

SERVICE CONTROL AND USER IDENTITY AUTHENTICATION BASED ON VIRTUAL REALITY

[0001] This application claims priority to Chinese Patent Application No. 201610896522.3, filed on October 13, 2016, and U.S. Patent Application No. 5 15/782,729, filed on October 12, 2017, the entire contents of which is hereby incorporated by reference.

TECHNICAL FIELD

[0002] This disclosure relates to virtual reality applications, and more particularly to service control and user identity authentication based on virtual reality.

BACKGROUND

[0003] Virtual reality (VR) is a computer technology that uses VR devices, such as headsets, sometimes in combination with physical spaces or multi-projected environments, to generate realistic images, sounds, and other sensations that simulate a user's physical presence in a three dimensional (3D) virtual environment and allows 10 the VR user to interact with the virtual environment. Many applications, such as those for gaming, content consumption, and productivity, have been developed to provide user an immersive experience using VR technology. Many VR applications allow in-application purchases, user customization, or parental control. These operations should require user identity authentication for security purposes.

SUMMARY

[0004] The present disclosure describes methods and systems, including computer-implemented methods, computer program products, and computer systems for service control and user identity authentication based on virtual reality (VR).

[0004a] According to one aspect, there is provided a method for service 25 implementation. The method comprises: recognizing a voice instruction sent by a user of a virtual reality (VR) device within a virtual reality scenario; invoking, when an execution instruction for a target service requiring security authentication is recognized from the voice instruction of the user, preset biometric recognition hardware in response to the execution instruction to collect a biometric characteristic of the user; 30 initiating, based on the collected biometric characteristic, security authentication for

the target service to a service server terminal; and performing a service interaction with the service server terminal in response to a result returned by the service server terminal and indicating that the security authentication is successful, to complete the target service, by performing operations comprising: constructing, by the VR device, a voice recognition request based on the voice command; sending, by the VR device, a voice recognition request through an access interface to the service server terminal; receiving, by the VR device, a character string instruction associated with the voice command; determining, by the VR device, whether the character string instruction is an executable instruction corresponding to the service; and performing, by the VR device, the service in response to the received character string instruction.

[0004b] According to another aspect, there is provided an apparatus for service implementation. The apparatus comprises a plurality of modules configured to perform the previously described method.

[0005] In an implementation, a voice command of a VR device user for initiating a service supported by a VR application is received. A biometric sensor is used to collect one or more biometric characteristics of the VR device user. User identity authentication is performed based on the collected one or more biometric characteristics, and a server that provides the service for performing the service if the user identity authentication is successful is communicated with.

[0006] The previously described implementation is implementable using a

CLAIMS

1. A method for service implementation, the method comprising:

recognizing a voice instruction sent by a user of a virtual reality (VR) device within a virtual reality scenario;

invoking, when an execution instruction for a target service requiring security authentication is recognized from the voice instruction of the user, preset biometric recognition hardware in response to the execution instruction to collect a biometric characteristic of the user;

initiating, based on the collected biometric characteristic, security authentication for the target service to a service server terminal; and

performing a service interaction with the service server terminal in response to a result returned by the service server terminal and indicating that the security authentication is successful, to complete the target service, by performing operations comprising:

constructing, by the VR device, a voice recognition request based on the voice command;

sending, by the VR device, a voice recognition request through an access interface to the service server terminal;

receiving, by the VR device, a character string instruction associated with the voice command;

determining, by the VR device, whether the character string instruction is an executable instruction corresponding to the service; and

performing, by the VR device, the service in response to the received character string instruction.

2. The method of claim 1, wherein recognizing the voice instruction sent by the user comprises:

collecting, by using preset audio collection hardware, the voice instruction sent by the user wearing the virtual reality terminal;

uploading the voice instruction to the service server terminal, such that the service server terminal performs speech recognition on the voice instruction to convert the voice instruction into a character string instruction; and

receiving the character string instruction, which is obtained after speech recognition is performed on the voice instruction, returned by the service server terminal.

3. The method of claim 1, further comprising:

terminating, when a cancellation instruction for the target service is recognized from the voice instruction of the user, the target service in response to the cancellation instruction; and

switching, when a switching instruction for a service execution mode corresponding to the target service is recognized from the voice instruction of the user, the service execution mode corresponding to the target service in response to the switching instruction.

4. The method of claim 1, before invoking preset biometric recognition hardware to collect the biometric characteristic of the user, further comprising:

performing a bioassay process for detecting the user; and

outputting a biometric characteristic collection prompt to the user in a user view of the virtual reality scenario when the user passes the bioassay.

5. The method of claim 4, wherein the biometric characteristic is a fingerprint; the biometric recognition hardware is fingerprint recognition hardware.

6. The method of claim 5, further comprising:

outputting, in the user view of the virtual reality scenario, a prompt for indicating a mounting position of the biometric recognition hardware on a virtual reality terminal.

7. The method of claim 4, wherein the bioassay process includes eye-blinking recognition or heartbeat recognition.

8. The method of claim 1, wherein initiating, based on the collected biometric characteristic, security authentication for the target service to the service server terminal comprises:

sending a verification request for the collected biometric characteristic to the service server terminal, the verification request carrying the collected biometric characteristic and account information of the user, such that the service server terminal searches a preset biometric

characteristic library for a biometric characteristic sample bound to the account information of the user, and matches the biometric characteristic with the biometric characteristic sample, to perform security authentication on the target service.

9. The method of claim 1, wherein the target service comprises a payment service.

10. An apparatus for service implementation, the apparatus comprising a plurality of modules configured to perform the method of any one of claims 1 to 9.