonomous driving requests the driver to operate the operation device to terminate the autonomous driving.

2. The control system for an autonomous driving vehicle according to claim 1, wherein the notification control part is configured to notify the request for terminating autonomous driving to the driver a predetermined first interval before a timing when the vehicle will arrive at a predetermined area inappropriate for autonomous driving.

3. The control system for an autonomous driving vehicle according to claim 2, wherein the notification control part is configured to notify the request for preparing for manual driving to the driver a predetermined second interval before the timing of notifying the request for terminating autonomous driving to the driver.

4. The control system for an autonomous driving vehicle according to claim 3, wherein the notification control part is configured to calculate the second interval in accordance with a degree of difficulty of manual driving in the area inappropriate for autonomous driving.

5. The control system for an autonomous driving vehicle according to claim 3 or 4, further comprising a driver's state quantity acquiring device configured to acquire a state quantity of the driver,

wherein the notification control part is configured to calculate the second interval in accordance with the state quantity of the drive acquired by the driver's state quantity acquiring device.

6. The control system for an autonomous driving vehicle according to claim 1 or 2, wherein the notification control part is configured to notify the request for preparing for manual driving to the driver a predetermined third interval before a timing when the vehicle will arrive at a predetermined area inappropriate for autonomous driving.

7. The control system for an autonomous driving vehicle according to claim 6, wherein the notification control part is configured to calculate the third interval in accordance with a degree of difficulty of manual driving in the area inappropriate for autonomous driving.

8. The control system for an autonomous driving vehicle according to claim 6 or 7, further comprising a driver's state quantity acquiring device configured to acquire a state quantity of the driver,

wherein the notification control part is configured to calculate the third interval in accordance with the state quantity of the driver acquired by the driver's state quantity acquiring device.

9. The control system for an autonomous driving vehicle according to any one of claims 1 to 8, further comprising a deactivating device configured to be operated by the driver,

wherein the notification control part is

configured to control the notification device to notify the request for terminating autonomous driving to the driver without notifying the request for preparing for manual driving to the driver if the driver should be requested to terminate autonomous driving during autonomous driving after the driver operates the deactivating device.

10. A control method of an autonomous driving vehicle comprising:

an operation device configured to be operated by a driver;

a notification device configured to give notification to the driver; and

an electronic control unit,

the control method including a step of performing autonomous driving, and terminating autonomous driving and switching vehicle driving to manual driving when the driver operates the operation device during autonomous driving, using the electronic control unit,

the control method further including a step of controlling the notification device to first notify a request for preparing for manual driving to the driver and then notify a request for terminating autonomous driving to the driver when the driver should be requested to terminate autonomous driving during autonomous driving, using the electronic control unit,

wherein the request for preparing for manual driving requests the driver to establish conditions for preparing for manual driving while the autonomous driving continues,

wherein the request for terminating autonomous driving requests the driver to operate the operation device to terminate the autonomous driving.