CLAIMS

1. An intelligent driving control method, comprising:

detecting a traffic signal of a vehicle travelling environment to obtain a detection result of the traffic signal;

acquiring a current travelling state of a vehicle and a vehicle default state corresponding to the detection result of the traffic signal;

determining whether the current travelling state of the vehicle matches the vehicle default state; and

in response to the current travelling state of the vehicle not matching the vehicle default state, outputting a driving alarm signal and/or a control signal for instructing the vehicle to switch from a current state to the vehicle default state.

2. The method according to claim 1, wherein the traffic signal comprises at least one of a traffic light, a traffic sign, a lane line, and a traffic police instruction.

3. The method according to claim 1 or 2, wherein the current travelling state of the vehicle comprises at least one of a travelling speed, a lamp state, a direction control state, a braking state, and a horn state.

4. The method according to any one of claims 1 to 3, wherein the detection result of the traffic signal comprises a combination of one or more of a lane line departure detection result, a traffic sign detection result, a traffic light state detection result, and a traffic police instruction detection result.

5. The method according to claim 4, wherein when the traffic signal is a traffic sign, detecting the traffic signal of the vehicle travelling environment to obtain the detection result of the traffic signal comprises:

collecting a video stream including the traffic sign by an image collection device provided on the vehicle;

performing a traffic sign classification on at least one frame image including the traffic sign in the video stream; and

obtaining the traffic sign detection result according to the classification result of the traffic sign.

6. The method according to claim 5, wherein the traffic sign comprises at least one of a speed limit sign, a prohibition sign, a warning sign, an instructing sign, a road guiding sign, a tourist area sign, and a road construction safety sign.

7. The method according to claim 5 or 6, wherein in response to the current travelling state of the vehicle not matching the vehicle default state, outputting the driving alarm signal and/or the control signal for instructing the vehicle to switch from the current state to the vehicle default state comprises at least one of the operations:

in response to the category of the traffic sign being a speed limit sign, and the current travelling state of the vehicle not matching the default travelling state corresponding to the speed limit sign, issuing an instruction for controlling a speed of the vehicle to increase or decrease to the speed corresponding to the traffic sign;

in response to the category of the traffic sign being a prohibition sign, and the current travelling state of the vehicle not matching the default travelling state corresponding to the prohibition sign, issuing an instruction for controlling the vehicle not to perform operations prohibited by a traffic sign;

in response to the category of the traffic sign being a warning sign, and the current travelling state of the vehicle not matching the default travelling state corresponding to the warning sign, issuing an instruction for controlling the vehicle to change a driving state;

in response to the category of the traffic sign being an instructing sign, and the current travelling state of

the vehicle not matching the default travelling state corresponding to the instructing sign, issuing an instruction for controlling the vehicle to perform drive control according to instruction of the traffic sign;

in response to the category of the traffic sign being a road guiding sign and/or a tourist area sign, and the current travelling state of the vehicle not matching the default travelling state corresponding to the road guiding sign and/or the tourist area sign, issuing an instruction for controlling the vehicle to travel toward a corresponding road according to a destination corresponding to the vehicle; and

in response to the category of the traffic sign being a road construction safety sign, and the current travelling state of the vehicle not matching the default travelling state corresponding to the road construction safety sign, issuing an instruction for controlling the vehicle to perform one or more of decelerating, braking, detouring, maintaining the travelling state, slowing down, steering, turning on a turn lamp, and turning on a braking lamp according to instruction of the traffic sign.

8. The method according to claim 4, wherein when a target object is a lane line, detecting the traffic signal of the vehicle travelling environment to obtain the detection result of the traffic signal comprises:

collecting a video stream including a travelling road by an image collection device provided on the vehicle;

performing a lane line detection on at least one frame image in the video stream; and

obtaining the lane line departure detection result according to a result of the lane line detection and a relative position information of the vehicle.

9. The method according to claim 8, wherein in response to the current travelling state of the vehicle not matching the vehicle default state, outputting the driving alarm signal and/or the control signal for instructing the vehicle to switch from the current state to the vehicle default state comprises:

in response to the current travelling state of the vehicle not matching the vehicle default state corresponding to the lane line departure detection result, or in response to the current travelling state of the vehicle not matching the vehicle default state corresponding to the lane line departure detection result and a change trend of the lane line departure detection result indicating that a degree of lane line departure remains or increases, issuing a prompt information to turn on a turn lamp and/or controlling the vehicle to turn on the corresponding turn lamp according to the default travelling state corresponding to the lane line departure detection result.

10. The method according to claim 9, wherein issuing the prompt information to turn on the turn lamp and/or controlling the vehicle to turn on the corresponding turn lamp according to the default travelling state corresponding to the lane line departure detection result comprises:

determining to issue the prompt information to turn on the turn lamp and/or control the vehicle to turn on the corresponding turn lamp in conjunction with the traffic sign detection result and/or the traffic light state detection result.

11. The method according to any one of claims 8 to 10, wherein in response to the current travelling state of the vehicle not matching the vehicle default state, outputting the driving alarm signal and/or the control signal for instructing the vehicle to switch from the current state to the vehicle default state comprises:

in response to the current travelling state of the vehicle not matching the vehicle default state corresponding to the lane line departure detection result, acquiring a fluctuation range of a distance between

the vehicle and the lane line; and

in response to the fluctuation range exceeding a safe distance range within a duration of a set threshold for an alarm time, outputting the driving alarm signal and/or controlling the vehicle to keep the distance between the vehicle and the lane line within the safe distance range.

12. The method according to any one of claims 8 to 11, wherein the default travelling state corresponding to the detection result is determined based on the relative position information and a type of the lane line, the type of the lane line comprising at least one of a broken white line, a solid white line, a broken yellow line, a solid yellow line, double broken white lines, double solid yellow lines, a solid yellow line with broken yellow line, and double solid white lines.

13. The method according to claim 12, wherein the lane line comprises at least one of traffic markings on both sides of the lane, stop line, and turning guide line.

14. The method according to claim 4, wherein when a target object is a traffic light, detecting the traffic signal of the vehicle travelling environment to obtain the detection result of the traffic signal comprises:

acquiring a video stream including the traffic light by an image collection device provided on the vehicle; and

performing a traffic light state detection on at least one frame image in the video stream to determine the traffic light state detection result.

15. The method according to claim 14, wherein in response to the current travelling state of the vehicle not matching the vehicle default state, outputting the driving alarm signal and/or the control signal for instructing the vehicle to switch from the current state to the vehicle default state comprises:

in response to the current travelling state of the vehicle not matching the default travelling state corresponding to the traffic light state detection result, outputting the driving alarm signal, and/or outputting the driving alarm signal, and/or outputting an instruction for controlling the vehicle to turn on a turn lamp, decelerate, brake and/or steer.

16. The method according to claim 4, wherein when a target object is a traffic police instruction, detecting the traffic signal of the vehicle travelling environment to obtain the detection result of the traffic signal comprises:

collecting a video stream including a traffic police by an image collection device provided on the vehicle; and

performing a traffic police instruction detection on at least one frame image in the video stream to obtain the traffic police instruction detection result.

17. The method according to claim 16, wherein in response to the current travelling state of the vehicle not matching the vehicle default state, outputting the driving alarm signal and/or the control signal for instructing the vehicle to switch from the current state to the vehicle default state comprises:

in response to the current travelling state of the vehicle not matching the vehicle default state corresponding to the traffic police instruction detection result, outputting the driving alarm signal and/or an instruction control signal which is based on the default travelling state corresponding to the traffic police instruction detection result, wherein the instruction control signal includes at least one of prompt information for turning on a turn lamp, controlling the vehicle to turn on a corresponding turn lamp, controlling the vehicle to steer, controlling the vehicle to brake, and controlling the vehicle to stop.

18. An intelligent driving control device, comprising:

a processor; and

a memory configured to store executable instructions,

wherein the processor is configured to execute the instructions stored in the memory, so as to:

detect a traffic signal of a vehicle travelling environment to obtain a detection result of the traffic signal;

acquire a current travelling state of a vehicle and a vehicle default state corresponding to the detection result of the traffic signal;

determine whether the current travelling state of the vehicle matches the vehicle default state; and

output a driving alarm signal and/or a control signal for instructing the vehicle to switch from a current state to the vehicle default state in response to the current travelling state of the vehicle not matching the vehicle default state.

19. The device according to claim 18, wherein outputting the driving alarm signal and/or the control signal for instructing the vehicle to switch from a the current state to the vehicle default state in response to the current travelling state of the vehicle not matching the vehicle default state comprises:

in response to the current travelling state of the vehicle not matching the vehicle default state corresponding to the lane line departure detection result, acquiring a fluctuation range of a distance between the vehicle and the lane line; and

in response to the fluctuation range exceeding a safe distance range within a duration of a set threshold for an alarm time, outputting the driving alarm signal and/or control the vehicle to keep the distance between the vehicle and the lane line within the safe distance range.

20. A non-transitory computer storage medium having computer-readable instructions stored thereon, wherein when being executed, the instructions perform operations of the intelligent driving control method according to any one of claims 1 to 17.