

VIRTUAL VEHICLE CONTROL METHOD AND APPARATUS, TERMINAL DEVICE, AND STORAGE MEDIUM

RELATED APPLICATION

[0001] This application claims priority to Chinese Patent Application No. 202210557037.9, filed on May 20, 2022 and entitled "VIRTUAL VEHICLE CONTROL METHOD AND APPARATUS, TERMINAL DEVICE, AND STORAGE MEDIUM", which is incorporated herein by reference in its entirety.

FIELD OF THE TECHNOLOGY

[0002] Embodiments of this application relate to the field of Internet and computer technologies, and in particular, to a virtual vehicle control method and apparatus, a terminal device, and a storage medium.

BACKGROUND OF THE DISCLOSURE

[0003] In vehicle racing-type games, a user may control a virtual vehicle to perform operations such as turning, drifting, and flying.

[0004] In a related art, a slipping phenomenon occurs for certain duration after the virtual vehicle flies and lands, the user controls the vehicle to move after the slipping of the virtual vehicle ends, and a control manner of the virtual vehicle is simple and authenticity is poor.

SUMMARY

[0005] Embodiments of this application provide a virtual vehicle control method and apparatus, a terminal device, and a storage medium, and richness and authenticity of a control manner of a virtual vehicle can be improved. The technical solutions are as follows:

[0006] According to an aspect of embodiments of this application, a virtual vehicle control method is provided. The method is performed by a terminal device, and the method includes:

[0007] displaying a virtual vehicle in a flying state, the flying state being a state in which the virtual vehicle is not in contact with a ground of a virtual environment;

[0008] controlling the virtual vehicle to change from the flying state to a landing state, the landing state being a state in which the virtual vehicle is in contact with the ground of the virtual environment;

[0009] controlling the virtual vehicle to move forward at a decelerating rate when the virtual vehicle is in a throttle released state at a landing moment of the virtual vehicle, the landing moment being a moment at which the flying state is changed to the landing state; and

[0010] controlling the virtual vehicle to move forward at an accelerating rate with an additional first power in response to a first operation for a throttle control in first duration from the landing moment.

[0011] According to an aspect of embodiments of this application, a virtual vehicle control method is provided. The method is performed by a terminal device, and the method includes:

[0012] displaying a virtual vehicle in a flying state, the flying state being a state in which the virtual vehicle is not in contact with a ground of a virtual environment;

[0013] controlling the virtual vehicle to change from the flying state to a landing state, the landing state being a state in which the virtual vehicle is in contact with the ground of the virtual environment;

[0014] controlling the virtual vehicle to move forward at a decelerating rate when the virtual vehicle is in a throttle released state at a landing moment of the virtual vehicle, the landing moment being a moment at which the flying state is changed to the landing state; and

[0015] controlling the virtual vehicle to move forward at an accelerating rate with an additional third power in response to an operation for a charge control and a first operation for a throttle control in first duration from the landing moment, the operations for the charge control and the throttle control being triggered sequentially.

[0016] According to an aspect of embodiments of this application, a virtual vehicle control apparatus is provided. The apparatus includes:

[0017] a vehicle display module, configured to display a virtual vehicle in a flying state, the flying state being a state in which the virtual vehicle is not in contact with a ground of a virtual environment; and

[0018] a vehicle control module, configured to control the virtual vehicle to change from the flying state to a landing state, the landing state being a state in which the virtual vehicle is in contact with the ground of the virtual environment;

[0019] the vehicle control module, further configured to control the virtual vehicle to move forward at a decelerating rate when the virtual vehicle is in a throttle released state at a landing

moment of the virtual vehicle, the landing moment being a moment at which the flying state is changed to the landing state; and

[0020] the vehicle control module being further configured to control the virtual vehicle to move forward at an accelerating rate with an additional first power in response to a first operation for a throttle control in first duration from the landing moment.

[0021] According to an aspect of embodiments of this application, a virtual vehicle control apparatus is provided. The apparatus includes:

[0022] a vehicle display module, configured to display a virtual vehicle in a flying state, the flying state being a state in which the virtual vehicle is not in contact with a ground of a virtual environment; and

[0023] a vehicle control module, configured to control the virtual vehicle to change from the flying state to a landing state, the landing state being a state in which the virtual vehicle is in contact with the ground of the virtual environment;

[0024] the vehicle control module, further configured to control the virtual vehicle to move forward at a decelerating rate when the virtual vehicle is in a throttle released state at a landing moment of the virtual vehicle, the landing moment being a moment at which the flying state is changed to the landing state; and

[0025] the vehicle control module being further configured to control the virtual vehicle to move forward at an accelerating rate with an additional third power in response to an operation for a charge control and a first operation for a throttle control in first duration from the landing moment, the operations for the charge control and the throttle control being triggered sequentially.

[0026] According to an aspect of embodiments of this application, a terminal device is provided. The terminal device includes a processor and a memory, the memory has at least one program stored therein, and the at least one program is loaded and executed by the processor to implement the virtual vehicle control method.

[0027] According to an aspect of embodiments of this application, a computer-readable storage medium is provided. The computer-readable storage medium has at least one program stored therein, and the at least one program is loaded and executed by a processor to implement the virtual vehicle control method.

[0028] According to an aspect of embodiments of this application, a computer program product is provided. The computer program product includes a computer program, and the computer program is stored in a computer-readable storage medium. A processor of a computer

device reads the computer program from the computer-readable storage medium, and the processor executes the computer program, to cause the computer device to implement the virtual vehicle control method.

[0029] In a flying and landing process of the virtual vehicle, a user releases a throttle when the virtual vehicle flies and performs the first operation for the throttle control after the virtual vehicle lands, to implements a landing speed-up trick for the virtual vehicle. An additional power can be obtained for the virtual vehicle for certain duration, and richness of a control manner of the virtual vehicle is improved. In addition, by adding the above operation logic, a landing speed-up process of a vehicle in the real world can be simulated, and authenticity of the virtual vehicle is improved in a control process.

[0030] In addition, an additional power for certain duration brought by the landing speed-up trick of the virtual vehicle partially or entirely cancels impact of the virtual vehicle flying and landing on a vehicle speed. This improves user experience of controlling the virtual vehicle.

BRIEF DESCRIPTION OF THE DRAWINGS

[0031] FIG. 1 is a schematic diagram of an interface according to an embodiment of this application.

[0032] FIG. 2 is a schematic diagram of an interface according to another embodiment of this application.

[0033] FIG. 3 is a schematic diagram of an interface according to another embodiment of this application.

[0034] FIG. 4 is a schematic diagram of an implementation environment according to an embodiment of this application.

[0035] FIG. 5 is a flowchart of a virtual vehicle control method according to an embodiment of this application.

[0036] FIG. 6 is a flowchart of a virtual vehicle control method according to another embodiment of this application.

[0037] FIG. 7 is a flowchart of a virtual vehicle control method according to another embodiment of this application.

[0038] FIG. 8 is a flowchart of a virtual vehicle control method according to another embodiment of this application.

[0039] FIG. 9 is a flowchart of a virtual vehicle control method according to another embodiment of this application.

[0040] FIG. 10 is a flowchart of a virtual vehicle control method according to another embodiment of this application.

[0041] FIG. 11 is a block diagram of a virtual vehicle control apparatus according to an embodiment of this application.

[0042] FIG. 12 is a block diagram of a virtual vehicle control apparatus according to another embodiment of this application.

[0043] FIG. 13 is a block diagram of a virtual vehicle control apparatus according to another embodiment of this application.

[0044] FIG. 14 is a block diagram of a virtual vehicle control apparatus according to another embodiment of this application.

[0045] FIG. 15 is a block diagram of a terminal device according to an embodiment of this application.

DESCRIPTION OF EMBODIMENTS

[0046] As shown in section (a) of FIG. 1 and/or section (a) of FIG. 2, before a virtual vehicle 11 is about to fly, a user taps or presses and holds a throttle control 12, to control the virtual vehicle to move forward at an accelerating rate on the ground.

[0047] As shown in section (b) of FIG. 1 and/or section (b) of FIG. 2, after the virtual vehicle 11 flies, if a throttle is in a held state, the user may tap a first brake control 13 to cause the virtual vehicle 11 to change from the throttle held state to a throttle released state.

[0048] As shown in section (c) of FIG. 1, in 1.5 seconds from landing of the virtual vehicle 11, if the user taps the throttle control 12 to trigger a landing speed-up trick, a power of the virtual vehicle 11 is raised to 1.5 times a standard power, and the virtual vehicle 11 moves, with 1.5 times the standard power, forward at an accelerating rate for at least 0.3 seconds. Alternatively, as shown in section (c) of FIG. 2, in 1.5 seconds from landing of the virtual vehicle 11, if the user taps a nitrogen control 14 and then taps the throttle control 12, a nitrogen pressurization trick is triggered, a power of the virtual vehicle 11 is raised to 1.5 times a standard power, and the virtual vehicle 11 moves, with 1.5 times the standard power, forward at an accelerating rate for at least 0.3 seconds.

[0049] As shown in section (d) of FIG. 1, after performing an operation of tapping the throttle control 12, if the user does not release a finger and presses and holds the throttle control 12,

after 0.3 seconds, the virtual vehicle 11 continues to move forward at an accelerating rate with 1.5 times the standard power. Duration in which the virtual vehicle 11 continues to move forward at the accelerating rate with 1.5 times the standard power is at most 0.5 seconds.

[0050] In other words, after the virtual vehicle lands, a fast speed-up of the virtual vehicle can be implemented by triggering the landing speed-up trick or the nitrogen pressurization trick in time after the virtual vehicle lands.

[0051] In some embodiments, the embodiments of this application are performed by a client of a target application program. The client may be a client of an auto racing game-type application program, and as shown in FIG. 3, a virtual vehicle 11, a race track (for example, a road), and operation controls configured for controlling the virtual vehicle 11 are displayed in an interface of the client. The operation controls include a throttle control 12, a first brake control 13, a nitrogen control 14, a second brake control 15, a direction adjustment control 16, and a reset control 17.

[0052] The throttle control 12 is configured for controlling the virtual vehicle 11 to move at an accelerating rate. A user controls the virtual vehicle 11 to move at the accelerating rate through an operation for the throttle control 12. In some embodiments, when the throttle control 12 is continuously triggered (for example, the throttle control is pressed and held), the virtual vehicle 11 can remain in a throttle held state and accelerate continuously. If a trigger body leaves the throttle control 12, the virtual vehicle 11 changes from the throttle held state to a throttle released state, and the virtual vehicle 11 no longer accelerates (for example, maintains a constant velocity or continuously decelerates).

[0053] In other embodiments, to avoid a case in which the user needs to trigger the throttle control for an extended period of time, after the throttle control 12 is triggered (for example, the throttle control is tapped), the virtual vehicle 11 can still remain in the throttle held state even if the trigger body leaves the throttle control 12. In the throttle held state, when the first brake control 13 is triggered, the virtual vehicle 11 changes from the throttle held state to the throttle released state and no longer accelerates.

[0054] The first brake control 13 is configured for controlling the virtual vehicle 11 to decelerate or reverse. During an acceleration movement of the virtual vehicle 11, the user controls the virtual vehicle 11 to move at a slowly decelerating rate through a tap operation for the first brake control 13. Alternatively, the user controls the virtual vehicle 11 to move at a fast decelerating rate through a continuous pressing operation for the first brake control 13, and continues to control the virtual vehicle 11 to reverse if the continuous pressing operation does not disappear when a speed of the virtual vehicle 11 is reduced to zero. In some embodiments, the throttle control 12 and

the first brake control 13 cannot be pressed simultaneously, and if one of the throttle control 12 and the first brake control 13 is in a triggered state, the other control cannot be triggered.

[0055] The nitrogen control 14 is configured for controlling the virtual vehicle 11 to accelerate based on accumulated nitrogen resources. The user controls, through an operation for the nitrogen control 14, the virtual vehicle 11 to accelerate by consuming the accumulated nitrogen resources. In some embodiments, a nitrogen indication icon is also displayed in a user interface. The nitrogen indication icon includes a plurality of sub-icons, and the sub-icons correspond to a first display style and a second display style. A quantity of nitrogen resources accumulated by the virtual vehicle 11 is positively correlated with a quantity of sub-icons displayed in the first display style. In a process of accumulating the nitrogen resources, a transformation process of the sub-icon in the nitrogen indication icon from the second display style to the first display style is displayed to represent that the nitrogen resources are accumulated. In a process of consuming the nitrogen resources, a transformation process of the sub-icon in the nitrogen indication icon from the first display style to the second display style is displayed to represent that the nitrogen resources are consumed.

[0056] The second brake control 15 is configured for controlling the virtual vehicle 11 to move at a decelerating rate. The second brake control 15 is a control different from the first brake control 13. For example, the first brake control 13 may be a foot brake control, and the second brake control 15 may be a hand brake control. The user controls the virtual vehicle 11 to enter a drifting state through an operation for the direction adjustment control 16 and a first-tap operation for the second brake control 15, and then controls, through a second-tap operation for the second brake control 15, the virtual vehicle 11 to move at a rapidly decelerating rate until the speed is zero. In the drifting state, when the second brake control 15 is tapped again, rotation or turning of a vehicle front towards a drifting direction is accelerated, and the virtual vehicle 11 decelerates dramatically.

[0057] A slow deceleration movement, a fast deceleration movement, and a rapid deceleration movement are three different deceleration manners of the virtual vehicle. For example, deceleration efficiency of the slow deceleration movement is less than deceleration efficiency of the fast deceleration movement, and the deceleration efficiency of the fast deceleration movement is less than deceleration efficiency of the rapid deceleration movement.

[0058] The direction adjustment control 16 is configured for controlling a vehicle front orientation of the virtual vehicle 11. The user controls, through an operation for the direction adjustment control 16, the vehicle front orientation of the virtual vehicle 11 to perform adjustment.

In a possible implementation, the direction adjustment control 16 includes a plurality of sub-controls, and different sub-controls correspond to different adjustment directions. In another possible implementation, the direction adjustment control 16 includes a slider. The user adjusts the vehicle front orientation of the virtual vehicle 11 through a sliding operation for the slider, and different sliding directions correspond to different adjustment directions.

[0059] The reset control 17 is configured for controlling the virtual vehicle 11 to exit a stuck state. During a movement of the virtual vehicle 11, if the virtual vehicle 11 is not controllable due to the virtual vehicle 11 moving to a special spot, the virtual vehicle 11 is controlled to exit the special spot and reset to a nearest non-special spot through an operation for the reset control 17, so that the virtual vehicle 11 continues to move from the non-special spot.

[0060] Referring to FIG. 4, FIG. 4 is a schematic diagram of an implementation environment according to an embodiment of this application. The implementation environment may be implemented as a virtual vehicle control system. As shown in FIG. 4, a system 40 may include a terminal device 19.

[0061] A target application program, for example, a client of the target application program, is installed and runs in the terminal device 19. In some embodiments, a user account is logged in to on the client. The terminal device is an electronic device having data computing, processing, and storage functions. The terminal device may be a smartphone, a tablet computer, a personal computer (PC), a wearable device, or the like, and this is not limited in this embodiment of this application. The target application program may be a game application program such as a car racing-type game application program, a racing-type game application program, a shooting-type game application program, a multiplayer gunfight-type survival game application program, a battle royale survival-type game application program, a location based service (LBS)-type game application program, or a multiplayer online battle arena (MOBA)-type game application program, and this is not limited in this embodiment of this application. The target application program may alternatively be any application program having a control function of a virtual vehicle, such as a social application program, a payment application program, a video application program, a music application program, a shopping application program, or a news application program. In the method provided in this embodiment of this application, blocks may be performed by the terminal device 19, such as a client running in the terminal device 19.

[0062] In some embodiments, the system 40 further includes a server 20. There is a communication connection (for example, a network connection) established between the server 20 and the terminal device 19, and the server 20 is configured for providing background services for

the target application program. The server may be an independent physical server, or may be a server cluster or a distributed system including a plurality of physical servers, or may be a cloud server that provides cloud computing services.

[0063] The technical solutions of this application are described below with reference to several embodiments.

[0064] Referring to FIG. 5, FIG. 5 is a flowchart of a virtual vehicle control method according to an embodiment of this application. In this embodiment, an example in which the method is applied to the client described above is used for description. The method may include the following several blocks (501 to 504).

[0065] Block 501: Display a virtual vehicle in a flying state, the flying state being a state in which the virtual vehicle is not in contact with a ground of a virtual environment.

[0066] In some embodiments, the virtual vehicle in an interface may be in the flying state when a vehicle speed is high and a road is uneven (for example, the road is broken or excessively tough). The flying state is a state in which all tires of the virtual vehicle are off the ground. For example, if the virtual vehicle is a four-wheel racing car, the virtual vehicle is in the flying state when four tires of the virtual vehicle are in an off-ground state at the same time. For another example, if the virtual vehicle is a two-wheel motorcycle, the virtual vehicle is in the flying state when two tires of the virtual vehicle are in the off-ground state at the same time.

[0067] In some embodiments, the virtual environment is a scene displayed (or provided) by the client when the client of the target application program (for example, a game application program) runs on a terminal device, and the virtual environment is a scene, such as a virtual city, a virtual playing field, or a virtual map, created for displaying the virtual vehicle. The virtual environment may be a simulated environment of the real world, a semi-simulated semi-imaginary environment, or a purely imaginary environment. The virtual environment may be a two-dimensional virtual environment, a 2.5-dimensional virtual environment, or a three-dimensional virtual environment. This is not limited in this embodiment of this application.

[0068] The virtual vehicle may be an object that a user controls in the target application program. The virtual vehicle may be presented in a three-dimensional form or in a two-dimensional form, and this is not limited in this embodiment of this application. In some embodiments, when the virtual environment in which the virtual vehicle is located is the three-dimensional virtual environment, the virtual vehicle may be a three-dimensional model created based on a three-dimensional technology. The virtual vehicle has its own shape and volume in the

three-dimensional virtual environment and occupies a part of space in the three-dimensional virtual environment.

[0069] In the flying state, if the virtual vehicle is in a throttle held state, engine idling causes a high rotation speed, and the tires have difficulty in gripping the ground for short time after landing. Consequently, the virtual vehicle enters a slipping state. The engine speed is reduced by releasing a throttle before the virtual vehicle lands, so that the virtual vehicle is prevented from entering the slipping state after landing, and the virtual vehicle can accelerate straight after the virtual vehicle is refueled subsequently.

[0070] Block 502: Control the virtual vehicle to change from the flying state to a landing state, the landing state being a state in which the virtual vehicle is in contact with the ground of the virtual environment.

[0071] In some embodiments, regardless of how many tires the virtual vehicle has, the virtual vehicle is in the landing state provided that one tire touches the ground during a fall of the virtual vehicle in the flying state.

[0072] Block 503: Control the virtual vehicle to move forward at a decelerating rate when the virtual vehicle is in a throttle released state at a landing moment of the virtual vehicle.

[0073] The landing moment is a moment at which the flying state is changed to the landing state. When the virtual vehicle lands, because the virtual vehicle is in the throttle released state, the virtual vehicle has no power, and the virtual vehicle moves forward by inertia. In addition, due to presence of resistance such as "friction", the virtual vehicle continuously decelerates until the vehicle speed is zero in the throttle released state.

[0074] In some embodiments, when the virtual vehicle is in the flying state, the virtual vehicle is controlled to change from the throttle held state to the throttle released state in response to an operation for a first brake control.

[0075] In other embodiments, when a throttle control needs to be continuously triggered to keep the virtual vehicle in the throttle held state and the virtual vehicle is in the flying state, the virtual vehicle is changed from the throttle held state to the throttle released state in response to a stop of an operation for the throttle control.

[0076] Block 504: Control the virtual vehicle to move forward at an accelerating rate with an additional first power in response to a first operation for the throttle control in first duration from the landing moment.

[0077] In some embodiments, as shown in FIG. 1, second prompt information 21 is displayed in response to a first operation for the throttle control 12 in the first duration from the landing moment. The second prompt information 21 is configured for indicating that a landing speed-up trick is triggered, and the landing speed-up trick is a trick in which the virtual vehicle moves forward at the accelerating rate with the additional first power.

[0078] In some embodiments, if the user performs the first operation for the throttle control in the first duration counted from the landing moment of the virtual vehicle, the virtual vehicle moves forward at an accelerating rate with the superimposed additional first power based on a standard power. If the first operation for the throttle control is not detected in the first duration and is detected after the first duration ends, the virtual vehicle only moves forward with the standard power, and there is no addition of the additional first power.

[0079] The standard power is a power corresponding to a current throttle gear of the virtual vehicle. In some embodiments, the throttle of the virtual vehicle corresponds to one or more gears. When the throttle of the virtual vehicle corresponds to a plurality of gears, powers corresponding to different gears are different, and the user can switch the power of the virtual vehicle by switching the gear of the virtual vehicle. In a same case, the greater the power of the virtual vehicle, the greater the acceleration of the virtual vehicle (the faster the virtual vehicle accelerates).

[0080] In some embodiments, the additional first power is superimposed based on the standard power, to obtain an actual power of the virtual vehicle; and the virtual vehicle is controlled to move forward at an accelerating rate with the actual power in second duration. In other words, after detecting the first operation for the throttle control, the client gives the virtual vehicle a power, namely, the standard power, corresponding to a current gear. On this basis, the additional first power is superimposed to obtain the actual power of the virtual vehicle, and the virtual vehicle is driven with the actual power. The additional first power has effective duration, namely, the second duration. After the second duration ends, the additional first power ends or is weakened.

[0081] In some embodiments, the additional first power may be a fixed value, and the value may be set by a person skilled in the relevant art based on actual circumstances, and this is not specifically limited in this embodiment of this application.

[0082] In some embodiments, the additional first power is obtained through calculation based on the standard power. For example, the additional first power is obtained by the standard power multiplied by a coefficient (in other words, the actual power is the standard power multiplied by a number greater than 1). The coefficient may be 0.3, 0.5, 0.8, 1, or the like. In some

embodiments, the multiple may be set by a person skilled in the relevant art based on actual circumstances, and this is not specifically limited in this embodiment of this application.

[0083] The first operation may be an operation such as tap or press and hold. The first duration may be 1 second, 1.5 seconds, 2 seconds, or the like, and the second duration may be 0.2 seconds, 0.3 seconds, 0.5 seconds, or the like. Specific duration of the first duration and the second duration may be set by a person skilled in the relevant art based on actual circumstances, and this is not specifically limited in this embodiment of this application.

[0084] In a possible implementation, the terminal device may determine a time interval between the landing moment and a moment of receiving the first operation for the throttle control, and determine the additional first power and/or the second duration based on the time interval.

[0085] In some embodiments, the additional first power is negatively correlated with the time interval. In other words, the faster the throttle control is triggered after the virtual vehicle lands, the more additional power can be obtained. The second duration is positively correlated with the time interval. In other words, the faster the throttle control is triggered after the virtual vehicle lands, the longer the time of acceleration with the additional first power.

[0086] By associating the additional first power and/or the second duration with a trigger timing of the throttle control, differentiated landing speed-up is implemented. This helps improve competitiveness and authenticity in a control process.

[0087] In some embodiments, the virtual vehicle is controlled to move forward at an accelerating rate with additional 0.5 times the standard power in response to the tap or press and hold operation for the throttle control in 1.5 seconds from the landing moment. That is, the actual power of the virtual vehicle is 1.5 times the standard power.

[0088] In conclusion, in the technical solutions provided in this embodiment of this application, in a process of the virtual vehicle flying and landing, the user implements a landing speed-up trick for the virtual vehicle by releasing the throttle when the virtual vehicle flies and performing the first operation for the throttle control after the virtual vehicle lands, the virtual vehicle can obtain the additional power for certain duration to move forward, and richness of a control manner of the virtual vehicle is improved.

[0089] In addition, the additional power for the certain duration brought by the landing speed-up trick of the virtual vehicle partially or entirely cancels impact of the virtual vehicle flying and landing on a vehicle speed. This improves user experience of controlling the virtual vehicle.

[0090] In addition, in this embodiment of this application, a change in operating experience between a case in which the virtual vehicle flies and a case in which the virtual vehicle runs on a road is properly transited. This improves operability of the virtual vehicle and the authenticity in the control process.

[0091] In some possible implementations, the terminal device controls the virtual vehicle to enter the slipping state when the virtual vehicle is in the throttle held state at the landing moment of the virtual vehicle. In the slipping state, the virtual vehicle is controlled to move forward with a curtailed power.

[0092] In other words, if the virtual vehicle lands in the throttle held state, the virtual vehicle loses stability and slips with impact of the landing. In this case, the virtual vehicle is powered due to the virtual vehicle being in the throttle held state, but the power of the virtual vehicle is curtailed due to the slip, and the power is less than the standard power. In some embodiments, the curtailed power of the virtual vehicle is 0.2 times that of the standard power. In other words, a power decrement is 0.8 times the standard power. A multiple relationship/proportional relationship between the power decrement and the standard power may be set by a person skilled in the relevant art based on actual circumstances, and this is not specifically limited in this embodiment of this application. In some embodiments, the cutting power is a fixed value irrelevant to the standard power, and a specific value of the cutting power may be set by a person skilled in the relevant art based on actual circumstances, and this is not specifically limited in this embodiment of this application.

[0093] In some embodiments, the terminal device controls the virtual vehicle to exit the slipping state in response to the operation for the first brake control, and a third operation for the throttle control when the virtual vehicle is in the slipping state. After the virtual vehicle exits the slipping state, the terminal device controls the virtual vehicle to move forward with the additional first power, the operations for the first brake control and the throttle control being triggered sequentially. To be specific, the user triggers the first brake control before triggering the throttle control.

[0094] In some embodiments, the brake control includes a hand brake control and a foot brake control. The first brake control may be the foot brake control.

[0095] In this embodiment of this application, the virtual vehicle slips because the virtual vehicle is still in the throttle held state when the virtual vehicle is unstable. Therefore, in the slipping state, the first brake control is first triggered, so that the virtual vehicle loses the power, to stabilize the virtual vehicle. Then, the throttle control is triggered to apply the power to the

stabilized virtual vehicle. If the user performs the operation for the first brake control first (for example, taps the first brake control) and then performs the third operation for the throttle control (for example, taps or presses and holds the throttle control) when the virtual vehicle is in the slipping state, the landing speed-up trick is also triggered, and the virtual vehicle obtains an addition of the additional first power for the second duration based on the standard power.

[0096] In some embodiments, if the operation for the first brake control is detected when the virtual vehicle is in the slipping state, the virtual vehicle exits the slipping state. In addition, in certain duration (for example, 1 second, 1.5 seconds, or 2 seconds) from the operation for the first brake control, if the third operation for the throttle control is detected, the landing speed-up trick is triggered, and the virtual vehicle moves forward with the additional first power. The third operation for the throttle control and the first operation for the throttle control may be the same operation.

[0097] In the foregoing implementation, when the throttle of the virtual vehicle is not released and the slipping state occurs after the virtual vehicle lands, the landing speed-up trick may still be triggered by performing the operation for the first brake control first and then performing the first operation for the throttle control, so that diversity and inclusiveness of the control manner of the landing speed-up trick is improved and a success rate of the landing speed-up trick is improved.

[0098] Referring to FIG. 6, after block 504, the virtual vehicle control method may further include the following blocks (505 to 507).

[0099] Block 505: Control the virtual vehicle to continue to move forward at an accelerating rate with an additional second power when the second duration ends and there is a second operation for the throttle control.

[00100] In some embodiments, that the second duration ends indicates that the additional first power is no longer effective. At this point, if the second operation for the throttle control is detected, it indicates that the user still expects to gain an additional power addition, so that the virtual vehicle may be controlled to continue to move forward at the accelerating rate with the superimposed additional second power based on the standard power.

[00101] For a determining manner of the additional second power, refer to the related content of the additional first power, and details are not described herein again. In some embodiments, the additional second power is less than the additional first power; or the additional second power is greater than the additional first power; or the additional second power is equal to the additional first power.

[00102] In some embodiments, the second operation for the throttle control may be a continuation of the first operation for the throttle control. For example, the first operation for the throttle control is to touch or press the throttle control. After the second duration ends, if it is detected that the touching or pressing operation for the throttle control has not disappeared, and that a touch body keeps touching or pressing the throttle control, it is determined that the second operation for the throttle control is detected.

[00103] In some embodiments, when the throttle control supports maintaining the throttle held state after the throttle control is triggered, the second duration ends, and there is no operation for the first brake control, the terminal device controls the vehicle to continue to move forward at the accelerating rate with the additional second power.

[00104] In some embodiments, there is also a limitation for duration in which the virtual vehicle moves forward at the accelerating rate with the additional second power. For example, the duration in which the virtual vehicle moves forward at the accelerating rate with the additional second power is less than or equal to a rated maximum value, such as 0.3 seconds, 0.5 seconds, or 0.8 seconds. A specific value may be set by a person skilled in the relevant art based on actual circumstances, and this is not specifically limited in this embodiment of this application.

[00105] Block 506: Control the virtual vehicle to move forward with the standard power when the second operation is stopped.

[00106] In some embodiments, while the virtual vehicle continues to move forward at the accelerating rate with the additional second power, the additional second power stops being effective/is cancelled provided that a case in which the second operation is stopped is detected, even if the effective duration of the additional second power has not reached the rated maximum value. In this way, the virtual vehicle can only move forward with the standard power.

[00107] In some embodiments, when the throttle control supports maintaining the throttle held state after the throttle control is triggered, if there is the operation for the first brake control, the terminal device controls the vehicle to move forward with a power less than the standard power.

[00108] Block 507: Control the virtual vehicle to move forward with the standard power, and display first prompt information when the effective duration of the additional second power reaches the rated maximum value.

[00109] In some embodiments, as shown in FIG. 1 or FIG. 2, the first prompt information 22 is configured for indicating that a full-throttle trick is triggered, the full-throttle trick being a trick in which the effective duration of the additional second power reaches the rated maximum value.

[00110] After the effective duration of the additional second power reaches the rated maximum value, the additional second power is stopped/cancelled even if the second operation is not stopped yet. In this way, the virtual vehicle can only move forward with the standard power.

[00111] Only one of the foregoing blocks 506 and 507 may be performed, or neither of the foregoing blocks 506 and 507 is performed.

[00112] In conclusion, in the technical solutions provided in this embodiment of this application, after acceleration effect of the landing speed-up trick is implemented, the virtual vehicle can move at the accelerating rate by pressing and holding the throttle control to obtain the additional second power, and the user can freely control the specific effective duration of the additional second power in duration of the rated maximum value. This further improves the richness of the control manner of the virtual vehicle.

[00113] Referring to FIG. 7, FIG. 7 is a flowchart of a virtual vehicle control method according to another embodiment of this application. In this embodiment, an example in which the method is applied to the client described above is used for description. The method may include the following several blocks (701 to 704).

[00114] Block 701: Display a virtual vehicle in a flying state, the flying state being a state in which the virtual vehicle is not in contact with a ground of a virtual environment.

[00115] In some embodiments, when the virtual vehicle is in the flying state, the virtual vehicle is controlled to change from a throttle held state to a throttle released state in response to an operation for a first brake control.

[00116] Block 702: Control the virtual vehicle to change from the flying state to a landing state, the landing state being a state in which the virtual vehicle is in contact with the ground of the virtual environment.

[00117] Block 703: Control the virtual vehicle to move forward at a decelerating rate when the virtual vehicle is in the throttle released state at a landing moment of the virtual vehicle.

[00118] The landing moment is a moment at which the flying state is changed to the landing state.

[00119] For content of block 701 to block 703, refer to the content of block 501 to block 503, and details are not described herein again.

[00120] Block 704: Control the virtual vehicle to move forward at an accelerating rate with an additional third power in response to an operation for a charge control and a first operation for a throttle control in first duration from the landing moment.

[00121] In some embodiments, as shown in FIG. 2, if the operation for the charge control (for example, a nitrogen control 14) is detected first and then the first operation for the throttle control 12 is detected in the first duration from the landing moment, third prompt information 23 is displayed, the third prompt information 23 being configured for indicating that a nitrogen pressurization trick is triggered, and the nitrogen pressurization trick being a trick in which the virtual vehicle moves forward at the accelerating rate with the additional third power.

[00122] In some embodiments, if a user triggers the charge control (for example, the charge control is tapped) and then triggers the throttle control in the first duration counted from the landing moment of the virtual vehicle, the virtual vehicle moves forward at an accelerating rate with the superimposed additional third power based on a standard power. If the operation for the charge control is not detected first and then the first operation for the throttle control is detected in the first duration, but the operation for the throttle control is detected after the first duration ends, the virtual vehicle only moves forward with the standard power and without an addition of the additional third power.

[00123] In some embodiments, the additional third power is superimposed based on the standard power, to obtain an actual power of the virtual vehicle; and the virtual vehicle is controlled to move forward at an accelerating rate with the actual power in third duration. In other words, after detecting the operation for the charge control before detecting the first operation for the throttle control, the client gives the virtual vehicle a power, namely, the standard power, corresponding to a current gear. On this basis, the additional third power is superimposed to obtain the actual power of the virtual vehicle, and the virtual vehicle is driven with the actual power. The additional third power has effective duration, namely, the third duration. After the third duration ends, the additional third power ends.

[00124] For a determining manner of the additional third power, refer to the related content of the additional first power, and details are not described herein again. In some embodiments, because additional charge is used for acceleration, the additional third power is greater than the additional first power.

[00125] The third duration may be 0.5 seconds, 1.5 seconds, 2 seconds, or the like. A specific value of the third duration may be set by a person skilled in the relevant art based on actual circumstances, and this is not specifically limited in this embodiment of this application.

[00126] In a possible implementation, a terminal device can determine a first time interval between the landing moment and a moment of receiving the operation for the charge control, and a second time interval between the moment of receiving the operation for the charge control and a moment of receiving the first operation for the throttle control, and determine the additional third power and/or the third duration based on the first and second time intervals.

[00127] In some embodiments, the additional third power is negatively correlated with the first time interval and the second time interval. In other words, the faster the charge control and throttle control are triggered after the virtual vehicle lands, the greater the additional power can be obtained. The third duration is positively correlated with the time interval. In other words, the faster the charge control and throttle control are triggered after the virtual vehicle lands, the longer the time of acceleration with the additional third power.

[00128] By associating the additional third power and/or the third duration with a triggering timing of the charge control and throttle control, a differentiated landing speed-up is implemented. This helps improve competitiveness and authenticity in a control process.

[00129] In some embodiments, the operation for the charge control may be completed before the virtual vehicle lands. Before the virtual vehicle lands, after a throttle is released, an engine can be filled with nitrogen gas to a certain density, and finally (the engine of) the virtual vehicle can be powered up for short time by igniting the nitrogen gas through the throttle.

[00130] In some embodiments, in 1.5 seconds from the landing moment, if the operation for the charge control is detected before the first operation for the throttle control is detected, the virtual vehicle is controlled to move forward at accelerating rate with additional 1 times the standard power. To be specific, the actual power of the virtual vehicle is 2 times the standard power.

[00131] In some embodiments, a fixed acceleration of x_1 km/h/s is superimposed based on a current speed after the nitrogen pressurization trick is triggered, while the virtual vehicle obtains an additional limit speed of x_2 km/h (where the limit speed may not be reached). The fixed acceleration provided by the nitrogen pressurization trick will begin to decay linearly after the virtual vehicle accelerates to a speed of y km/h from the virtual vehicle limit speed, with the acceleration decaying to zero when the virtual vehicle reaches the limit speed.

[00132] For example, it is assumed that a speed at which the virtual vehicle lands without slipping is 50 km/h, the limit speed is 400 km/h, $x_1=15$, $x_2=15$, and $y=200$. After the nitrogen pressurization trick is triggered, the virtual vehicle may obtain the fixed acceleration of 15 km/h/s while the limit speed of the virtual vehicle is increased to $400+15=415$ km/h. The fixed acceleration

(15 km/h/s) provided by landing pressurization nitrogen will begin to decay linearly after a virtual vehicle speed reaches $415-200=215$ km/h, and the acceleration decreases to zero when the virtual vehicle speed reaches 415 km/h. In some cases, a maximum speed addition may not be reached due to short effective duration of the trick. That is, the limit speed cannot be reached.

[00133] For a part of content of block 704, refer to block 504, and details are not described herein again.

[00134] In conclusion, in the technical solutions provided in this embodiment of this application, in a process of the virtual vehicle flying and landing, the user implements the nitrogen pressurization trick for the virtual vehicle by releasing the throttle when the virtual vehicle flies and performing the operation for the charge control first and then performing the first operation for the throttle control, the virtual vehicle can obtain the additional power for certain duration to move forward, and richness of a control manner of the virtual vehicle is improved.

[00135] In some possible implementations, the terminal device controls the virtual vehicle to enter a slipping state when the virtual vehicle is in the throttle held state at the landing moment of the virtual vehicle. In the slipping state, the terminal device controls the virtual vehicle to move forward with a curtailed power.

[00136] In some embodiments, the terminal device controls the virtual vehicle to exit the slipping state when the virtual vehicle is in the slipping state and the operation for the first brake control, the operation for the charge control, and a third operation for the throttle control are sequentially received. After exiting the slipping state, the virtual vehicle is controlled to move forward with the additional third power.

[00137] In this embodiment of this application, in the slipping state, the first brake control is triggered, so that the virtual vehicle loses the power, to stabilize the virtual vehicle. Then, the charge control and the throttle control are triggered sequentially to charge the stabilized virtual vehicle with nitrogen and apply power. If the user triggers the first brake control, the charge control, and the throttle control sequentially when the virtual vehicle is in the slipping state, the nitrogen pressurization trick is also triggered, and the virtual vehicle obtains an addition of the additional third power for the third duration based on the standard power.

[00138] In some embodiments, if the operation for the first brake control is detected when the virtual vehicle is in the slipping state, the virtual vehicle exits the slipping state. In addition, in certain duration (for example, 1 second, 1.5 seconds, or 2 seconds) from the operation for the first brake control, if the operation for the charge control is detected before the first operation for the

throttle control is detected, the nitrogen pressurization trick is triggered and the virtual vehicle moves forward with the additional third power. Beyond certain duration, a slip ends, and the nitrogen pressurization trick cannot be triggered again. The third operation for the throttle control and the first operation for the throttle control may be the same operation.

[00139] In the foregoing implementation, when the throttle of the virtual vehicle is not released and the slipping state occurs after the virtual vehicle lands, the nitrogen pressurization trick may still be triggered by performing the operation for the first brake control first and then performing the first operation for the throttle control, so that diversity and inclusiveness of an operation manner of the nitrogen pressurization trick is improved and a success rate of the nitrogen pressurization trick is improved.

[00140] Referring to FIG. 8, after block 704, the virtual vehicle control method may further include the following blocks (705 to 707).

[00141] Block 705: Control the virtual vehicle to continue to move forward at an accelerating rate with an additional fourth power when the third duration ends and there is a second operation for the throttle control.

[00142] In some embodiments, that the second duration ends indicates that the additional third power is no longer effective. At this point, if the second operation for the throttle control is detected, it indicates that the user still expects to gain an additional power addition, so that the virtual vehicle may be controlled to continue to move forward at the accelerating rate with the superimposed additional fourth power based on the standard power.

[00143] In some embodiments, the additional fourth power is less than the additional third power.

[00144] Block 706: Control the virtual vehicle to move forward with the standard power when the second operation is stopped.

[00145] In some embodiments, while the virtual vehicle continues to move forward at the accelerating rate with the additional third power, the additional third power stops being effective/is cancelled provided that a case in which the second operation is stopped is detected, even if the effective duration of the additional third power has not reached the rated maximum value. In this way, the virtual vehicle can only move forward with the standard power.

[00146] Block 707: Control the virtual vehicle to move forward with the standard power, and display first prompt information when the effective duration of the additional fourth power reaches the rated maximum value.

[00147] In some embodiments, the first prompt information is configured for indicating that a full-throttle trick is triggered, the full-throttle trick being a trick in which the effective duration of the additional fourth power reaches the rated maximum value.

[00148] After the effective duration of the additional third power reaches the rated maximum value, the additional third power is stopped/cancelled even if the second operation is not disappeared yet. In this way, the virtual vehicle can only move forward with the standard power.

[00149] Only one of the foregoing blocks 706 and 707 may be performed, or neither of the foregoing blocks 706 and 707 is performed.

[00150] For some block content in this embodiment of this application, refer to the embodiments of FIG. 5 and FIG. 6, and details are not described herein again.

[00151] In conclusion, in the technical solutions provided in this embodiment of this application, after acceleration effect of the nitrogen pressurization trick is implemented, the virtual vehicle can move at the accelerating rate with the additional fourth power by pressing and holding the throttle control, and the user can freely control the specific effective duration of the additional fourth power in duration of the rated maximum value. This further improves the richness of the control manner of the virtual vehicle.

[00152] As shown in FIG. 9, a virtual vehicle control method may include the following blocks (901 to 909).

[00153] Block 901: A virtual vehicle flies through a road with a height difference, and wheels idle.

[00154] Block 902: The virtual vehicle lands.

[00155] Block 903: Detect whether the virtual vehicle is in a throttled release state, and if yes, the virtual vehicle does not slip, and the following block 904 is performed; or if no, the virtual vehicle slips, and the following block 906 is performed.

[00156] Block 904: Whether an operation of tapping a throttle control is detected in 1.5 seconds, and if yes, block 905 is performed; or if no, a landing speed-up trick is not triggered.

[00157] Block 905: Trigger the landing speed-up trick.

[00158] Block 906: Detect whether a first brake control is tapped before the throttle control is tapped in a slipping state, and if yes, block 905 is performed; or if no, block 906 is further performed.

[00159] Block 907: Detect whether to continue to press and hold the throttle control after acceleration effect of the landing speed-up trick ends, and if yes, block 908 is performed; or if no, only the acceleration effect of landing speed-up is obtained.

[00160] Block 908: Move forward at an accelerating rate with an additional second power based on the acceleration effect of the landing speed-up and duration of pressing and holding the throttle control.

[00161] Block 909: Detect whether duration of continuing to press and hold the throttle control exceeds 0.5 seconds after the landing speed-up trick ends, and if yes, displaying first prompt information is triggered; or if no, displaying first prompt information is not triggered.

[00162] For each block in this embodiment of this application, refer to the foregoing content, and details are not described herein again.

[00163] As shown in FIG. 10, a virtual vehicle control method may include the following blocks (1001 to 1009).

[00164] Block 1001: A virtual vehicle flies through a road with a height difference, and wheels idle.

[00165] Block 1002: The virtual vehicle lands.

[00166] Block 1003: Detect whether the virtual vehicle is in a throttled release state, and if yes, the virtual vehicle does not slip, and the following block 1004 is performed; or if no, the virtual vehicle slips, and the following block 1006 is performed.

[00167] Block 1004: Whether a charge control is tapped first and then a throttle control is tapped in 1.5 seconds, if yes, block 1005 is performed; or if no, a nitrogen pressurization trick is not triggered.

[00168] Block 1005: Trigger the nitrogen pressurization trick.

[00169] Block 1006: Detect whether a first brake control, the charge control, and the throttle control are sequentially triggered in a slipping state, and if yes, block 1005 is performed; or if no, block 1006 is further performed.

[00170] Block 1007: Detect whether to continue to press and hold the throttle control after acceleration effect of the nitrogen pressurization trick ends, and if yes, block 1008 is performed; or if no, only the acceleration effect of nitrogen pressurization is obtained.

[00171] Block 1008: Move forward at an accelerating rate with an additional fourth power based on the acceleration effect of the nitrogen pressurization and duration of pressing and holding the throttle control.

[00172] Block 1009: Detect whether duration of continuing to press and hold the throttle control exceeds 0.5 seconds after the nitrogen pressurization trick ends, and if yes, displaying first prompt information is triggered; or if no, displaying first prompt information is not triggered.

[00173] For each block in this embodiment of this application, refer to the foregoing content, and details are not described herein again.

[00174] The following describes apparatus embodiments of this application, and the apparatus embodiments can be used for executing the method embodiments of this application. For details not disclosed in the apparatus embodiments of this application, refer to the method embodiments of this application.

[00175] Referring to FIG. 11, FIG. 11 is a block diagram of a virtual vehicle control apparatus according to an embodiment of this application. The apparatus has a function of implementing the example of the virtual vehicle control method, and the function may be implemented by hardware or may be implemented by hardware executing corresponding software. The apparatus may be the terminal device introduced above, or may be provided on a terminal device. The apparatus 1100 may include a vehicle display module 1110 and a vehicle control module 1120.

[00176] The vehicle display module 1110 is configured to display a virtual vehicle in a flying state, the flying state being a state in which the virtual vehicle is not in contact with a ground of a virtual environment.

[00177] The vehicle control module 1120 is configured to control the virtual vehicle to change from the flying state to a landing state, the landing state being a state in which the virtual vehicle is in contact with the ground of the virtual environment.

[00178] The vehicle control module 1120 is further configured to control the virtual vehicle to move forward at a decelerating rate when the virtual vehicle is in a throttle released state at a landing moment of the virtual vehicle, the landing moment being a moment at which the flying state is changed to the landing state.

[00179] The vehicle control module 1120 is further configured to control the virtual vehicle to move forward at an accelerating rate with an additional first power in response to a first operation for a throttle control in first duration from the landing moment.

[00180] In an exemplary embodiment, the vehicle control module 1120 is further configured to:

[00181] superimpose, based on a standard power, the additional first power to obtain an actual power of the virtual vehicle; and

[00182] control the virtual vehicle to move forward at the accelerating rate with the actual power in second duration.

[00183] In an exemplary embodiment, the vehicle control module 1120 is further configured to:

[00184] control the virtual vehicle to continue to move forward at the accelerating rate with an additional second power when the second duration ends and there is a second operation for the throttle control.

[00185] In an exemplary embodiment, the vehicle control module 1120 is further configured to:

[00186] control the virtual vehicle to move forward with the standard power when the second operation is stopped;

[00187] or

[00188] control the virtual vehicle to move forward with the standard power and display first prompt information when effective duration of the additional second power reaches a rated maximum value, the first prompt information being configured for indicating that a full-throttle trick is triggered, and the full-throttle trick being a trick in which the effective duration of the additional second power reaches the rated maximum value.

[00189] In an exemplary embodiment, the vehicle control module 1120 is further configured to:

[00190] control the virtual vehicle to change from a throttle held state to the throttle released state in response to an operation for a first brake control when the virtual vehicle is in the flying state.

[00191] In an exemplary embodiment, as shown in FIG. 12, the apparatus 1100 further includes an information display module 1130.

[00192] The information display module 1130 is configured to display second prompt information in response to the first operation for the throttle control in the first duration from the landing moment, the second prompt information being configured for indicating that a landing

speed-up trick is triggered, and the landing speed-up trick being a trick in which the virtual vehicle moves forward at the accelerating rate with the additional first power.

[00193] In an exemplary embodiment, the vehicle control module 1120 is further configured to:

[00194] control the virtual vehicle to enter a slipping state when the virtual vehicle is in a throttle held state at the landing moment of the virtual vehicle; and

[00195] control the virtual vehicle to move forward with a curtailed power in the slipping state.

[00196] In an exemplary embodiment, the vehicle control module 1120 is further configured to:

[00197] control the virtual vehicle to exit the slipping state in response to an operation for a first brake control and a third operation for the throttle control when the virtual vehicle is in the slipping state, the operations for the first brake control and the throttle control being triggered sequentially; and

[00198] control the virtual vehicle to move forward with the additional first power after exiting the slipping state.

[00199] In conclusion, in the technical solutions provided in this embodiment of this application, in a process of the virtual vehicle flying and landing, a user implements the landing speed-up trick for the virtual vehicle by releasing a throttle when the virtual vehicle flies and performing the first operation for the throttle control after the virtual vehicle lands, the virtual vehicle can obtain the additional power for certain duration to move forward, and richness of a control manner of the virtual vehicle is improved.

[00200] Referring to FIG. 13, FIG. 13 is a block diagram of a virtual vehicle control apparatus according to another embodiment of this application. The apparatus has a function of implementing the example of the virtual vehicle control method, and the function may be implemented by hardware or may be implemented by hardware executing corresponding software. The apparatus may be the terminal device introduced above, or may be provided on a terminal device. The apparatus 1300 may include a vehicle display module 1310 and a vehicle control module 1320.

[00201] The vehicle display module 1310 is configured to display a virtual vehicle in a flying state, the flying state being a state in which the virtual vehicle is not in contact with a ground of a virtual environment.

[00202] The vehicle control module 1310 is configured to control the virtual vehicle to change from the flying state to a landing state, the landing state being a state in which the virtual vehicle is in contact with the ground of the virtual environment.

[00203] The vehicle control module 1320 is further configured to control the virtual vehicle to move forward at a decelerating rate when the virtual vehicle is in a throttle released state at a landing moment of the virtual vehicle, the landing moment being a moment at which the flying state is changed to the landing state.

[00204] The vehicle control module 1320 is further configured to control the virtual vehicle to move forward at an accelerating rate with an additional third power in response to an operation for a charge control and a first operation for a throttle control in first duration from the landing moment, the operations for the charge control and the throttle control being triggered sequentially.

[00205] In an exemplary embodiment, the vehicle control module 1320 is further configured to:

[00206] superimpose, based on a standard power, the additional third power to obtain an actual power of the virtual vehicle; and

[00207] control the virtual vehicle to move forward at the accelerating rate with the actual power in third duration.

[00208] In an exemplary embodiment, the vehicle control module 1320 is further configured to control the virtual vehicle to continue to move forward at the accelerating rate with an additional fourth power when the third duration ends and there is a second operation for the throttle control.

[00209] In an exemplary embodiment, the vehicle control module 1320 is further configured to:

[00210] control the virtual vehicle to move forward with the standard power when the second operation ends;

[00211] or

[00212] control the virtual vehicle to move forward with the standard power and display first prompt information when effective duration of the additional fourth power reaches a rated maximum value, the first prompt information being configured for indicating that a full-throttle trick is triggered, and the full-throttle trick being a trick in which the effective duration of the additional fourth power reaches the rated maximum value.

[00213] In an exemplary embodiment, the vehicle control module 1320 is further configured to control the virtual vehicle to change from a throttle held state to the throttle released state in response to an operation for a first brake control when the virtual vehicle is in the flying state.

[00214] In an exemplary embodiment, as shown in FIG. 14, the apparatus 1300 further includes an information display module 1330.

[00215] The information display module 1330 is configured to display third prompt information in response to the operation for the charge control and the first operation for the throttle control in the first duration from the landing moment, the third prompt information being configured for indicating that a nitrogen pressurization trick is triggered, and the nitrogen pressurization trick being a trick in which the virtual vehicle moves forward at the accelerating rate with the additional third power.

[00216] In an exemplary embodiment, the vehicle control module 1320 is further configured to:

[00217] control the virtual vehicle to enter a slipping state when the virtual vehicle is in a throttle held state at the landing moment of the virtual vehicle; and

[00218] control the virtual vehicle to move forward with a curtailed power in the slipping state.

[00219] In an exemplary embodiment, the vehicle control module 1320 is further configured to:

[00220] control the virtual vehicle to exit the slipping state when an operation for a first brake control, the operation for the charge control, and a third operation for the throttle control are sequentially received in the slipping state; and

[00221] control the virtual vehicle to move forward with the additional third power after exiting the slipping state.

[00222] In conclusion, in the technical solutions provided in this embodiment of this application, in a process of the virtual vehicle flying and landing, a user implements the nitrogen pressurization trick for the virtual vehicle by releasing a throttle when the virtual vehicle flies and performing the operation for the charge control first and then performing the first operation for the throttle control, the virtual vehicle can obtain the additional power for certain duration to move forward, and richness of a control manner of the virtual vehicle is improved.

[00223] When the apparatus provided in the foregoing embodiment implements the functions of the apparatus, only division of the foregoing function modules is used as an example for description. In the practical application, the functions may be allocated to and completed by different function modules according to requirements. That is, an internal structure of the device is divided into different function modules, to complete all or some of the functions described above. In addition, the apparatus provided in the foregoing embodiments and the method embodiments fall within a same conception. For details of a specific implementation process, refer to the method embodiments. Details are not described herein again.

[00224] Referring to FIG. 15, FIG. 15 is a block diagram of a structure of a terminal device 1500 according to an embodiment of this application. The terminal device 1500 may be an electronic device, such as a phone, a tablet, a game host, an e-book reader, a multimedia playback device, a wearable device, or a PC. The terminal device is configured for performing the virtual vehicle control method provided in the foregoing embodiments. Specifically:

[00225] The terminal device 1500 usually includes a processor 1501 and a memory 1502.

[00226] The processor 1501 may include one or more processing cores, for example, a 4-core processor or an 8-core processor. The processor 1501 may be implemented in at least one hardware form of a digital signal processor (DSP), field programmable gate array (FPGA), and programmable logic array (PLA). A processor 1701 may also include a main processor and a co-processor. The main processor is a processor configured for processing data in an awake state, and is also referred to as a central processing unit (CPU); and the co-processor is a low power processor configured for processing data in a standby state. In some embodiments, the processor 1501 may be integrated with a graphics processing unit (GPU). The GPU is configured for rendering and drawing content that needs to be displayed on a display screen. In some embodiments, the processor 1501 may further include an artificial intelligence (AI) processor. The AI processor is configured for processing a computing operation related to machine learning.

[00227] The memory 1502 may include one or more computer-readable storage media. The computer-readable storage medium may be non-transient. The memory 1502 may further include a high-speed random access memory and a non-volatile memory, for example, one or more disk storage devices or flash storage devices. In some embodiments, the non-transient computer-readable storage medium in the memory 1502 is configured for storing at least one instruction, at least one program, a code set, or an instruction set, and is configured to be executed by one or more processors to implement the virtual vehicle control method.

[00228] In some embodiments, the terminal device 1500 further includes a peripheral device interface 1503 and at least one peripheral device. The processor 1501, the memory 1502, and the peripheral device interface 1503 may be connected through a bus or a signal cable. Each peripheral device may be connected to the peripheral device interface 1503 through a bus, a signal cable, or a circuit board. Specifically, the peripheral device includes at least one of a radio frequency circuit 1504, a display screen 1505, an audio circuit 1507, and a power supply 1509.

[00229] A person skilled in the art may understand that the structure shown in FIG. 15 constitutes no limitation on the terminal device 1500, and the terminal device 1500 may include more or fewer components than those shown in the figure, or some components may be combined, or a different component deployment may be used.

[00230] In an exemplary embodiment, a computer-readable storage medium is further provided. The storage medium has at least one instruction, at least one program, a code set, or an instruction set stored therein, and when the at least one instruction, the at least one program, the code set, or the instruction set is executed by a processor, the virtual vehicle control method is implemented.

[00231] In an exemplary embodiment, a computer program product or a computer program is further provided. The computer program product or the computer program includes computer instructions, and the computer instructions are stored in a computer-readable storage medium. A processor of a computer device reads the computer instructions from the computer-readable storage medium, and the processor executes the computer instructions, so that the computer device implements the virtual vehicle control method.

[00232] The foregoing descriptions are merely exemplary embodiments of this application, but are not intended to limit this application. Any modification, equivalent replacement, or improvement made within the spirit and principle of this application shall fall within the protection scope of this application.

CLAIMS

What is claimed is:

1. A virtual vehicle control method, performed by a terminal device, and comprising:

displaying a virtual vehicle in a flying state, the flying state being a state in which the virtual vehicle is not in contact with a ground of a virtual environment;

controlling the virtual vehicle to change from the flying state to a landing state, the landing state being a state in which the virtual vehicle is in contact with the ground of the virtual environment;

controlling the virtual vehicle to move forward at a decelerating rate when the virtual vehicle is in a throttle released state at a landing moment of the virtual vehicle, the landing moment being a moment at which the flying state is changed to the landing state; and

controlling the virtual vehicle to move forward at an accelerating rate with an additional first power in response to a first operation for a throttle control in first duration from the landing moment.

2. The method according to claim 1, wherein the controlling the virtual vehicle to move forward at an accelerating rate with an additional first power comprises:

superimposing, based on a standard power, the additional first power to obtain an actual power of the virtual vehicle; and

controlling the virtual vehicle to move forward at the accelerating rate with the actual power in second duration.

3. The method according to claim 2, wherein the method further comprises:

controlling the virtual vehicle to continue to move forward at the accelerating rate with an additional second power when the second duration ends and there is a second operation for the throttle control.

4. The method according to claim 3, wherein the method further comprises:

controlling the virtual vehicle to move forward with the standard power when the second operation ends;

or

controlling the virtual vehicle to move forward with the standard power and displaying first prompt information when effective duration of the additional second power reaches a rated

maximum value, the first prompt information being configured for indicating that a full-throttle trick is triggered, and the full-throttle trick being a trick in which the effective duration of the additional second power reaches the rated maximum value.

5. The method according to claim 1, wherein the method further comprises:

controlling the virtual vehicle to change from a throttle held state to the throttle released state in response to an operation for a first brake control when the virtual vehicle is in the flying state.

6. The method according to claim 1, wherein the method further comprises:

displaying second prompt information in response to the first operation for the throttle control in the first duration from the landing moment, the second prompt information being configured for indicating that a landing speed-up trick is triggered, and the landing speed-up trick being a trick in which the virtual vehicle moves forward at the accelerating rate with the additional first power.

7. The method according to claim 1, wherein the method further comprises:

controlling the virtual vehicle to enter a slipping state when the virtual vehicle is in a throttle held state at the landing moment of the virtual vehicle; and

controlling the virtual vehicle to move forward with a curtailed power in the slipping state.

8. The method according to claim 7, wherein the method further comprises:

controlling the virtual vehicle to exit the slipping state in response to an operation for a first brake control and a third operation for the throttle control when the virtual vehicle is in the slipping state, the operations for the first brake control and the throttle control being triggered sequentially; and

controlling the virtual vehicle to move forward with the additional first power after exiting the slipping state.

9. A virtual vehicle control method, performed by a terminal device, and comprising:

displaying a virtual vehicle in a flying state, the flying state being a state in which the virtual vehicle is not in contact with a ground of a virtual environment;

controlling the virtual vehicle to change from the flying state to a landing state, the landing state being a state in which the virtual vehicle is in contact with the ground of the virtual environment;

controlling the virtual vehicle to move forward at a decelerating rate when the virtual vehicle is in a throttle released state at a landing moment of the virtual vehicle, the landing moment being a

moment at which the flying state is changed to the landing state; and

controlling the virtual vehicle to move forward at an accelerating rate with an additional third power in response to an operation for a charge control and a first operation for a throttle control in first duration from the landing moment, the operations for the charge control and the throttle control being triggered sequentially.

10. The method according to claim 9, wherein the controlling the virtual vehicle to move forward at an accelerating rate with an additional third power comprises:

superimposing, based on a standard power, the additional third power to obtain an actual power of the virtual vehicle; and

controlling the virtual vehicle to move forward at the accelerating rate with the actual power in third duration.

11. The method according to claim 10, wherein the method further comprises:

controlling the virtual vehicle to continue to move forward at the accelerating rate with an additional fourth power when the third duration ends and there is a second operation for the throttle control.

12. The method according to claim 11, wherein the method further comprises:

controlling the virtual vehicle to move forward with the standard power when the second operation ends;

or

controlling the virtual vehicle to move forward with the standard power and displaying first prompt information when effective duration of the additional fourth power reaches a rated maximum value, the first prompt information being configured for indicating that a full-throttle trick is triggered, and the full-throttle trick being a trick in which the effective duration of the additional fourth power reaches the rated maximum value.

13. The method according to claim 9, wherein the method further comprises:

controlling the virtual vehicle to change from a throttle held state to the throttle released state in response to an operation for a first brake control when the virtual vehicle is in the flying state.

14. The method according to claim 9, wherein the method further comprises:

displaying third prompt information in response to the operation for the charge control and the first operation for the throttle control in the first duration from the landing moment, the third prompt

information being configured for indicating that a nitrogen pressurization trick is triggered, and the nitrogen pressurization trick being a trick in which the virtual vehicle moves forward at the accelerating rate with the additional third power.

15. The method according to claim 9, wherein the method further comprises:

controlling the virtual vehicle to enter a slipping state when the virtual vehicle is in a throttle held state at the landing moment of the virtual vehicle; and

controlling the virtual vehicle to move forward with a curtailed power in the slipping state.

16. The method according to claim 15, wherein the method further comprises:

controlling the virtual vehicle to exit the slipping state when an operation for a first brake control, the operation for the charge control, and a third operation for the throttle control are sequentially received in the slipping state; and

controlling the virtual vehicle to move forward with the additional third power after exiting the slipping state.

17. A virtual vehicle control apparatus, comprising:

a vehicle display module, configured to display a virtual vehicle in a flying state, the flying state being a state in which the virtual vehicle is not in contact with a ground of a virtual environment; and

a vehicle control module, configured to control the virtual vehicle to change from the flying state to a landing state, the landing state being a state in which the virtual vehicle is in contact with the ground of the virtual environment,

the vehicle control module being further configured to control the virtual vehicle to move forward at a decelerating rate when the virtual vehicle is in a throttle released state at a landing moment of the virtual vehicle, the landing moment being a moment at which the flying state is changed to the landing state; and

the vehicle control module being further configured to control the virtual vehicle to move forward at an accelerating rate with an additional first power in response to a first operation for a throttle control in first duration from the landing moment.

18. A virtual vehicle control apparatus, comprising:

a vehicle display module, configured to display a virtual vehicle in a flying state, the flying state being a state in which the virtual vehicle is not in contact with a ground of a virtual

environment; and

a vehicle control module, configured to control the virtual vehicle to change from the flying state to a landing state, the landing state being a state in which the virtual vehicle is in contact with the ground of the virtual environment,

the vehicle control module being further configured to control the virtual vehicle to move forward at a decelerating rate if the virtual vehicle is in a throttle released state at a landing moment of the virtual vehicle, the landing moment being a moment at which the flying state is changed to the landing state; and

the vehicle control module being further configured to control the virtual vehicle to move forward at an accelerating rate with an additional third power in response to an operation for a charge control and a first operation for a throttle control in first duration from the landing moment, the operations for the charge control and the throttle control being triggered sequentially.

19. A terminal device, comprising a processor and a memory, the memory having at least one program stored therein, and the at least one program being loaded and executed by the processor to implement the virtual vehicle control method according to any one of claims 1 to 8, or implement the virtual vehicle control method according to any one of claims 9 to 16.

20. A computer-readable storage medium, having at least one program stored therein, and the at least one program being loaded and executed by a processor to implement the virtual vehicle control method according to any one of claims 1 to 8, or implement the virtual vehicle control method according to any one of claims 9 to 16.

21. A computer program product, comprising computer instructions, and the computer instructions being stored in a computer-readable storage medium; and the computer instructions being read by a processor of a computer device from the computer-readable storage medium and executed by the processor, to cause the computer device to implement the virtual vehicle control method according to any one of claims 1 to 8, or implement the virtual vehicle control method according to any one of claims 9 to 16.