

CLAIMS

1. A system for vehicle positioning, comprising a virtual runway display device, an image acquisition device and a processor; wherein

the virtual runway display device is configured to display a virtual runway;

the image acquisition device is located above the virtual runway and is configured to acquire a target image in a process of a target vehicle traveling on the virtual runway; and

the processor is connected to or disposed inside the image acquisition device, and the processor is configured to:

determine first position information of the target vehicle in the virtual runway according to the target image; and

transmit the first position information to the target vehicle to enable the target vehicle to travel on the virtual runway according to the first position information.

~~2. The system of claim 1, wherein the processor is further configured to:~~

~~acquire second position information of an obstacle according to the target image; and~~

~~transmit the second position information to the target vehicle to enable the target vehicle to travel on the virtual runway according to the first position information and the second position information.~~

~~3. The system of claim 1 or 2, wherein the virtual runway display device comprises a projection device, and the projection device is configured to project a pattern of the virtual runway.~~

~~4. The system of claim 3,~~ wherein the projection device comprises a projector and a projection plane, and the projector is configured to project the pattern of the virtual runway onto the projection plane.

~~53.~~ The system of ~~any one of claims 1 to 4~~ claim 1 or 2, wherein the virtual runway display device comprises an augmented reality device, and the augmented reality device is configured to display the virtual runway in an augmented reality interface.

~~64.~~ The system of any one of claims 1 to ~~53~~, wherein the virtual runway display device is further configured to determine a size of the virtual runway according to a size of the target vehicle; and

wherein the size of the target vehicle comprises a width of the target vehicle, and the size of the virtual runway comprises a runway width.

~~75.~~ The system of any one of claims 1 to ~~53~~, wherein the virtual runway display device is configured to:

acquire a field image used for displaying a field of the virtual runway;

acquire field information according to the field image, wherein the field information comprises a size of the field; and

determine a size of the virtual runway and a pattern of the virtual runway according to the field information and a size of the target vehicle.

8. The system of claim 1, wherein the processor is further configured to:

acquire field information and a size of the target vehicle;

determine a size of the virtual runway and a pattern of the virtual runway according to the field information and the size of the target vehicle, and

transmit the size of the virtual runway and the pattern of the virtual runway to the virtual runway display device.

9. The system of any one of claims 1 to 8, wherein the processor is further configured to:

generate a vehicle control instruction at least according to the first position information;

and

transmit the vehicle control instruction to the target vehicle to enable the target vehicle to travel on the virtual runway according to the vehicle control instruction.

10. The system of any one of claims 1 to 9, wherein the processor is further configured to:

determine an offset of the target vehicle in the virtual runway with respect to a lane center line according to the target image; and

generate the first position information according to the offset.

11. The system of any one of claims 1 to 9, wherein the processor is further configured to:

determine an image of a preset range in a traveling direction of the target vehicle according to the target image; and

generate the first position information according to the image of the preset range.

~~12. The system of any one of claims 1 to 11, wherein the system further comprises:~~

~~a target vehicle, configured to travel on the virtual runway at least according to the first position information.~~

~~13. The system of claim 12, wherein the first position information comprises: an offset of the target vehicle in the virtual runway with respect to a lane center line, or an image of a preset range in a traveling direction of the target vehicle; and the target vehicle is further configured to:~~

~~determine a traveling path for the target vehicle according to the offset or determine the traveling path for the target vehicle according to the image of the preset range in the traveling direction of the target vehicle.~~

~~146.~~ A method for vehicle control, comprising:

receiving first position information of a target vehicle sent by a system for vehicle positioning;

determining a traveling path for the target vehicle in a virtual runway according to the first position information; and

controlling the target vehicle to travel according to the traveling path.

~~157.~~ The method of claim ~~146~~, wherein determining the traveling path for the target vehicle in the virtual runway according to the first position information comprises:

determining an offset of the target vehicle in the virtual runway with respect to a lane

center line according to the first position information; and

determining the traveling path for the target vehicle according to the offset, ~~or~~

~~16. The method of claim 14, wherein determining the traveling path for the target vehicle in the virtual runway according to the first position information comprises:~~

determining an image of a preset range in a traveling direction of the target vehicle according to the first position information; and

determining the traveling path for the target vehicle according to the image of the preset range.

~~17~~8. The method of ~~any one of claims 14 to 16~~claim 6 or 7, further comprising:

receiving a vehicle control instruction sent by the system for vehicle positioning; and

controlling the target vehicle to travel according to the vehicle control instruction, ~~or~~

~~18. The method of any one of claims 14 to 16, wherein further comprising:~~

receiving second position information of an obstacle sent by the system for vehicle positioning; and

determining the traveling path for the target vehicle in the virtual runway according to the first position information and the second position information; and

controlling the target vehicle to travel according to the traveling path.

[199](#). A method for vehicle positioning, including:

determining first position information of a target vehicle in a virtual runway according to a target image, wherein the virtual runway is a runway displayed by a virtual runway display device, and the target image is an image of the target vehicle traveling on the virtual runway acquired by an image acquisition device; and

transmitting the first position information to the target vehicle to enable the target vehicle to travel on the virtual runway according to the first position information.

[2010](#). The method of claim [199](#), further comprising:

acquiring second position information of an obstacle according to the target image; and

transmitting the second position information to the target vehicle to enable the target vehicle to travel on the runway pattern according to the first position information and the second position information.

[2111](#). The method of claim [199](#), further comprising:

acquiring, by the virtual runway display device, a field image used for displaying a field of the virtual runway;

acquiring field information according to the field image, wherein the field information comprises a size of the field; and

determining a size of the virtual runway and a pattern of the virtual runway according to the field information and a size of the target vehicle.

[2212](#). The method of claim [199](#), further comprising:

acquiring the field information and the size of the target vehicle;

determining the size of the virtual runway and the pattern of the virtual runway according to the field information and the size of the target vehicle, and

transmitting the size of the virtual runway and the pattern of the virtual runway to the virtual runway display device.

[2313](#). The method of any one of claims [19-9](#) to [2212](#), further comprising:

generating a vehicle control instruction at least according to the first position information;

and

transmitting the vehicle control instruction to the target vehicle to enable the target vehicle to travel on the runway pattern according to the vehicle control instruction.

[2414](#). The method of any one of claims [19-9](#) to [2313](#), wherein determining the first position information of the target vehicle in the virtual runway according to the target image comprises:

determining an offset of the target vehicle in the virtual runway with respect to a lane center line according to the target image; and

generating the first position information according to the offset.

[2515](#). The method of any one of claims [19-9](#) to [2313](#), wherein determining the first position information of the target vehicle in the virtual runway according to the target image comprises:

determining an image of a preset range in a traveling direction of the target vehicle according to the target image; and

generating the first position information according to the image of the preset range.

2616. A device for vehicle control, including:

a first receiving module, configured to receive first position information of a target vehicle sent by a system for vehicle positioning;

a first determination module, configured to determine a traveling path for the target vehicle in a virtual runway according to the first position information; and

a first traveling module, configured to control the target vehicle to travel according to the traveling path.

~~27. The device of claim 26, wherein the first determination module is further configured to:~~

~~determine an offset of the target vehicle in the virtual runway with respect to a lane center line according to the first position information; and~~

~~determine the traveling path for the target vehicle according to the offset.~~

~~28. The device of claim 26, wherein the first determination module is further configured to:~~

~~determine an image of a preset range in a traveling direction of the target vehicle according to the first position information; and~~

~~determine the traveling path for the target vehicle according to the image of the preset range.~~

~~29. The device of claim 26, further comprising:~~

~~a second receiving module, configured to receive a vehicle control instruction sent by the system for vehicle positioning; and~~

~~a control module, configured to control the target vehicle to travel according to the vehicle control instruction.~~

~~30. The device of claim 26, further comprising:~~

~~a third receiving module, configured to receive second position information of an obstacle sent by the system for vehicle positioning;~~

~~a second determination module, configured to determine the traveling path for the target vehicle in the virtual runway according to the first position information and the second position information; and~~

~~a second traveling module, configured to control the target vehicle to travel according to the traveling path.~~

~~31~~17. A device for vehicle positioning, including:

a third determination module, configured to determine first position information of a target vehicle in a virtual runway according to a target image, wherein the virtual runway is a runway displayed by a virtual runway display device, and the target image is an image of the target vehicle traveling on the virtual runway acquired by an image acquisition device; and

a first transmission module, configured to transmit the first position information to the target vehicle to enable the target vehicle travel on the virtual runway according to the first

position information.

32. The device of claim 31, further comprising:

~~a first acquisition module, configured to acquire second position information of an obstacle according to the target image; and~~

~~a second transmission module, configured to transmit the second position information to the target vehicle to enable the target vehicle to travel on a runway pattern according to the first position information and the second position information.~~

33. The device of claim 31, further comprising:

~~a second acquisition module, configured to acquire a field image used for displaying a field of the virtual runway by the virtual runway display device;~~

~~a third acquisition module, configured to acquire field information according to the field image, wherein the field information comprises a size of the field; and~~

~~a fourth determination module, configured to determine a size of the virtual runway and a pattern of the virtual runway according to the field information and a size of a target vehicle.~~

34. The device of claim 33, further comprising:

~~a fourth acquisition module, configured to acquire the field information and the size of the target vehicle;~~

~~a fifth determination module, configured to determine the size of the virtual runway and the pattern of the virtual runway according to the field information and the size of the~~

~~target vehicle, and transmit the size of the virtual runway and the pattern of the virtual runway to the virtual runway display device.~~

~~35. The device of claim 31, further comprising:~~

~~a generation module, configured to generate a vehicle control instruction at least according to the first position information; and~~

~~a third transmission module, configured to transmit the vehicle control instruction to the target vehicle to enable the target vehicle to travel on the runway pattern according to the vehicle control instruction.~~

~~36. The device of claim 31, wherein the third determination module is further configured to:~~

~~determine an offset of the target vehicle in the virtual runway with respect to a lane-center line according to the target image; and~~

~~generate the first position information according to the offset.~~

~~37. The device of claim 31, wherein the third determination module is further configured to:~~

~~determine an image of a preset range in a traveling direction of the target vehicle according to the target image; and~~

~~generate the first position information according to the image of the preset range.~~

~~38~~18. An electronic device, comprising:

a processor; and

a memory configured to store processor-executable instructions;

wherein the processor is configured to perform the method for vehicle control of any one of claims [14-6](#) to [188](#), or perform the method for vehicle positioning of any one of claims [19-9](#) to [2515](#).

[3919](#). A computer-readable storage medium, having computer program instructions stored thereon, the computer program instructions being executed by the processor to perform the method for vehicle control of any one of claims [614](#) to [188](#), or perform the method for vehicle positioning of any one of claims [19-9](#) to [2515](#).

[4020](#). A computer program-product, comprising computer readable codes, when run in an electronic device, the computer readable codes cause a processor of the electronic device to perform the method for vehicle control of any one of claims [14-6](#) to [188](#), or perform the method for vehicle positioning of any one of claims [19-9](#) to [2515](#).