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(54) **ACCESS CONTROL**

(57) The present disclosure provides entrance guard control systems, methods and apparatuses for accessing an entrance guard device, and gateway devices. The entrance guard control system includes: an entrance guard management platform; a gateway device and an entrance guard controller which are connected to the entrance guard management platform; a first entrance guard device; and a second entrance guard device. The second entrance guard device is connected to the entrance guard controller. The second entrance guard device is configured to collect and identify card number information, and send the identified card number information to the entrance guard controller. The gateway device is configured to acquire object information from the entrance guard management platform, where the object information includes at least: object data, and correspond-

ing card number information, and send the object information to the first entrance guard device. The first entrance guard device is accessed to the gateway device. The first entrance guard device is connected to the entrance guard controller. The first entrance guard device is configured to record the object information sent by the gateway device, collect and identify first object data, and send, to the entrance guard controller, card number information corresponding to target object data matching the first object data from object data. The entrance guard controller is configured to receive the card number information, and control an entrance guard based on the card number information.

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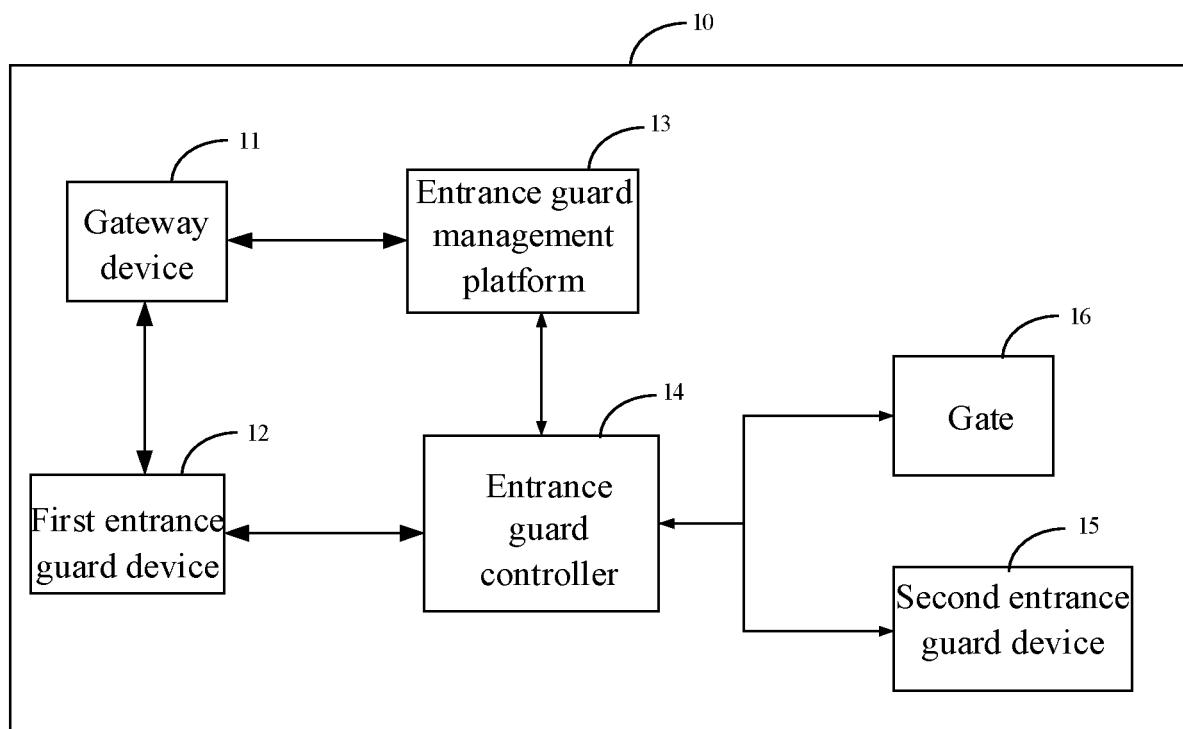


FIG.2

Description

TECHNICAL FIELD

[0001] The present disclosure relates to the field of security technologies, and in particular, to entrance guard control systems, methods and apparatuses for accessing an entrance guard device, and gateway devices.

BACKGROUND

[0002] An entrance guard control system, also referred to as an access control system, is an intelligent management system for managing entry and exit of personnel. Earlier entrance guard control systems include entrance guard control systems based on password identification, entrance guard control systems based on card number identification, etc. In recent years, various identification technologies have become more mature, such as face identification technologies, and fingerprint identification technologies. These new identification technologies have been applied to entrance guard control systems. Therefore, an important problem in entrance guard control systems is how to upgrade the existing entrance guard control systems to support these new identification technologies.

SUMMARY

[0003] In view of this, the present disclosure provides entrance guard control systems, methods and apparatuses for accessing an entrance guard device, and gateway devices, which can reduce costs for software and hardware upgrades of existing entrance guard control systems, so that the entrance guard control systems can support different identification technologies.

[0004] A first aspect of the present disclosure provides an entrance guard control system, including: an entrance guard management platform; a gateway device and an entrance guard controller which are connected to the entrance guard management platform; at least one first entrance guard device connected to the entrance guard controller and accessed to the gateway device; and at least one second entrance guard device connected to the entrance guard controller.

[0005] The second entrance guard device is configured to collect and identify card number information, and send the identified card number information to the entrance guard controller.

[0006] Where the entrance guard management platform is configured to record object information which includes at least: object data indicating designated object features, and corresponding card number information.

[0007] The gateway device is configured to acquire the object information from the entrance guard management platform, and send the object information to the accessed first entrance guard device.

[0008] The first entrance guard device is configured to

record the object information sent by the gateway device, collect and identify first object data, and send, to the entrance guard controller, card number information corresponding to target object data matching the identified first object data from object data recorded in the first entrance guard device.

[0009] The entrance guard controller is configured to receive card number information sent by either of the first entrance guard device and the second entrance guard device, and control an entrance guard based on the received card number information.

[0010] A second aspect of the present disclosure provides an entrance guard control system, including: an entrance guard management platform; a gateway device and an entrance guard controller which are connected to the entrance guard management platform; and at least one first entrance guard device accessed to the gateway device, and connected to the entrance guard controller.

[0011] Where entrance guard management platform is configured to record object information, and the object information includes at least: object data indicating designated object features, and corresponding object identifier;

The gateway device is configured to acquire the object information from the entrance guard management platform, and send the object information to the accessed first entrance guard device;

The first entrance guard device is configured to record the object information sent by the gateway device, collect and identify first object data, and send, to the entrance guard controller, an object identifiers corresponding to target object data matching the identified first object data from object data recorded in the first entrance guard device.

[0012] The entrance guard controller is configured to receive the object identifier sent by the first entrance guard device, and control an entrance guard based on the received object identifier.

[0013] A third aspect of the present disclosure provides a method for accessing an entrance guard device, applied to a gateway device. The gateway device is connected to an entrance guard management platform in a designated entrance guard control system, and the designated entrance guard control system further includes an entrance guard controller.

[0014] The method includes:

acquiring object information from the entrance guard management platform, where the object information includes at least: object data indicating designated object features, and corresponding object identifier; acquiring access information of at least one first entrance guard device that is to be accessed; and accessing corresponding first entrance guard device to the gateway device based on the access information, and sending the object information acquired from the entrance guard management platform to the accessed first entrance guard device, so that the

first entrance guard device, after collecting and identifying first object data, sends, to the entrance guard controller for entrance guard control, an object identifier corresponding to target object data matching the identified first object data from object data recorded in the first entrance guard device.

[0015] A fourth aspect of the present disclosure provides an apparatus for accessing an entrance guard device, applied to a gateway device. The gateway device is connected to an entrance guard management platform in a designated entrance guard control system, and the designated entrance guard control system further includes an entrance guard controller.

[0016] The apparatus includes:

an object information acquiring module configured to acquire object information from the entrance guard management platform, where the object information includes at least: object data indicating designated object features, and corresponding object identifier; an access information acquiring module configured to acquire access information of at least one first entrance guard device that is to be accessed; and a module for accessing entrance guard device configured to access corresponding first entrance guard device to the gateway device based on the access information, and send the object information acquired from the entrance guard management platform to the accessed first entrance guard device, so that the first entrance guard device, after collecting and identifying first object data, sends, to the entrance guard controller for entrance guard control, an object identifier corresponding to target object data matching the identified first object data from object data recorded in the first entrance guard device.

[0017] A fifth aspect of the present disclosure provides a gateway device. The gateway device is connected to an entrance guard management platform in a designated entrance guard control system. The designated entrance guard control system further includes an entrance guard controller.

[0018] The gateway device includes a processor and a memory. The memory stores programs callable by the processor. The processor executes the programs to implement the method for accessing the entrance guard device as described above.

[0019] A sixth aspect of the present disclosure provides machine readable storage media, having programs stored thereon. When the programs are executed by a processor to implement the method for accessing the entrance guard device as described above.

[0020] A seventh aspect of the present disclosure provides a computer program product, including computer programs or instructions. When the computer programs or instructions are executed, the method for accessing the entrance guard device as described above is imple-

mented.

[0021] Compared with the prior art, the embodiments of the present disclosure have at least the following beneficial effects:

[0022] In the embodiments of one or more aspects of the present disclosure, on the basis of the entrance guard control system based on the card number identification, the gateway device is connected to the entrance guard management platform of the entrance guard control system, the first entrance guard device is connected to the entrance guard controller of the entrance guard control system, and the first entrance guard device can acquire the object information of the entrance guard management platform through the gateway device, which reduces software and hardware upgrades of the entrance guard management platform. When the entrance guard control is performed, the first entrance guard device can identify the collected first object data, and after determining the target object data matching the identified first object data from the locally recorded object data, the card number information corresponding to the target object data is sent to the entrance guard controller, and the entrance guard controller can still control the entrance guard based on the card number information, which reduces costs for software and hardware upgrades of the entrance guard controller while enabling the entrance guard control system to be compatible with non-card number identification technologies of the first entrance guard device and card number identification technologies of the second entrance guard device. That is, the entrance guard control system according to the embodiments of the present disclosure can support different identification technologies with a smaller improvement cost.

[0023] In the embodiments of one or more aspects of the present disclosure, on the basis of the entrance guard control system based on the object identifier identification, the gateway device is connected to the entrance guard management platform of the entrance guard control system, the first entrance guard device is connected to the entrance guard controller of the entrance guard control system, and the first entrance guard device can acquire the object information of the entrance guard management platform through the gateway device, where the object information includes at least: object data indicating designated object features, and corresponding object identifier, which reduces software and hardware upgrades of the entrance guard management platform. When the entrance guard control is performed, the first entrance guard device can identify the collected first object data, and after determining the target object data matching the identified first object data from the locally recorded object data, the object identifier corresponding to the target object data is sent to the entrance guard controller, and the entrance guard controller can still control the entrance guard based on the object identifier, which reduces costs for software and hardware upgrades of the entrance guard controller while enabling the en-

trance guard control system to support identification of object data of object features and identification of object identifier. The entrance guard control system according to the embodiments of the present disclosure can support different identification technologies with a smaller improvement cost.

BRIEF DESCRIPTION OF THE DRAWINGS

[0024]

FIG. 1 is a structural block diagram illustrating an existing entrance guard control system.

FIG. 2 is a structural block diagram illustrating an entrance guard control system according to an embodiment of the present disclosure.

FIG. 3 is a structural block diagram illustrating another entrance guard control system according to an embodiment of the present disclosure.

FIG. 4 is a structural block diagram illustrating still another entrance guard control system according to an embodiment of the present disclosure.

FIG. 5 is a schematic flow chart illustrating a method for accessing an entrance guard device according to an embodiment of the present disclosure.

FIG. 6 is a structural block diagram illustrating an apparatus for accessing an entrance guard device according to an embodiment of the present disclosure.

FIG. 7 is a structural block diagram illustrating a gateway device according to an embodiment of the present disclosure.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0025] Examples will be described in detail herein, with the illustrations thereof represented in the drawings. When the following descriptions involve the drawings, like numerals in different drawings refer to like or similar elements unless otherwise indicated. The embodiments described in the following examples do not represent all embodiments consistent with the present disclosure. Rather, they are merely examples of apparatuses and methods consistent with some aspects of the present disclosure as detailed in the appended claims.

[0026] The terms used in the present disclosure are for the purpose of describing particular examples only, and are not intended to limit the present disclosure. Terms determined by "a", "the" and "said" in their singular forms in the present disclosure and the appended claims are also intended to include plurality, unless clearly indicated otherwise in the context. It should also be understood that the term "and/or" as used herein refers to and includes any and all possible combinations of one or more of the associated listed items.

[0027] An entrance guard control system is as shown in FIG. 1. An entrance guard control system 100' includes an entrance guard management platform 101', an en-

trance guard controller 102', an entrance guard device 103', and a gate 104'. The entrance guard management platform 101' records object information used for entrance guard control, such as corresponding name, card number information and permission information, and sends the object information to the entrance guard controller 102'. The entrance guard device 103' supports card number identifying technologies, reads identified card number information and sends the card number information to the entrance guard controller 102'. The entrance guard controller 102' determines whether the received card number information has a permission to open the gate, and if the received card number information has the permission to open the gate, the entrance guard is released, that is, restriction on the gate 104' is released to open the gate.

[0028] The entrance guard control system in FIG. 1 does not support other feature identifying technologies, such as face identification, to control entrance guard. In order to enable the entrance guard control system to support the face identification, in a related manner, when a face identifying device is accessed to an existing entrance guard control system, the face identifying device is connected directly to an entrance guard management platform, and the entrance guard management platform, an entrance guard controller, etc. are upgraded in hardware and software, so that the entrance guard controller can perform entrance guard control based on face feature data. In the above manner, in order to enable the entrance guard control system to support other feature identifying technologies, costs for upgrading the software and hardware of the entrance guard control system are relatively high.

[0029] In order to make the description of the embodiments of the present disclosure clearer and more concise, some of technical terms are explained below.

[0030] Gateway refers to a computer system or device that acts as a conversion role, which is used between two systems with different communication protocols, data formats or languages, and even with completely different system architectures.

[0031] Entrance guard control systems according to the embodiments of the present disclosure will be described below, but should not be limited thereto.

[0032] The present disclosure provides an entrance guard control system. In an embodiment, referring to FIG. 2, an entrance guard control system 10 includes: an entrance guard management platform 13; a gateway device 11 and an entrance guard controller 14 connected to the entrance guard management platform 13; at least one first entrance guard device 12; and at least one second entrance guard device 15. In FIG. 2, only one first entrance guard device 12 and one second entrance guard device 15 are shown. It will be understood that, there may be more first entrance guard devices 12 and second entrance guard devices 15. The entrance guard control system 10 can further include other devices, such as a gate 16 on which entrance guard control is performed.

[0033] The entrance guard management platform 13, the entrance guard controller 14, and the second entrance guard device 15 can be devices in an existing entrance guard control system. The second entrance guard device 15, which is, for example, a device that can implement card number identification, is configured to collect and identify card number information, and send the identified card number information to the connected entrance guard controller 14. The entrance guard controller 14 can receive the card number information sent by the second entrance guard device 15, and perform entrance guard control based on the card number information.

[0034] In an embodiment of the present disclosure, the gateway device 11 is connected to the entrance guard management platform 13, and the first entrance guard device 12 is accessed to the gateway device 11. That is, the first entrance guard device 12 is connected to the entrance guard management platform 13 through the gateway device 11, and the first entrance guard device 12 is connected to the entrance guard controller 14. In other words, the gateway device 11 and the first entrance guard device 12 can be connected to an existing entrance guard control system, and cooperate with devices in the existing entrance guard control system to enable the entrance guard control system to support other feature identifying technologies. For example, the gateway device 11 can be connected to the entrance guard management platform 101' in the entrance guard control system 100' as shown in FIG. 1, so that the first entrance guard device can be accessed to the entrance guard control system 100'.

[0035] The gateway device 11 can be a computer device that supports communication with the entrance guard management platform 13, for example, a device that supports communication protocols of the entrance guard management platform 13. The gateway device 11 can establish a connection with the entrance guard management platform 13 based on a protocol or a Software Development Kit (SDK) provided by the entrance guard management platform 13, and specific manners for establishing the connection are not limited. After the connection with the entrance guard management platform 13 is established, the gateway device 11 can download data, for example, object information, from the entrance guard management platform 13.

[0036] Specifically, in an embodiment, the entrance guard management platform 13 generally supports a protocol used for communicating with a three-party platform, and the gateway device 11 can communicate with the entrance guard management platform 13 through the protocol. An IP address, a port, a user name, a password, authentication information, etc. of the entrance guard management platform 13 can be configured on the gateway device 11. After the configuration is completed, the gateway device 11 can be connected to the entrance guard management platform 13 based on the configured information.

[0037] The entrance guard management platform 13 records object information used for entrance guard control, and the object information includes at least: object data indicating designated object features, and corresponding card number information. The object data can be, for example, image data including a face, a fingerprint, etc., or audio data including a voice. The card number information can include a card number, and can further include valid time of the card number, etc. The object information can further include other information, for example, attribute information including an object name, etc. The card number information and/or the object name or other information can be used as an object identifier. In this embodiment, the object data can be collected in advance, and thereafter stored in the entrance guard management platform 13. The entrance guard management platform 13 can be composed of one or more servers.

[0038] The gateway device 11 is configured to acquire the object information from the entrance guard management platform 13, and send the object information to the first entrance guard device 12 that has been accessed to the gateway device 11. The gateway device 11 can acquire access information of the first entrance guard device that is to access the gateway device. Corresponding first entrance guard device 12 is accessed to the gateway device 11 based on the access information, and thereafter, the object information acquired from the entrance guard management platform 13 is sent to the accessed first entrance guard device 12.

[0039] The access information can include an IP address, a port, a user name, a password, etc. of the first entrance guard device 12 that is to access the gateway device, as long as the access of the first entrance guard device 12 can be implemented. Each first entrance guard device 12 has corresponding access information, and access of corresponding first entrance guard device 12 can be implemented based on the access information. The access information can be input by a user or acquired from other devices, and its specific source is not limited.

[0040] After the first entrance guard device 12 is accessed to the gateway device 11, communication between the first entrance guard device 12 and the entrance guard management platform 13 can be implemented through the gateway device 11. For example, the gateway device 11 can download the object information on the entrance guard management platform 13 and thereafter transmit the object information to the first entrance guard device 12, and can also upload data collected by the first entrance guard device 12 to the entrance guard management platform 13. The gateway device 11 can store the object information acquired from the entrance guard management platform 13 in the gateway device 11, for example, in a database of the gateway device 11.

[0041] The first entrance guard device 12 is configured to record the object information sent by the gateway device 11, collect and identify first object data, and send, to the entrance guard controller 14, card number information.

mation corresponding to target object data matching the identified first object data from object data recorded in the first entrance guard device 12.

[0042] The first object data may also indicate corresponding object features. Identifying the first object data refers to identifying object features indicated by the first object data. For example, the object features are face features, fingerprint features, voice features, and so on.

[0043] The first entrance guard device 12, after identifying the first object data, can be further configured to: determine whether there exists the target object data matching the identified first object data from the object data recorded in the first entrance guard device 12. Sending, to the entrance guard controller 14, the card number information corresponding to the target object data matching the identified first object data from the object data recorded in the first entrance guard device 12 further includes: in a case where there exists the target object data matching the identified first object data from the object data recorded in the first entrance guard device 12, sending, to the entrance guard controller 14, card number information from the object information recorded in the first entrance guard device 12 corresponding to the target object data.

[0044] The object data can be, for example, face images. The first entrance guard device 12 can extract features from the received object data in advance as templates. The first object data can also be face images, and correspondingly, the first entrance guard device 12 is an entrance guard device used for face identification. The first entrance guard device 12, when collecting the first object data, can identify and extract face features from the collected first object data. When it is determined whether there exists the target object data matching the identified first object data from the object data recorded in the first entrance guard device 12, the extracted face features can be compared with templates, and when template A is matched, it is determined that there exists the target object data matching the identified first object data from the object data recorded in the first entrance guard device 12. That is, object data corresponding to the template A is the target object data.

[0045] The entrance guard controller 14 is configured to receive card number information sent by either of the first entrance guard device 12 and the second entrance guard device 15, and control an entrance guard based on the received card number information.

[0046] The entrance guard controller 14 controls the entrance guard based on the received card number information, which can include: verifying whether the received card number information has a permission to release the entrance guard based on locally recorded permission information; if the received card number information has the permission to release the entrance guard based on the locally recorded permission information, releasing the entrance guard of the entrance guard controller 14, so that the gate 16 can be opened; if the received card number information does not have the per-

mission to release the entrance guard based on the locally recorded permission information, continuing to maintain the entrance guard. The entrance guard controller 14 can record the permission information, and the permission information can be sent by the entrance guard management platform 13 to the entrance guard controller 14. The permission information can indicate which card number information has the permission to release the entrance guard, and specific included information is not limited.

[0047] For example, the permission information can include designated card numbers that have a permission to release the entrance guard. Correspondingly, the card number information includes the card number. When it is verified whether the received card number information has the permission to release the entrance guard based on the locally recorded permission information, it can be determined whether the card number included in the card number information exists in the designated card numbers included in the permission information. If the card number included in the card number information exists in the designated card numbers included in the permission information, it is determined that the card number information has the permission to release the entrance guard, and otherwise, it is determined that the card number information does not have the permission to release the entrance guard.

[0048] For another example, the permission information includes designated card numbers, corresponding permission time ranges, etc. Correspondingly, the card number information includes the card number. When it is verified whether the received card number information has the permission to release the entrance guard based on the locally recorded permission information, it can be determined whether the card number included in the card number information exists in the designated card numbers included in the permission information. If the card number included in the card number information exists in the designated card numbers included in the permission information, it is determined whether current time is in the permission time range corresponding to the card number included in the card number information. If the current time is in the permission time range corresponding to the card number included in the card number information, it is determined that the card number information has the permission to release the entrance guard, and otherwise, it is determined that the card number information does not have the permission to release the entrance guard. If the card number included in the card number information does not exist in the designated card numbers included in the permission information, it is determined that the card number information does not have the permission to release the entrance guard.

[0049] The entrance guard control by the entrance guard controller 14 based on the received card number information is not limited to the above manners.

[0050] In the embodiments of the present disclosure, on the basis of the entrance guard control system based

on the card number identification, the gateway device is connected to the entrance guard management platform of the entrance guard control system, the first entrance guard device is connected to the entrance guard controller of the entrance guard control system, and the first entrance guard device can acquire the object information of the entrance guard management platform through the gateway device, which reduces software and hardware upgrades of the entrance guard management platform. When the entrance guard control is performed, the first entrance guard device can identify the collected first object data, and after determining the target object data matching the identified first object data from the locally recorded object data, the card number information corresponding to the target object data is sent to the entrance guard controller, and the entrance guard controller can still control the entrance guard based on the card number information, which reduces costs for software and hardware upgrades of the entrance guard controller while enabling the entrance guard control system to be compatible with non-card number identifying technologies of the first entrance guard device and card number identifying technologies of the second entrance guard device. That is, the entrance guard control system according to the embodiments of the present disclosure can support different identifying technologies with a smaller improvement cost.

[0051] In an embodiment,

the first entrance guard device is an entrance guard device used for face identification, and the first object data indicates face features; or,
the first entrance guard device is an entrance guard device used for fingerprint identification, and the first object data indicates fingerprint features; or,
the first entrance guard device is an entrance guard device used for voice identification, and the first object data indicates voice features.

[0052] The designated object features indicated by the object data in the object information correspond to the features indicated by the first object data. For example, if the first object data indicates the face features, the designated object features are the face features. Thus, according to the embodiments of the present disclosure, the entrance guard control system based on the card number identification can be improved into an entrance guard control system based on the card number identification and the face identification which are compatible with each other. Other features are similar, and according to the embodiments of the present disclosure, the entrance guard control system based on the card number identification can be improved into an entrance guard control system based on multiple identifying technologies which are compatible with each other. It will be understood that the first entrance guard device is only an example, and there may be entrance guard devices supporting other identifying technologies, which will not be

listed here.

[0053] In an embodiment, continuing to refer to FIG. 2, the gateway device 11 is further configured to:

5 receive an event indicating a change in the object information sent by the entrance guard management platform 13, and record the event in a database of the gateway device 11;
10 acquire the event from the database, and identify the event;
15 control the first entrance guard device 12 based on the identified event to perform the change indicated by the event on the object information recorded in the first entrance guard device 12.

[0054] The gateway device 11 first records the received event in the database to prevent the event from being lost when a gateway exits abnormally, and then acquires the event from the database when needed. In another example, processing of the event can be real-time. That is, every time an event is received, the event is identified in time without involving the database.

[0055] This embodiment is applicable to a situation where the entrance guard management platform 13 supports an event mechanism, and the gateway device 11 has a function of subscribing to events of the entrance guard management platform. Whenever the object information is changed (for example, the object information is newly added, modified, deleted, etc.) in the entrance guard management platform 13, corresponding event will be triggered, and the event will be sent to the gateway device 11 to realize synchronization of the object information.

[0056] The gateway device 11 can acquire an event from the database based on an order of receiving the event, and after acquiring the event from the database, delete the acquired event from the database to ensure that all records in the database are unprocessed events. It will be understood that the database can further record other information, such as the object information, and the permission information.

[0057] Events can include various types, such as an event indicating that first object information from the object information recorded in the entrance guard management platform 13 has been deleted, an event indicating that second object information has been newly added to the object information recorded in the entrance guard management platform 13, and an event indicating that third object information from the object information recorded in the entrance guard management platform 13 has been modified. The gateway device 11 can identify contents indicated by the events.

[0058] It will be understood that the gateway device 11 can further correspondingly change the object information recorded in the gateway device 11 based on an identified event to realize synchronization of object information in the gateway device 11 and the entrance guard management platform 13.

[0059] The gateway device 11 controls the first entrance guard device 12 to correspondingly change the object information recorded in the first entrance guard device 12 based on the identified event to realize synchronization of object information in the first entrance guard device 12 and the entrance guard management platform 13, and ensure accuracy and safety of entrance guard control.

[0060] In an embodiment, continuing to refer to FIG. 2, the gateway device 11 is further configured to:

receive an event indicating a change in the object information sent by the entrance guard management platform 13, and record the event in a database of the gateway device 11;
 acquire the event from the database, and identify the event;
 update an object information table provided in the gateway device 11 based on the identified event, where the object information table records the object information that the gateway device 11 has acquired, and control the first entrance guard device 12 based on the updated object information table to update the locally recorded object information.

[0061] This embodiment differs from the previous embodiment in that: the gateway device 11 is further provided with the object information table; the object information table provided in the gateway device is updated based on the identified event; and the first entrance guard device 12 is controlled based on the updated object information table to update the locally recorded object information.

[0062] The object information acquired by the gateway device 11 from the entrance guard management platform 13 is recorded in the object information table. The object information table can be established in the database of the gateway device 11, and addition, modification, deletion or other operation can be performed on the object information table when needed.

[0063] The gateway device 11 updates the object information table based on the identified event, and specific updating operation is performed correspondingly based on indication of the event, as long as synchronization of object information in the gateway device 11 and the entrance guard management platform 13 is ensured.

[0064] By controlling the first entrance guard device 12 based on the updated object information table to update the locally recorded object information, the synchronization of object information in the first entrance guard device 12 and the entrance guard management platform 13 is realized, and the accuracy and safety of entrance guard control is ensured.

[0065] In an embodiment, the gateway device 11, when controlling the first entrance guard device 12 based on the identified event to perform the change indicated by the event on the object information recorded in the first entrance guard device 12, is configured to:

in a case where the event indicates that first object information from the object information recorded in the entrance guard management platform 13 is deleted, control the first entrance guard device 12 to delete the first object information recorded in the first entrance guard device 12;

in a case where the event indicates that second object information is newly added to the object information recorded in the entrance guard management platform 13, acquire the second object information from the entrance guard management platform 13, and control the first entrance guard device 12 to add the second object information to the object information recorded in the first entrance guard device 12;
 in a case where the event indicates that third object information from the object information recorded in the entrance guard management platform 13 has been modified, acquire the third object information from the entrance guard management platform 13, and control the first entrance guard device 12 to modify third object information recorded in the first entrance guard device 12 into the acquired third object information.

[0066] By controlling the first entrance guard device 12 to update corresponding object information based on the contents indicated by the events, it is ensured that correct object information can be updated in the first entrance guard device 12 in time, while updating large batches of object information can be avoided, which decreases losses of network transmission resources and reduces occupation of storage and processing of resources.

[0067] In an embodiment, the gateway device 11 is further configured to:

acquire latest object information from the entrance guard management platform 13 at regular intervals of t ;
 send the latest object information to the first entrance guard device 12.

[0068] This embodiment is applicable to a situation where the entrance guard management platform 13 does not support an event mechanism, and a situation where the entrance guard management platform 13 supports the event mechanism. The object information can be updated regularly.

[0069] " t " can be determined based on a frequency of changes in actual object information, and may be, for example, 30 minutes, one day, or one week. For example, the gateway device 11 acquires latest object information (all object information) from the entrance guard management platform 13 at intervals of 30 minutes, which can ensure synchronization of object information in the first entrance guard device 12, the entrance guard management platform 13, and the gateway device 11.

[0070] In order to avoid the problem of network congestion caused by occupying a large amount of band-

width when acquiring all latest object information, all the latest object information can be acquired when a small amount of bandwidth is used. For example, all the latest object information is acquired at 2:00 AM every Saturday.

[0071] It will be understood that the gateway device 11 can further correspondingly change the object information recorded in the gateway device 11 based on an identified event to realize synchronization of object information in the gateway device 11 and the entrance guard management platform 13.

[0072] In an embodiment, the gateway device is provided with an object information table, and the object information table records object information acquired by the gateway device from the entrance guard management platform.

[0073] The gateway device is further configured to:

acquire latest object information from the entrance guard management platform at regular intervals of t; update the object information table based on the acquired latest object information, where the object information table records the object information that the gateway device has acquired, and control the first entrance guard device based on the updated object information table to update the locally recorded object information.

[0074] This embodiment differs from the previous embodiment in that the gateway device 11 is further provided with the object information table; the object information table is updated based on the acquired latest object information; and the first entrance guard device is controlled based on the updated object information table to update the locally recorded object information.

[0075] The object information acquired by the gateway device from the entrance guard management platform is recorded in the object information table. The object information table can be established in the database of the gateway device, and addition, modification, deletion or other operation can be performed on the object information table when needed.

[0076] The acquired latest object information can be all object information currently stored in the entrance guard management platform. Since the object information will be changed in the entrance guard management platform, for example, the object information will be newly added, modified, deleted, etc., all the acquired latest object information may be different from the object information recorded in the object information table. The object information table can be updated based on the acquired latest object information, and specific updating operation is performed correspondingly based on indication of an event, as long as synchronization of object information in the gateway device 11 and the entrance guard management platform 13 is ensured.

[0077] By controlling the first entrance guard device based on the updated object information table to update the locally recorded object information, the synchroniza-

tion of object information in the first entrance guard device 12 and the entrance guard management platform 13 is realized, and the accuracy and safety of entrance guard control is ensured.

[0078] In an embodiment, the object information includes object identifiers, and the object identifiers can be information, such as card numbers or names, which are not limited, as long as they can be used to identify the object information.

[0079] The gateway device, when acquiring the latest object information from the entrance guard management platform, is further configured to acquire first time when each piece of the latest object information is updated in the entrance guard management platform the last time.

[0080] The gateway device, when updating the object information table based on the acquired latest object information, is configured to:

find, from the object information table, an object identifier that does not exist in all pieces of the acquired latest object information, and delete object information in which the found object identifier is included from the object information table;

find, from all pieces of the acquired latest object information, latest object information whose first time is later than a time when object information is acquired the previous time, and check whether an object identifier in the found latest object information exists in the object information table;

if the object identifier in the found latest object information does not exist in the object information table, add the found latest object information to the object information table;

if the object identifier in the found latest object information exists in the object information table, modify object information including the object identifier in the object information table into the found latest object information.

[0081] The object identifier in the object information can be information, such as a card number or name, which is not limited, and can also be other information, as long as it can be used to identify the object information.

[0082] If an object identifier in certain object information exists in the object information table, but does not exist in all acquired latest object information, it is indicated that the object information has been deleted from the entrance guard management platform, so that the object information is to be found from the object information table and deleted therefrom, which can ensure that when the object information is deleted from the entrance guard management platform, corresponding object information can be deleted synchronously from the gateway device. When the found object information is deleted from the object information table, an item where the object information is located can be deleted together therewith.

[0083] The gateway device is further configured to acquire first time when each piece of the latest object infor-

mation is updated in the entrance guard management platform the last time. If first time of certain latest object information obtained this time is later than a time when object information is acquired the previous time, it is indicated that the latest object information is added or modified in the entrance guard management platform after the object information is acquired the previous time. After the latest object information is found, whether the latest object information is newly added object information or modified object information is to be further determined.

[0084] Here, being updated in the entrance guard management platform includes being modified and added in the entrance guard management platform. That is, if a time when the latest object information is added to the entrance guard management platform is B1, and the latest object information has not been modified since it is added, first time of the latest object information is B1. If a time when the latest object information is modified the last time is A1, the first time of the latest object information is A1.

[0085] If the object identifier in the found latest object information does not exist in the object information table, it is indicated that the latest object information is newly added object information. Therefore, the found latest object information is added to the object information table.

[0086] If the object identifier in the found latest object information exists in the object information table, it is indicated that the latest object information is modified object information. Object information including the object identifier in the object information table is modified into the found latest object information.

[0087] In this way, the object information in the gateway device and the object information in the entrance guard management platform can be deleted, modified, and added synchronously.

[0088] In an embodiment, the gateway device, when controlling the first entrance guard device based on the updated object information table to update the locally recorded object information, is configured to:

determine, from the object information table every time period of t1, deleted fourth object information, modified fifth object information, and added sixth object information in a previous time period of t1;
control the first entrance guard device to delete the fourth object information that has been recorded, send the fifth object information to the first entrance guard device for corresponding modification, and send the sixth object information to the first entrance guard device for record.

[0089] "t1" can be set as required, and may be, for example, 30 minutes. In this way, updating cases occurring in the object information table in the past 30 minutes can be determined every 30 minutes. That is, the deleted fourth object information, the modified fifth object information, and the added sixth object information in the object information table in the previous time period of t1 are

determined.

[0090] The fourth object information is object information that is deleted in the previous time period of t1, and this object information is to be deleted synchronously from the first entrance guard device. The fifth object information is object information that is modified in the previous time period of t1, and this object information is to be modified synchronously in the first entrance guard device. The sixth object information is object information that is newly added in the previous time period of t1, and this object information is to be added synchronously to the first entrance guard device.

[0091] Different operations are performed for different updating situations. If the fourth object information is determined, that is, object information is deleted from the entrance guard management platform in the previous time period of t1, the first entrance guard device is to be controlled to delete the recorded fourth object information. If the fifth object information is determined, that is, object information is modified in the entrance guard management platform in the previous time period of t1, the fifth object information is to be sent to the first entrance guard device for corresponding modification. If the sixth object information is determined, that is, object information is newly added to the entrance guard management platform in the previous time period of t1, the sixth object information is to be sent to the first entrance guard device for record.

[0092] In this way, the object information in the first entrance guard device and the object information in the gateway device can be deleted, modified, and added synchronously.

[0093] In an embodiment, the object information table further records second time when object information is updated in the object information table the last time.

[0094] The gateway device is provided with a sent information table, and each item in the sent information table records at least an object identifier in sent object information and sending time of the sent object information.

[0095] The gateway device, when determining, from the object information table, the deleted fourth object information, the modified fifth object information, and the added sixth object information in the previous time period of t1, is configured to:

find, from the sent information table, an object identifier that does not exist in the object information table, determine object information including the found object identifier as the fourth object information, and delete an item where the found object identifier is located from the sent information table;
for each piece of object information in the object information table, check whether an object identifier in the piece of object information exists in the sent information table;
if the object identifier in the piece of object information exists in the sent information table, in a case

where sending time in an item where the object identifier is located is earlier than second time of the piece of object information, determine the piece of object information in the object information table as the fifth object information, and update the sending time in the item; in a case where the sending time in the item where the object identifier is located is the same as the second time of the piece of object information, determine the piece of object information in the object information table as the fifth object information, and update the sending time in the item; in a case where the sending time in the item where the object identifier is located is later than the second time of the piece of object information, update the piece of object information in the object information table in time before sending it; if the object identifier in the piece of object information does not exist in the sent information table, determine the piece of object information in the object information table as the sixth object information, and create a related item of the sixth object information in the sent information table.

[0096] The object information table further records the second time when the object information is updated in the object information table the last time. Here, being updated in the object information table includes being modified and added in the object information table.

[0097] The sent information table in the gateway device can record situations of sending object information. In addition to recording object identifiers in sent object information and sending time of the sent object information, each item in the sent information table can record information such as key values and sending states, which are not limited. Object identifiers in object information can be information such as card numbers or names, which are not limited, and can also be other information, as long as it can be used to identify the object information.

[0098] If an object identifier exists in the sent information table, but does not exist in the object information table, that is, an object identifier that does not exist in the object information table is found from the sent information table, it is indicated that object information including the object identifier is deleted after being sent to the first entrance guard device, that is, the object information including the object identifier is deleted from the object information table in the previous time period of t_1 , and before this, the object information has been sent to the first entrance guard device. Therefore, the object information is to be deleted synchronously from the first entrance guard device, and the object information including the found object identifier is determined as the fourth object information. The sent information table is to be updated synchronously, that is, an item where the found object identifier is located is deleted.

[0099] The gateway device controls the first entrance guard device to delete the recorded fourth object information, which can realize synchronization of the first entrance guard device and the gateway device to delete

object information. If an object identifier that does not exist in the object information table is not found from the sent information table, it is indicated that no object information is deleted in the previous time period of t_1 , that is, there is no fourth object information.

[0100] For each piece of object information in the object information table, it is checked whether an object identifier in the piece of object information exists in the sent information table. The check can be implemented by traversing object identifiers in the sent information table, and specific manners are not limited.

[0101] If the object identifier in the piece of object information exists in the sent information table, in a case where sending time in an item where the object identifier is located is earlier than second time of the piece of object information, it is indicated that the piece of object information has been modified after being sent to the first entrance guard device, that is, the piece of object information has been modified in the object information table in the previous time period of t_1 , but what is sent to the first entrance guard device is unmodified object information, this piece of object information in the object information table is determined as the fifth object information, and the sending time in the item is updated (that is, the sending time in the item is modified to the time when the fifth object information is sent). In a case where the sending time in the item where the object identifier is located is the same as the second time of the piece of object information, the piece of object information in the object information table is determined as the fifth object information, and the sending time in the item is updated (that is, the sending time in the item is modified to the time when the fifth object information is sent).

[0102] The gateway device sends the fifth object information to the first entrance guard device for corresponding modification, and the first entrance guard device modifies the locally recorded object information including the object identifier in the received fifth object information into the fifth object information, which can realize synchronization of the first entrance guard device and the gateway device to modify object information.

[0103] If the object identifier in the piece of object information does not exist in the sent information table, it is indicated that the piece of object information is added to the object information table in the previous time period of t_1 , and has not been sent to the first entrance guard device. Therefore, the piece of object information in the object information table is determined as the sixth object information, and a related item of the piece of object information is created in the sent information table (the item records the object identifier in the sixth object information and the time when the sixth object information is sent).

[0104] The gateway device sends the sixth object information to the first entrance guard device for record, which can realize synchronization of the first entrance guard device and the gateway device to add object information.

[0105] Based on the above contents, the synchroniza-

tion of object information between the first entrance guard device and the gateway device can be realized, and the safety and accuracy of the entrance guard control is ensured.

[0106] The gateway device can be provided with respective sent information tables for each of first entrance guard devices, or one sent information table shared by all first entrance guard devices. Taking that the gateway device is provided with one sent information table shared by all first entrance guard devices as an example, first entrance guard devices may be or may be not distinguished from each other in the sent information table. The two situations are illustrated below.

[0107] In a first situation, when first entrance guard devices are distinguished from each other in the sent information table, device names of all the first entrance guard devices and corresponding sending states can be added to each item. If object information is not successfully sent to a certain first entrance guard device, a sending state corresponding to a device name in a related item of the object information is that the sending fails. If object information is successfully sent to a certain first entrance guard device, a sending state corresponding to a device name in a related item of the object information is that the sending succeeds.

[0108] In a second situation, when first entrance guard devices are not distinguished from each other in the sent information table, if object information is not successfully sent to any of the first entrance guard devices, a sending state in a related item of the object information is that the sending fails. If object information is successfully sent to all the first entrance guard devices, a sending state corresponding to a device name in a related item of the object information is that the sending succeeds.

[0109] The gateway device can further be provided with a device table. The device table records device information of each first entrance guard device, such as a device name, an IP, a port, a user name, and a password. The device information can further record a sending state of object information for each first entrance guard device. Here, the sending state can include an unsent state, a being-sent state, a having-been-sent state, a sending-update state, a sending-failure state, or other state, and can be displayed on an interface of the gateway device for a user to view. If, for a first entrance guard device, object information is in an unsent state, it indicates that the object information has never been sent to the first entrance guard device, that is, there is no object information in the entrance guard device. Generally, an initial state of the entrance guard device refers to an unsent state. If in a being-sent state, it indicates that the gateway device is sending object information to the first entrance guard device, and in a period from beginning to end of the sending, the sending state of the object information for the first entrance guard device is the being-sent state. If in a having-been-sent state, it indicates that the object information is sent successfully. If in a sending-failure state, it indicates that the object information is sent un-

successfully. If in a sending-update state, it indicates that object information associated with the first entrance guard device is updated (added, deleted, or modified), and the updated object information can be sent to the first entrance guard device by incrementally sending. When the first entrance guard device corresponds to the being-sent state, the gateway device cannot send object information to the entrance guard device again, and for other states, the gateway device can send the object information to the entrance guard device.

[0110] In an embodiment, on the basis of the entrance guard control system 10 shown in FIG. 2, referring to FIG. 3, the entrance guard control system 10 further includes a protocol conversion device 17 connected between the first entrance guard device 12 and the entrance guard controller 14.

[0111] The first entrance guard device 12 sends the object identifiers, for example, the card number information, to the protocol conversion device based on a first communication protocol, and the protocol conversion device 17 sends received card number information to the entrance guard controller 14 based on a second communication protocol.

[0112] The first communication protocol is a communication protocol required for communication between the first entrance guard device 12 and the protocol conversion device 17, and the second communication protocol is a communication protocol required for communication between the protocol conversion device 17 and the entrance guard controller 14.

[0113] By connecting the first entrance guard device 12 and the entrance guard controller 14 through the protocol conversion device 17, the problem of interface mismatch between the first entrance guard device 12 and the entrance guard controller 14 can be solved.

[0114] The first communication protocol is, for example, an RS485 interface protocol, and the second communication protocol is, for example, a Wiegand protocol. The protocol conversion device 17 can be a device that converts the RS485 interface protocol to the Wiegand protocol. After card number information sent by the first entrance guard device 12 is received from the RS485 interface, protocol analysis processing is performed on the card number information, then the analyzed card number information is packaged based on the Wiegand protocol, and after the package, sent to the entrance guard controller 14 through a Wiegand interface.

[0115] The present disclosure further provides an entrance guard control system. In an embodiment, referring to FIG. 4, an entrance guard control system 10 includes: an entrance guard management platform 13; a gateway device 11 connected to the entrance guard management platform 13; an entrance guard controller 14; and at least one first entrance guard device 12. In FIG. 4, only one first entrance guard device 12 is shown, and it will be understood that there may be more first entrance guard devices 12. The entrance guard control system 10 can further include other devices, such as a gate 16 on which

entrance guard control is performed.

[0116] The entrance guard control system according to this embodiment is substantially the same as that described in the previous embodiment. Their differences lie in that the entrance guard control system according to this embodiment may not have a second entrance guard device; the object information includes at least: object data indicating designated object features, and corresponding object identifier; the object identifier can be card number information, or other information, such as a name, as long as it can be used to identify the object information; the first entrance guard device 12 is configured to record the object information sent by the gateway device 11, collect and identify first object data, and send, to the entrance guard controller 14, an object identifier corresponding to target object data matching the identified first object data from object data recorded in the first entrance guard device 12; the entrance guard controller 14 is configured to receive the object identifier sent by the first entrance guard device 12, and control an entrance guard based on the received object identifier. For other similarities, reference may be made to the description in the previous embodiment, which will not be repeated here.

[0117] In the embodiments of the present disclosure, the gateway device is connected to the entrance guard management platform, the first entrance guard device is connected to the entrance guard controller, and the first entrance guard device can acquire the object information of the entrance guard management platform through the gateway device, which reduces costs for software and hardware upgrades of the entrance guard management platform and the entrance guard controller. At the same time, the first entrance guard device can support more advanced identification technologies, which increases safety of the entrance guard control system while bringing better user experience.

[0118] Methods for accessing an entrance guard device according to the embodiments of the present disclosure will be described below, but should not be limited thereto.

[0119] In an embodiment, referring to FIG. 5, a method for accessing an entrance guard device is shown. The method for accessing the entrance guard device is applied to a gateway device. The gateway device is connected to an entrance guard management platform in a designated entrance guard control system, and the designated entrance guard control system further includes an entrance guard controller.

[0120] The method includes the following steps:

At S100, object information is acquired from the entrance guard management platform, where the object information includes at least: object data indicating designated object features, and corresponding object identifier.

[0121] At S200, access information of at least one first entrance guard device that is to be accessed is acquired.

[0122] At S300, corresponding first entrance guard device is accessed to the gateway device based on the

access information, and the object information acquired from the entrance guard management platform is sent to the accessed first entrance guard device, so that the first entrance guard device, after collecting and identifying first object data, sends, to the entrance guard controller for entrance guard control, an object identifier corresponding to target object data matching the identified first object data from object data recorded in the first entrance guard device.

[0123] An execution subject of the method for accessing the entrance guard device according to the embodiment of the present disclosure is the gateway device. The gateway device can be a computer device that supports communication with the entrance guard management platform, for example, a device that supports communication protocols of the entrance guard management platform. The first entrance guard device is accessed to the gateway device by performing the steps S100 to S300 by the gateway device, and thus, the gateway device acts as a communication bridge between the first entrance guard device and the entrance guard management platform in the designated entrance guard control system, which enables the first entrance guard device to be used for entrance guard control of the designated entrance guard control system.

[0124] The entrance guard management platform records the object information used for the entrance guard control. A connection of the gateway device with the entrance guard management platform in the designated entrance guard control system can be first established, and then the gateway device can acquire the object information from the entrance guard management platform through the connection.

[0125] The connection of the gateway device with the entrance guard management platform can be established based on a protocol or an SDK provided by the entrance guard management platform, and specific manners for establishing the connection are not limited. After the connection with the entrance guard management platform is established, the gateway device can download data, for example, object information, from the entrance guard management platform. The gateway device can store the object information acquired from the entrance guard management platform in the gateway device, for example, in a database of the gateway device.

[0126] Specifically, in an embodiment, the entrance guard management platform generally supports a protocol used for communicating with a three-party platform, and the gateway device can communicate with the entrance guard management platform through the protocol. An IP address, a port, a user name, a password, an authentication information, etc. of the entrance guard management platform can be configured on the gateway device. After the configuration is completed, the gateway device can be connected to the entrance guard management platform based on the configured information.

[0127] The designated entrance guard control system can be the entrance guard control system 10 shown in

FIG. 2, including the entrance guard management platform 13; the entrance guard controller 14 connected to the entrance guard management platform 13; the second entrance guard device 15; and the gate 16. A connection of the gateway device 11 with the entrance guard management platform 13 can be established. After the connection is established, the object information can be downloaded from the entrance guard management platform 13. The first entrance guard device 12 can be accessed to the gateway device 11, so that the gateway device 11 can send the downloaded object information to the first entrance guard device 12. The first entrance guard device 12 is further connected to the entrance guard controller 14, and cooperates with the entrance guard controller 14 to complete the entrance guard control on the gate 16. The first entrance guard device 12 and the second entrance guard device 15 are entrance guard devices that support different identification technologies. For example, the second entrance guard device 15 can be an existing entrance guard device (which can be called a card reader) based on card number identification in the entrance guard control system 10. The first entrance guard device 12 is a more advanced device to which the entrance guard control system 10 is to be accessed, for example, an entrance guard device that supports face identification.

[0128] In the step S100, the object information is acquired from the entrance guard management platform, where the object information includes at least: the object data indicating the designated object features, and the corresponding object identifier.

[0129] The entrance guard management platform records the object information used for entrance guard control, and the object information includes at least: object data indicating designated object features, and corresponding object identifier, for example, card number information. The object data can be, for example, image data including a face, a fingerprint, etc., or audio data including a voice. The card number information can include a card number, and can further include valid time of the card number, etc. The object information can further include other information, for example, attribute information including an object name, etc. In this embodiment, the object data can be collected in advance, and thereafter stored in the entrance guard management platform. The entrance guard management platform can be composed of one or more servers.

[0130] After the connection of the gateway device with the entrance guard management platform is established, the object information can be acquired from the entrance guard management platform through the connection.

[0131] In the step S200, access information of at least one first entrance guard device that is to be accessed is acquired.

[0132] The access information can include an IP address, a port, a user name, a password, etc. of the first entrance guard device that is to be accessed, as long as access of the first entrance guard device can be imple-

mented. Different first entrance guard devices have corresponding access information, and access of corresponding first entrance guard device can be implemented based on the access information. The access information can be input from the outside or acquired from other devices, and its specific source is not limited.

[0133] In the step S300, corresponding first entrance guard device is accessed to the gateway device based on the access information, and the object information acquired from the entrance guard management platform is sent to the accessed first entrance guard device, so that the first entrance guard device, after collecting and identifying first object data, sends, to the entrance guard controller for entrance guard control, an object identifier corresponding to target object data matching the identified first object data from object data recorded in the first entrance guard device.

[0134] After the first entrance guard device is accessed to the gateway device, communication between the first entrance guard device and the entrance guard management platform can be implemented through the gateway device. For example, the gateway device can download the object information on the entrance guard management platform and thereafter transmit the object information to the first entrance guard device, and can also upload data collected by the first entrance guard device to the entrance guard management platform. The gateway device can further store the object information acquired from the entrance guard management platform in the gateway device, for example, in a database of the gateway device.

[0135] After the first entrance guard device receives the object information sent by the gateway device, the identified first object data is verified based on the object information. When the verification is passed, that is, when it is determined that target object data matching the first object data exists in the recorded object information, an object identifier corresponding to the target object data is sent to the entrance guard controller. The first entrance guard device is connected to the entrance guard controller. The entrance guard controller can perform entrance guard control based on the object identifier. The object identifier can be, for example, card number information. For specific entrance guard control manners, reference may be made to the relevant description in the previous embodiment, which will not be repeated here.

[0136] In the embodiments of the present disclosure, the gateway device is connected to the entrance guard management platform of the designated entrance guard control system. When the first entrance guard device is to be accessed to the designated entrance guard control system, the first entrance guard device can be accessed to the gateway device, and the first entrance guard device acquires the object information of the entrance guard management platform through the gateway device, which reduces software and hardware upgrades of the entrance guard management platform. After the first entrance guard device is accessed, the collected first object

data can be identified, and after the target object data matching the identified first object data from the locally recorded object data is determined, an object identifier corresponding to the target object data is sent to the entrance guard controller, and the entrance guard controller can control the entrance guard based on the object identifier, which reduces costs for software and hardware upgrades of the entrance guard controller.

[0137] In an embodiment, the above method steps can be performed by an apparatus for accessing an entrance guard device 100. As shown in FIG. 6, the apparatus for accessing an entrance guard device 100 mainly includes three modules: an object information acquiring module 101, an access information acquiring module 102, and a module for accessing entrance guard device 103. The object information acquiring module 101 is configured to perform the step S100. The access information acquiring module 102 is configured to perform the step S200. The module for accessing entrance guard device 103 is configured to perform the step S300.

[0138] In an embodiment, after the step S300, the method further includes the following steps: At S400, an event indicating a change in the object information sent by the entrance guard management platform is received, and the event is recorded in a database of the gateway device.

[0139] At S500, the event is acquired from the database, and the event is identified.

[0140] At S600, the first entrance guard device is controlled based on the identified event to perform corresponding change on the object information recorded in the first entrance guard device; or an object information table provided in the gateway device is updated based on the identified event, where the object information table records the object information that the gateway device has acquired, and the first entrance guard device is controlled based on the updated object information table to update the locally recorded object information.

[0141] In the step S400, the received event is first recorded in the database to prevent the event from being lost when a gateway exits abnormally, and then acquires the event from the database when needed. Processing of the event can be real-time. That is, every time an event is received, the event is identified in time, without involving the database.

[0142] This embodiment is applicable to a situation where the entrance guard management platform supports an event mechanism, and the gateway device has a function of subscribing to events of the entrance guard management platform. Whenever the object information is changed (for example, the object information is newly added, modified, deleted, etc.) in the entrance guard management platform, corresponding event will be triggered, and the event will be sent to the gateway device to realize synchronization of the object information.

[0143] In the step S500, an event can be acquired from the database based on an order of receiving the event, and after the event are acquired from the database, the

acquired event is deleted from the database to ensure that all records in the database are unprocessed events. It will be understood that the database can further record other information, such as the object information, and the permission information.

[0144] Events can include various types, such as an event indicating that first object information from the object information recorded in the entrance guard management platform has been deleted, an event indicating that second object information has been newly added to the object information recorded in the entrance guard management platform, and an event indicating that third object information from the object information recorded in the entrance guard management platform has been modified. The gateway device can identify contents indicated by the events.

[0145] It will be understood that the gateway device can further correspondingly change the object information recorded in the gateway device based on an identified event to realize synchronization of object information in the gateway device and the entrance guard management platform.

[0146] In the step S600, the first entrance guard device is controlled to correspondingly change the object information recorded in the first entrance guard device based on the identified event, or an object information table provided in the gateway device is updated based on the identified event, where the object information table records the object information that the gateway device has acquired, and the first entrance guard device is controlled based on the updated object information table to update the locally recorded object information, to realize synchronization of object information in the first entrance guard device and the entrance guard management platform, and ensure accuracy and safety of entrance guard control.

[0147] In an embodiment, in the step S600, controlling the first entrance guard device based on the identified event to perform corresponding change on the object information recorded in the first entrance guard device can include:

in a case where the event indicates that first object information from the object information recorded in the entrance guard management platform is deleted, controlling the first entrance guard device to delete the first object information recorded in the first entrance guard device;

in a case where the event indicates that second object information is newly added to the object information recorded in the entrance guard management platform, acquiring the second object information from the entrance guard management platform, and controlling the first entrance guard device to add the second object information to the object information recorded in the first entrance guard device;

in a case where the event indicates that third object information from the object information recorded in

the entrance guard management platform has been modified, acquiring the third object information from the entrance guard management platform, and controlling the first entrance guard device to modify third object information recorded in the first entrance guard device into the acquired third object information.

[0148] By controlling the first entrance guard device to update corresponding object information based on the contents indicated by the events, it is ensured that correct object information can be updated in the first entrance guard device in time, while updating large batches of object information can be avoided, which decreases losses of network transmission resources and reduces occupation of storage and processing resources.

[0149] In an embodiment, in the step S600, the gateway device 11 is further provided with the object information table. The object information table provided in the gateway device is updated based on the identified event, and the first entrance guard device 12 is controlled based on the updated object information table to update the locally recorded object information, where the object information table records the object information that the gateway device has acquired. The object information table can be established in the database of the gateway device 11, and addition, modification, deletion or other operation can be performed on the object information table when needed.

[0150] In an embodiment, after the step S300, the method further includes the following steps:
At S700, latest object information is acquired from the entrance guard management platform at regular intervals of t .

[0151] At S800, the latest object information is sent to the first entrance guard device; or, an object information table is updated based on the acquired latest object information, where the object information table records the object information that the gateway device has acquired, and the first entrance guard device is controlled based on the updated object information table to update the locally recorded object information.

[0152] This embodiment is applicable to a situation where the entrance guard management platform does not support an event mechanism, and to a situation where the entrance guard management platform supports the event mechanism. The object information can be updated regularly.

[0153] " t " can be determined based on a frequency of changes in actual object information, and may be, for example, 30 minutes, one day, or one week. For example, the gateway device acquires latest object information (all object information) from the entrance guard management platform at intervals of 30 minutes. The latest object information is sent to the first entrance guard device; or, an object information table is updated based on the acquired latest object information, where the object information table records the object information that the gate-

way device has acquired, and the first entrance guard device is controlled based on the updated object information table to update the locally recorded object information, which can ensure synchronization of object information in the first entrance guard device, the entrance guard management platform, and the gateway device.

[0154] In an embodiment, the object information includes object identifiers, and the object identifiers can be information, such as card numbers or names, which are not limited, as long as they can be used to identify the object information.

[0155] The gateway device, when acquiring the latest object information from the entrance guard management platform, is further configured to acquire first time when each piece of the latest object information is last updated in the entrance guard management platform.

[0156] The gateway device, when updating the object information table based on the acquired latest object information, is configured to:

find, from the object information table, an object identifier that does not exist in all pieces of the acquired latest object information, and delete the object information in which the found object identifier is included from the object information table;

find, from all pieces of the acquired latest object information, latest object information whose first time is later than a time of a previous acquisition of the object information, and check whether an object identifier in the found latest object information exists in the object information table;

if the object identifier in the found latest object information does not exist in the object information table, add the found latest object information to the object information table;

if the object identifier in the found latest object information exists in the object information table, modify the object information including the object identifier in the object information table into the found latest object information.

[0157] In an embodiment, In an embodiment, the gateway device, when controlling the first entrance guard device based on the updated object information table to update the locally recorded object information, is configured to:

determine, from the object information table every time period of t_1 , deleted fourth object information, modified fifth object information, and added sixth object information in a previous time period of t_1 ;

control the first entrance guard device to delete the fourth object information that has been recorded, send the fifth object information to the first entrance guard device for corresponding modification, and send the sixth object information to the first entrance guard device for record.

[0158] In an embodiment, the object information table further records second time when the object information is last updated in the object information table.

[0159] The gateway device is provided with a sent information table, and each item in the sent information table records at least an object identifier in sent object information and sending time of the sent object information.

[0160] The gateway device, when determining, from the object information table, the deleted fourth object information, the modified fifth object information, and the added sixth object information in the previous time period of t1, is configured to:

find, from the sent information table, an object identifier that does not exist in the object information table, determine the object information including the found object identifier as the fourth object information, and delete an item where the found object identifier is located from the sent information table;

for each piece of object information in the object information table, check whether an object identifier in the piece of object information exists in the sent information table;

if the object identifier in the piece of object information exists in the sent information table, in a case where sending time in an item where the object identifier is located is earlier than second time of the piece of object information, determine the piece of object information in the object information table as the fifth object information, and update the sending time in the item; in a case where the sending time in the item where the object identifier is located is the same as the second time of the piece of object information, determine the piece of object information in the object information table as the fifth object information, and update the sending time in the item; in a case where the sending time in the item where the object identifier is located is later than the second time of the piece of object information, update the piece of object information in the object information table in time before sending it;

if the object identifier in the piece of object information does not exist in the sent information table, determine the piece of object information in the object information table as the sixth object information, and create a related item of the sixth object information in the sent information table.

[0161] In an embodiment,

the first entrance guard device is an entrance guard device used for face identification, and the first object data indicates face features; or,
the first entrance guard device is an entrance guard device used for fingerprint identification, and the first object data indicates fingerprint features; or,
the first entrance guard device is an entrance guard

device used for voice identification, and the first object data indicates voice features.

[0162] The designated object features indicated by the object data in the object information correspond to the features indicated by the first object data. For example, if the first object data indicates the face features, the designated object features are the face features. Thus, according to the embodiments of the present disclosure, the entrance guard control system based on the card number identification can be improved into an entrance guard control system based on the card number identification and the face identification which are compatible with each other. Other features are similar, and according to the embodiments of the present disclosure, the entrance guard control system based on the card number identification can be improved into an entrance guard control system based on multiple identification technologies which are compatible with each other. It will be understood that the first entrance guard device is only an example, and there may be entrance guard devices supporting other identification technologies, which will not be listed here.

[0163] The present disclosure further provides an apparatus for accessing an entrance guard device, which is applied to a gateway device. The gateway device is connected to an entrance guard management platform in a designated entrance guard control system, and the designated entrance guard control system further includes an entrance guard controller. Referring to FIG. 6, the apparatus for accessing the entrance guard device 100 includes:

an object information acquiring module 101 configured to acquire object information from the entrance guard management platform, where the object information includes at least: object data indicating designated object features, and corresponding object identifier;

an access information acquiring module 102 configured to acquire access information of at least one first entrance guard device that is to be accessed; a module for accessing entrance guard device 103 configured to access corresponding first entrance guard device to the gateway device based on the access information, and send the object information acquired from the entrance guard management platform to the accessed first entrance guard device, so that the first entrance guard device, after collecting and identifying first object data, sends, to the entrance guard controller for entrance guard control, an object identifier corresponding to target object data matching the identified first object data from object data recorded in the first entrance guard device.

[0164] In an embodiment, in addition to the module for accessing entrance guard device, the apparatus further includes:

an event receiving module configured to receive an event indicating a change in the object information sent by the entrance guard management platform, and record the event in a database of the gateway device;

an event identifying module configured to acquire the event from the database, and identify the event; a first update controlling module configured to control the first entrance guard device based on the identified event to perform corresponding change on the object information recorded in the first entrance guard device; or update an object information table provided in the gateway device based on the identified event, where the object information table records the object information that the gateway device has acquired, and control the first entrance guard device based on the updated object information table to update the locally recorded object information.

[0165] In an embodiment, the first update controlling module includes:

a first controlling unit configured to, in a case where the event indicates that first object information from the object information recorded in the entrance guard management platform is deleted, control the first entrance guard device to delete the first object information recorded in the first entrance guard device; a second controlling unit configured to, in a case where the event indicates that second object information is newly added to the object information recorded in the entrance guard management platform, acquire the second object information from the entrance guard management platform, and control the first entrance guard device to add the second object information to the object information recorded in the first entrance guard device;

a third controlling unit configured to, in a case where the event indicates that third object information from the object information recorded in the entrance guard management platform has been modified, acquire the modified third object information from the entrance guard management platform, and control the first entrance guard device to modify third object information recorded in the first entrance guard device into the acquired third object information.

[0166] In an embodiment, after the module for accessing entrance guard device, the apparatus further includes:

a periodic acquiring module configured to acquire latest object information from the entrance guard management platform at regular intervals of t ; a second update controlling module configured to send the latest object information to the first entrance guard device; or, update an object information table based on the acquired latest object information,

where the object information table records the object information that the gateway device has acquired, and control the first entrance guard device based on the updated object information table to update the locally recorded object information.

[0167] In an embodiment, the object information includes object identifiers, and the object identifiers can be information, such as card numbers or names, which are not limited, as long as they can be used to identify the object information.

[0168] The periodic acquiring module, when acquiring the latest object information from the entrance guard management platform, is further configured to acquire first time when each piece of the latest object information is last updated in the entrance guard management platform.

[0169] The second update controlling module, when updating the object information table based on the acquired latest object information, is configured to:

find, from the object information table, an object identifier that does not exist in all pieces of the acquired latest object information, and delete object information including the found object identifier from the object information table;

find, from all pieces of the acquired latest object information, latest object information whose first time is later than time when object information is acquired previous time, and check whether the object identifier in the found latest object information exists in the object information table;

if the object identifier in the found latest object information does not exist in the object information table, add the found latest object information to the object information table;

if the object identifier in the found latest object information exists in the object information table, modify object information including the object identifier in the object information table into the found latest object information.

[0170] In an embodiment,

the first update controlling module or the second update controlling module, when controlling the first entrance guard device based on the updated object information table to update the locally recorded object information, is configured to:

determine, from the object information table every time period of t_1 , deleted fourth object information, modified fifth object information, and added sixth object information in a previous time period of t_1 ;

control the first entrance guard device to delete the fourth object information that has been recorded, send the fifth object information to the first entrance guard device for corresponding modification, and send the sixth object information to the first entrance

guard device for record.

[0171] In an embodiment,

the object information table further records second time when object information is last updated in the object information table;

the gateway device is provided with a sent information table, and each item in the sent information table records at least an object identifier in sent object information and sending time of the sent object information;

the first update controlling module or the second update controlling module, when determining, from the object information table, the deleted fourth object information, the modified fifth object information, and the added sixth object information in the previous time period of t_1 , is configured to:

find, from the sent information table, an object identifier that does not exist in the object information table, determine object information including the found object identifier as the fourth object information, and delete an item where the found object identifier is located from the sent information table;

for each piece of object information in the object information table, check whether an object identifier in the piece of object information exists in the sent information table;

if the object identifier in the piece of object information exists in the sent information table, in a case where sending time in an item where the object identifier is located is earlier than second time of the piece of object information, determine the piece of object information in the object information table as the fifth object information, and update the sending time in the item; in a case where the sending time in the item where the object identifier is located is the same as the second time of the piece of object information, determine the piece of object information in the object information table as the fifth object information, and update the sending time in the item; in a case where the sending time in the item where the object identifier is located is later than the second time of the piece of object information, update the piece of object information in the object information table in time before sending it;

if the object identifier in the piece of object information does not exist in the sent information table, determine the piece of object information in the object information table as the sixth object information, and create a related item of the sixth object information in the sent information table.

[0172] For implementation of functions and roles of units in the apparatuses, reference may be made to the implementation of corresponding steps in the method for details, which will not be repeated here.

[0173] For the apparatus embodiments, since they ba-

sically correspond to the method embodiments, reference may be made to the partial description of the method embodiments. The apparatus embodiments described above are merely illustrative, where the units described as separate components may or may not be physically separated, and the components displayed as units may or may not be physical units.

[0174] The present disclosure further provides a gateway device connected to an entrance guard management platform in a designated entrance guard control system. The designated entrance guard control system further includes an entrance guard controller.

[0175] The gateway device includes a processor and a memory. The memory stores programs callable by the processor. When the processor executes the programs to implement the method for accessing the entrance guard device according to any of the embodiments as described above.

[0176] Embodiments of the apparatus for accessing the entrance guard device in the present disclosure can be applied to a gateway device. Taking software implementation as an example, as a logical apparatus, it is formed by reading corresponding computer program instructions in a non-volatile memory into an internal storage for running through a processor of a gateway device where the apparatus is located. From a hardware perspective, as shown in FIG. 7, which is a hardware structure diagram illustrating a gateway device where an apparatus for accessing an entrance guard device 100 is located according to an exemplary embodiment of the present disclosure, in addition to a processor 510, a memory 530, an interface 520, and a non-volatile memory 540 shown in FIG. 7, the gateway device where the apparatus 100 is located in the embodiment generally can include other hardware according to actual functions of the gateway device, which will not be repeated here.

[0177] The present disclosure further provides machine readable storage media having programs stored thereon. Programs are executed by a processor to implement the method for accessing the entrance guard device according to any of the embodiments as described above.

[0178] The present disclosure further provides computer program products, including computer programs or instructions. When the computer programs or instructions are executed to implement the method for accessing the entrance guard device according to any of the embodiments as described above.

[0179] The present disclosure may be in the form of a computer program product implemented on one or more storage media (including, but not limited to, a disk storage, a CD-ROM, an optical storage, etc.) including program codes. Machine readable storage media include permanent, non-permanent, removable and non-removable media, and information storage can be realized by any method or technology. Information can be computer readable instructions, data structures, program modules, or other data. Examples of machine readable storage

media include, but are not limited to, a Phase Change Memory (PRAM), a Static Random Access Memory (SRAM), a Dynamic Random Access Memory (DRAM), other types of Random Access Memory (RAM), a Read-Only Memory (ROM), an Electrically Erasable Programmable Read-Only Memory (EEPROM), a flash memory or other memory technology, a Compact Disc Read-Only Memory (CD-ROM), a Digital Versatile Disc (DVD) or other optical storage, a magnetic cassette, a magnetic tape/disk storage or other magnetic storage device or any other non-transmission media that can be used to store information accessible by computing devices.

[0180] The above descriptions are only preferred embodiments of the present disclosure, and are not intended to limit the present disclosure. Any modification, equivalent replacement, improvement, etc. made within the spirit and principle of the present disclosure shall fall within the protection scope of the present disclosure.

Claims

1. An entrance guard control system, comprising:

an entrance guard management platform;
 a gateway device and an entrance guard controller which are connected to the entrance guard management platform;
 at least one first entrance guard device connected to the entrance guard controller and accessed to the gateway device; and
 at least one second entrance guard device connected to the entrance guard controller;
 wherein the second entrance guard device is configured to collect and identify card number information, and send the identified card number information to the entrance guard controller;
 the entrance guard management platform is configured to record object information which comprises at least: object data indicating designated object features, and corresponding card number information;
 the gateway device is configured to acquire the object information from the entrance guard management platform, and send the object information to the first entrance guard device;
 the first entrance guard device is configured to record the object information sent by the gateway device, collect and identify first object data, and send, to the entrance guard controller, card number information corresponding to target object data matching the identified first object data from object data recorded in the first entrance guard device; and
 the entrance guard controller is configured to receive card number information sent by either of the first entrance guard device and the second entrance guard device, and control an entrance

guard based on the received card number information.

2. The entrance guard control system according to claim 1, wherein

the first entrance guard device is an entrance guard device used for face identification, and the first object data indicates face features; or,
 the first entrance guard device is an entrance guard device used for fingerprint identification, and the first object data indicates fingerprint features; or,
 the first entrance guard device is an entrance guard device used for voice identification, and the first object data indicates voice features.

3. The entrance guard control system according to claim 1, wherein the gateway device is further configured to:

receive an event indicating a change in the object information sent by the entrance guard management platform, and record the event in a database of the gateway device;
 acquire the event from the database, and identify the event; and
 control the first entrance guard device based on the identified event to perform the change indicated by the event on the object information recorded in the first entrance guard device; or update an object information table provided in the gateway device based on the identified event, wherein the object information table records the object information that the gateway device has acquired, and control the first entrance guard device based on the updated object information table to update the object information locally recorded in the first entrance guard device.

4. The entrance guard control system according to claim 3, wherein the gateway device, when controlling the first entrance guard device based on the identified event to perform the change indicated by the event on the object information recorded in the first entrance guard device, is configured to:

in a case where the event indicates that first object information from the object information recorded in the entrance guard management platform is deleted, control the first entrance guard device to delete the first object information recorded in the first entrance guard device;
 in a case where the event indicates that second object information is newly added to the object information recorded in the entrance guard management platform, acquire the second object information from the entrance guard management

platform, and control the first entrance guard device to add the second object information to the object information recorded in the first entrance guard device; and

in a case where the event indicates that third object information from the object information recorded in the entrance guard management platform has been modified, acquire the third object information from the entrance guard management platform, and control the first entrance guard device to modify third object information recorded in the first entrance guard device into the acquired third object information.

5. The entrance guard control system according to claim 1, wherein the gateway device is further configured to:

acquire latest object information from the entrance guard management platform at regular intervals; and

send the latest object information to the first entrance guard device; or, update an object information table provided in the gateway device based on the acquired latest object information, wherein the object information table records the object information that the gateway device has acquired, and control the first entrance guard device based on the updated object information table to update the object information locally recorded in the first entrance guard device.

6. The entrance guard control system according to claim 5, wherein the object information comprises object identifiers,

the gateway device, when acquiring the latest object information from the entrance guard management platform, is further configured to acquire first time when each piece of the latest object information is last updated in the entrance guard management platform; and the gateway device, when updating the object information table based on the acquired latest object information, is configured to:

find, from the object information table, an object identifier that does not exist in all pieces of the acquired latest object information, and delete the object information comprising the found object identifier from the object information table;
find, from all pieces of the acquired latest object information, the latest object information whose corresponding first time is later than a time of a previous acquisition of the object information, and check whether an object identifier in the found latest object in-

formation exists in the object information table;

if the object identifier in the found latest object information does not exist in the object information table, add the found latest object information to the object information table; and

if the object identifier in the found latest object information exists in the object information table, modify the object information comprising the object identifier in the object information table into the found latest object information corresponding to the object identifier.

7. The entrance guard control system according to claim 3 or 5, wherein the gateway device, when controlling the first entrance guard device based on the updated object information table to update the object information locally recorded in the first entrance guard device, is configured to:

determine, from the object information table every time period, deleted fourth object information, modified fifth object information, and added sixth object information in a previous time period; and

control the first entrance guard device to delete the fourth object information that has been recorded, send the fifth object information to the first entrance guard device for corresponding modification, and send the sixth object information to the first entrance guard device for record.

8. The entrance guard control system according to claim 7, wherein

the object information table further records second time when the object information is last updated in the object information table;

the gateway device is provided with a sent information table, and each item in the sent information table records at least an object identifier in sent object information and sending time of the sent object information; and

the gateway device, when determining, from the object information table, the deleted fourth object information, the modified fifth object information, and the added sixth object information in the previous time period, is configured to:

find, from the sent information table, an object identifier that does not exist in the object information table, determine the object information comprising the found object identifier as the fourth object information, and delete an item where the found object identifier is located from the sent information ta-

- ble;
 for each piece of object information in the object information table, check whether an object identifier in the piece of object information exists in the sent information table; 5
 if the object identifier in the piece of object information exists in the sent information table, in a case where sending time in an item where the object identifier is located is earlier than or same as second time of the piece of object information, determine the piece of object information in the object information table as the fifth object information, and update the sending time in the item; and 10
 if the object identifier in the piece of object information does not exist in the sent information table, determine the piece of object information in the object information table as the sixth object information, and create a related item of the sixth object information in the sent information table. 15
9. The entrance guard control system according to claim 1, further comprising: a protocol conversion device connected between the first entrance guard device and the entrance guard controller, wherein 20
- the first entrance guard device sends the card number information to the protocol conversion device based on a first communication protocol, and the protocol conversion device sends received card number information to the entrance guard controller based on a second communication protocol; and 25
- the first communication protocol is a communication protocol required for communication between the first entrance guard device and the protocol conversion device, and the second communication protocol is a communication protocol required for communication between the protocol conversion device and the entrance guard controller. 30
10. An entrance guard control system, comprising: 35
- an entrance guard management platform; 40
- a gateway device and an entrance guard controller which are connected to the entrance guard management platform; and 45
- at least one first entrance guard device accessed to the gateway device and connected to the entrance guard controller; 50
- wherein the entrance guard management platform is configured to record object information, and the object information comprises at least: object data indicating designated object features, and corresponding object identifier; 55
- the gateway device is configured to acquire the

object information from the entrance guard management platform, and send the object information to the accessed first entrance guard device; the first entrance guard device is configured to record the object information sent by the gateway device, collect and identify first object data, and send, to the entrance guard controller, an object identifier corresponding to target object data matching the identified first object data from object data recorded in the first entrance guard device; and
 the entrance guard controller is configured to receive the object identifier sent by the first entrance guard device, and control an entrance guard based on the received object identifier.

11. The entrance guard control system according to claim 10, wherein

the first entrance guard device is an entrance guard device used for face identification, and the first object data indicates face features; or,
 the first entrance guard device is an entrance guard device used for fingerprint identification, and the first object data indicates fingerprint features; or,
 the first entrance guard device is an entrance guard device used for voice identification, and the first object data indicates voice features.

12. The entrance guard control system according to claim 10, wherein the gateway device is further configured to:

receive an event indicating a change in the object information sent by the entrance guard management platform, and record the event in a database of the gateway device;
 acquire the event from the database, and identify the event; and
 control the first entrance guard device based on the identified event to perform the change indicated by the event on the object information recorded in the first entrance guard device; or update an object information table provided in the gateway device based on the identified event, wherein the object information table records the object information that the gateway device has acquired, and control the first entrance guard device based on the updated object information table to update the object information locally recorded in the first entrance guard device.

13. The entrance guard control system according to claim 12, wherein the gateway device, when controlling the first entrance guard device based on the identified event to perform the change indicated by the event on the object information recorded in the

first entrance guard device, is configured to:

in a case where the event indicates that first object information from the object information recorded in the entrance guard management platform is deleted, control the first entrance guard device to delete the first object information recorded in the first entrance guard device; 5
in a case where the event indicates that second object information is newly added to the object information recorded in the entrance guard management platform, acquire the second object information from the entrance guard management platform, and control the first entrance guard device to add the second object information to the object information recorded in the first entrance guard device; and 10
in a case where the event indicates that third object information from the object information recorded in the entrance guard management platform has been modified, acquire the third object information from the entrance guard management platform, and control the first entrance guard device to modify third object information recorded in the first entrance guard device into the acquired third object information. 20 25

14. The entrance guard control system according to claim 10, wherein the gateway device is further configured to: 30

acquire latest object information from the entrance guard management platform at regular intervals; and
send the latest object information to the first entrance guard device; or, update an object information table provided in the gateway device based on the acquired latest object information, wherein the object information table records the object information that the gateway device has acquired, and control the first entrance guard device based on the updated object information table to update the object information locally recorded in the first entrance guard device. 35 40 45

15. The entrance guard control system according to claim 14, wherein

the gateway device, when acquiring the latest object information from the entrance guard management platform, is further configured to acquire first time when each piece of the latest object information is last updated in the entrance guard management platform; and
the gateway device, when updating the object information table based on the acquired latest object information, is configured to: 50 55

find, from the object information table, an object identifier that does not exist in all pieces of the acquired latest object information, and delete object information comprising the found object identifier from the object information table;
find, from all pieces of the acquired latest object information, latest object information whose corresponding first time is later than a time of a previous acquisition of object information, and check whether an object identifier in the found latest object information exists in the object information table;
if the object identifier in the found latest object information does not exist in the object information table, add the found latest object information to the object information table; and
if the object identifier in the found latest object information exists in the object information table, modify object information comprising the object identifier in the object information table into the found latest object information corresponding to the object identifier.

16. The entrance guard control system according to claim 12 or 14, wherein the gateway device, when controlling the first entrance guard device based on the updated object information table to update the object information locally recorded in the first entrance guard device, is configured to:

determine, from the object information table every time period, deleted fourth object information, modified fifth object information, and added sixth object information in a previous time period; and
control the first entrance guard device to delete the fourth object information that has been recorded, send the fifth object information to the first entrance guard device for corresponding modification, and send the sixth object information to the first entrance guard device for record.

17. The entrance guard control system according to claim 16, wherein

the object information table further records second time when object information is last updated in the object information table;
the gateway device is provided with a sent information table, and each item in the sent information table records at least an object identifier in sent object information and sending time of the sent object information; and
the gateway device, when determining, from the

object information table, the deleted fourth object information, the modified fifth object information, and the added sixth object information in the previous time period, is configured to:

find, from the sent information table, an object identifier that does not exist in the object information table, determine the object information comprising the found object identifier as the fourth object information, and delete an item where the found object identifier is located from the sent information table;

for each piece of object information in the object information table, check whether an object identifier in the piece of object information exists in the sent information table; if the object identifier in the piece of object information exists in the sent information table, in a case where sending time in an item where the object identifier is located is earlier than or same as second time of the piece of object information, determine the piece of object information in the object information table as the fifth object information, and update the sending time in the item; and if the object identifier in the piece of object information does not exist in the sent information table, determine the piece of object information in the object information table as the sixth object information, and create a related item of the sixth object information in the sent information table.

18. The entrance guard control system according to claim 10, further comprising: a protocol conversion device connected between the first entrance guard device and the entrance guard controller, wherein

the first entrance guard device sends the object identifier to the protocol conversion device based on a first communication protocol, and the protocol conversion device sends received object identifier to the entrance guard controller based on a second communication protocol; and

the first communication protocol is a communication protocol required for communication between the first entrance guard device and the protocol conversion device, and the second communication protocol is a communication protocol required for communication between the protocol conversion device and the entrance guard controller.

19. A method for accessing an entrance guard device, applied to a gateway device, wherein the gateway device is connected to an entrance guard manage-

ment platform in a designated entrance guard control system, and the designated entrance guard control system further comprises an entrance guard controller;

the method comprises:

acquiring object information from the entrance guard management platform, wherein the object information comprises at least: object data indicating designated object features, and corresponding object identifier;

acquiring access information of at least one first entrance guard device that is to be accessed; and

accessing corresponding first entrance guard device to the gateway device based on the access information, and sending the object information acquired from the entrance guard management platform to the accessed first entrance guard device, so that the first entrance guard device, after collecting and identifying first object data, sends, to the entrance guard controller for entrance guard control, an object identifier corresponding to target object data matching the identified first object data from object data recorded in the first entrance guard device.

20. The method for accessing the entrance guard device according to claim 19, wherein after sending the object information acquired from the entrance guard management platform to the accessed first entrance guard device, the method further comprises:

receiving an event indicating a change in the object information sent by the entrance guard management platform, and recording the event in a database of the gateway device; acquiring the event from the database, and identifying the event; and

controlling the first entrance guard device based on the identified event to perform corresponding change on the object information recorded in the first entrance guard device; or updating an object information table provided in the gateway device based on the identified event, wherein the object information table records the object information that the gateway device has acquired, and controlling the first entrance guard device based on the updated object information table to update the object information locally recorded in the first entrance guard device.

21. The method for accessing the entrance guard device according to claim 20, wherein controlling the first entrance guard device based on the identified event to perform the corresponding change on the object information recorded in the first entrance guard device comprises:

in a case where the event indicates that first object information from the object information recorded in the entrance guard management platform has been deleted, controlling the first entrance guard device to delete the first object information recorded in the first entrance guard device; 5

in a case where the event indicates that second object information is newly added to the object information recorded in the entrance guard management platform, acquiring the second object information from the entrance guard management platform, and controlling the first entrance guard device to add the second object information to the object information recorded in the first entrance guard device; and 10

in a case where the event indicates that third object information from the object information recorded in the entrance guard management platform has been modified, acquiring the modified third object information from the entrance guard management platform, and controlling the first entrance guard device to modify third object information recorded in the first entrance guard device into the acquired third object information. 20 25

- 22.** The method for accessing the entrance guard device according to claim 19, wherein after sending the object information acquired from the entrance guard management platform to the accessed first entrance guard device, the method further comprises: 30

acquiring latest object information from the entrance guard management platform at regular intervals; and 35

sending the latest object information to the first entrance guard device; or, updating an object information table provided in the gateway device based on the acquired latest object information, wherein the object information table records the object information that the gateway device has acquired, and controlling the first entrance guard device based on the updated object information table to update the object information locally recorded in the first entrance guard device. 40 45

- 23.** The method for accessing the entrance guard device according to claim 22, wherein

when acquiring the latest object information from the entrance guard management platform, first time when each piece of the latest object information is last updated in the entrance guard management platform is further acquired; and 50

updating the object information table based on the acquired latest object information comprises: 55

finding, from the object information table, an object identifier that does not exist in all pieces of the acquired latest object information, and deleting the object information comprising the found object identifier from the object information table;

finding, from all pieces of the acquired latest object information, the latest object information whose corresponding first time is later than a time of a previous acquisition of the object information, and checking whether an object identifier in the found latest object information exists in the object information table;

if the object identifier in the found latest object information does not exist in the object information table, adding the found latest object information to the object information table; and

if the object identifier in the found latest object information exists in the object information table, modifying the object information comprising the object identifier in the object information table into the found latest object information corresponding to the object identifier.

- 24.** The method for accessing the entrance guard device according to claim 20 or 22, wherein controlling the first entrance guard device based on the updated object information table to update the object information locally recorded in the first entrance guard device comprises:

determining, from the object information table every time period, deleted fourth object information, modified fifth object information, and added sixth object information in a previous time period; and

controlling the first entrance guard device to delete the fourth object information that has been recorded, sending the fifth object information to the first entrance guard device for corresponding modification, and sending the sixth object information to the first entrance guard device for record.

- 25.** The method for accessing the entrance guard device according to claim 24, wherein

the object information table further records second time when the object information is last updated in the object information table;

the gateway device is provided with a sent information table, and each item in the sent information table records at least an object identifier in sent object information and sending time of the sent object information; and

determining, from the object information table, the deleted fourth object information, the modified fifth object information, and the added sixth object information in the previous time period comprises:

finding, from the sent information table, an object identifier that does not exist in the object information table, determining the object information comprising the found object identifier as the fourth object information, and deleting an item where the found object identifier is located from the sent information table;

for each piece of object information in the object information table, checking whether an object identifier in the piece of object information exists in the sent information table;

if the object identifier in the piece of object information exists in the sent information table, in a case where sending time in an item where the object identifier is located is earlier than or same as second time of the piece of object information, determining the piece of object information in the object information table as the fifth object information, and updating the sending time in the item; and if the object identifier in the piece of object information does not exist in the sent information table, determining the piece of object information in the object information table as the sixth object information, and creating a related item of the sixth object information in the sent information table.

26. The method for accessing the entrance guard device according to claim 19, wherein

the first entrance guard device is an entrance guard device used for face identification, and the first object data indicates face features; or, the first entrance guard device is an entrance guard device used for fingerprint identification, and the first object data indicates fingerprint features; or, the first entrance guard device is an entrance guard device used for voice identification, and the first object data indicates voice features.

27. An apparatus for accessing an entrance guard device, applied to a gateway device, wherein the gateway device is connected to an entrance guard management platform in a designated entrance guard control system, and the designated entrance guard control system further comprises an entrance guard controller; and the apparatus comprises:

an object information acquiring module configured to acquire object information from the entrance guard management platform, wherein the object information comprises at least: object data indicating designated object features, and corresponding object identifier;

an access information acquiring module configured to acquire access information of at least one first entrance guard device that is to be accessed; and

a module for accessing entrance guard device configured to access corresponding first entrance guard device to the gateway device based on the access information, and send the object information acquired from the entrance guard management platform to the accessed first entrance guard device, so that the first entrance guard device, after collecting and identifying first object data, sends, to the entrance guard controller for entrance guard control, an object identifier corresponding to target object data matching the identified first object data from object data recorded in the first entrance guard device.

28. A gateway device, connected to an entrance guard management platform in a designated entrance guard control system, wherein the designated entrance guard control system further comprises an entrance guard controller; and the gateway device comprises a processor and a memory; the memory stores programs callable by the processor; the processor executes the programs to implement a method for accessing an entrance guard device according to any of claims 19 to 26.

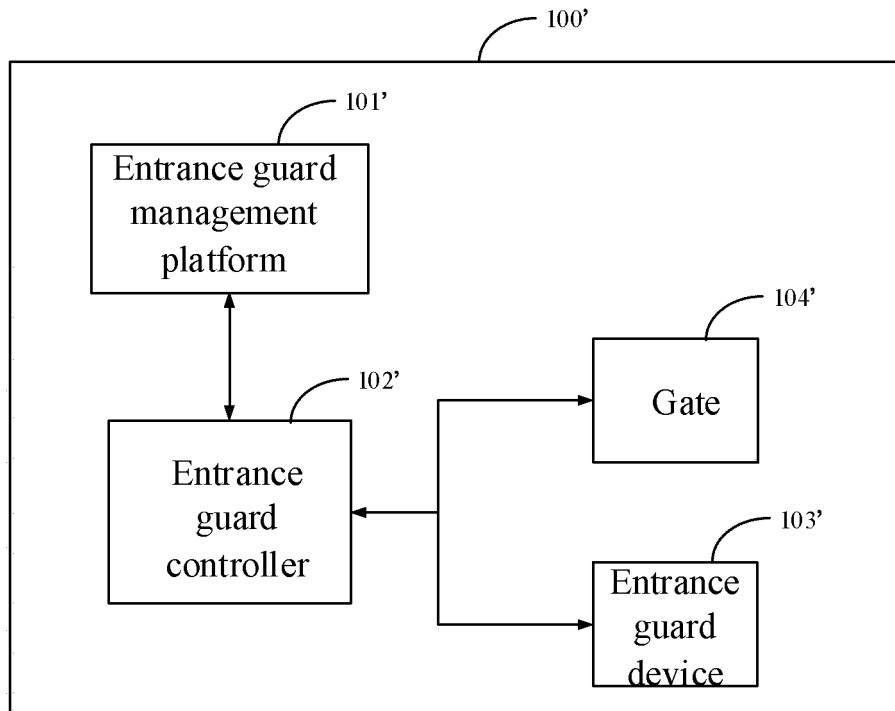


FIG.1

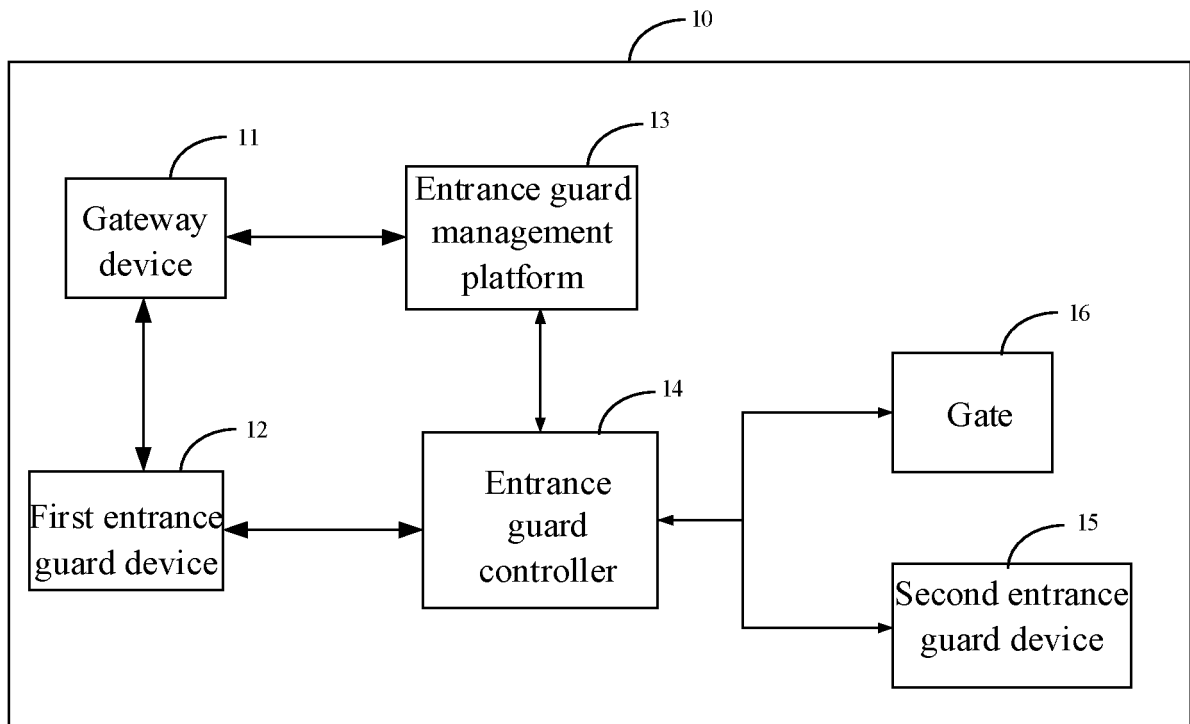


FIG.2

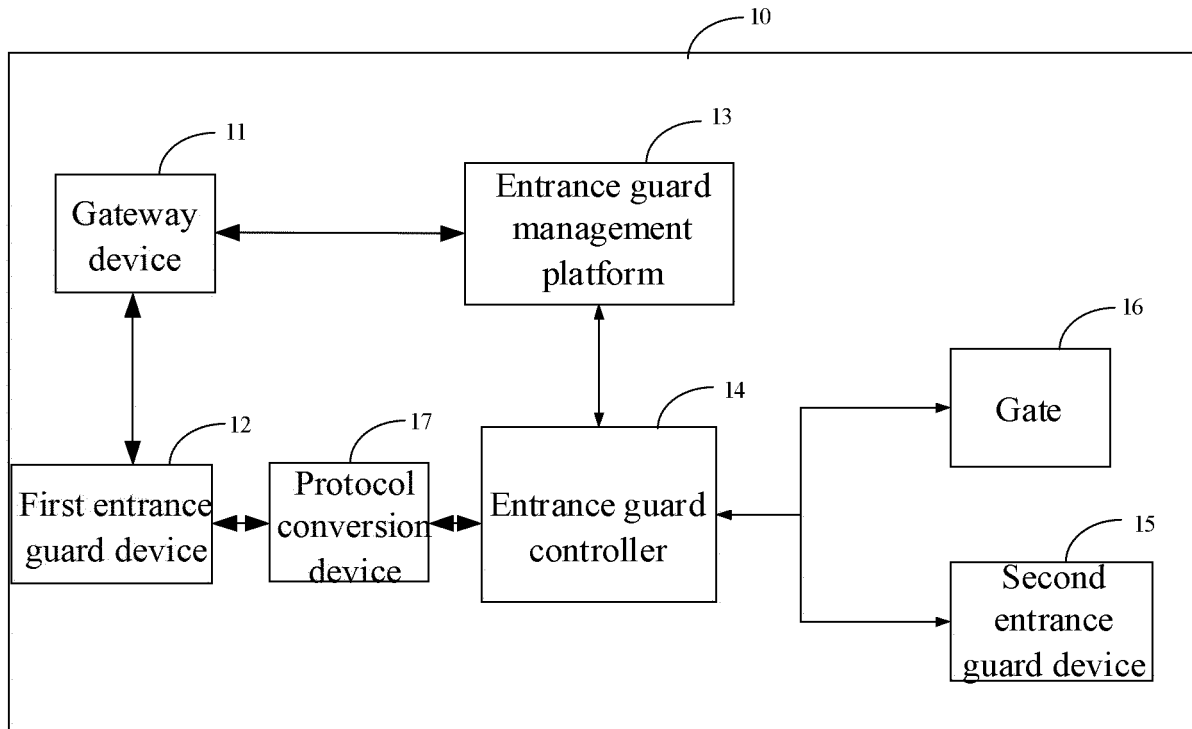


FIG.3

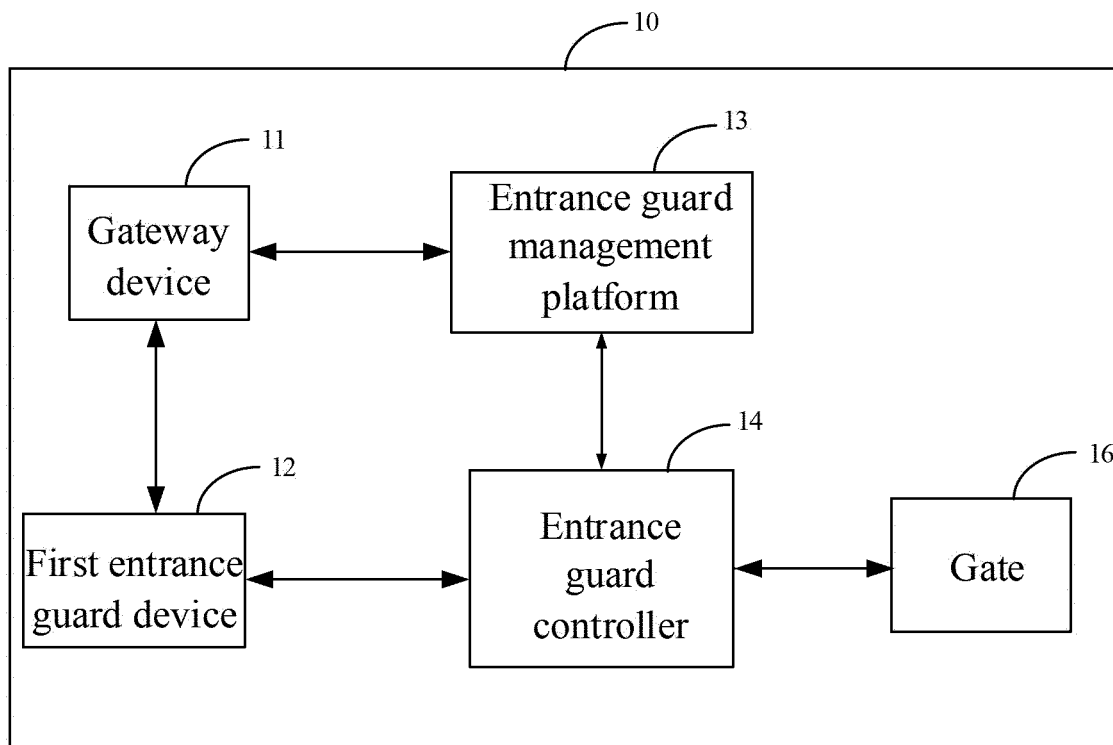


FIG.4

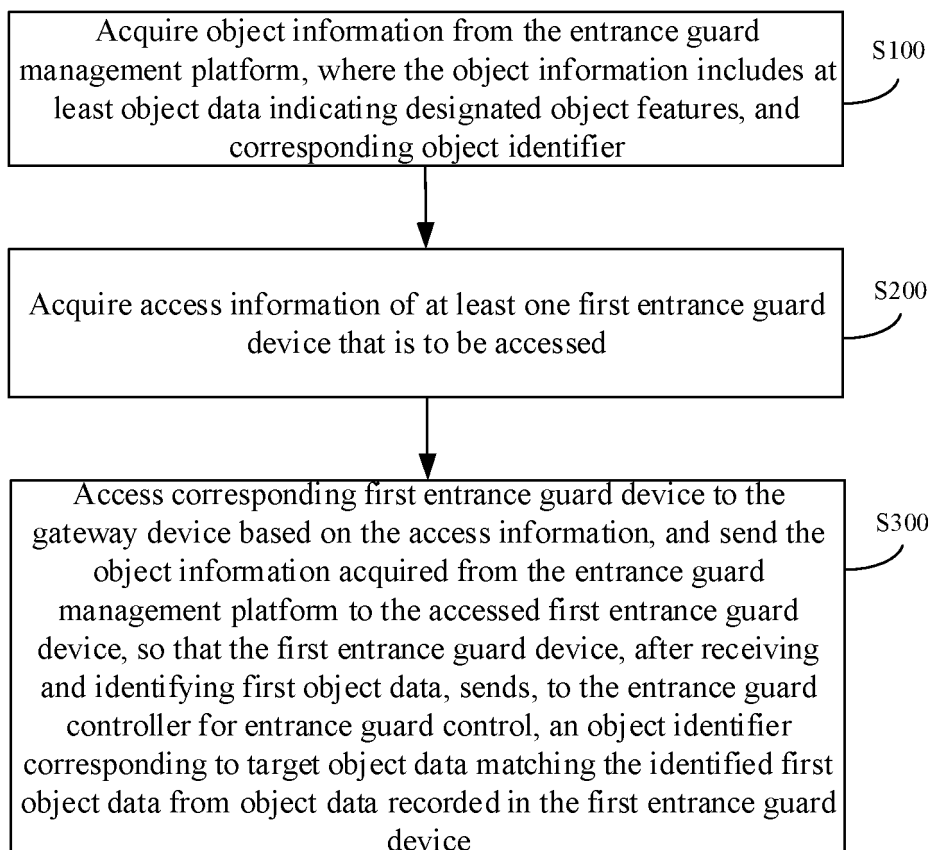


FIG.5

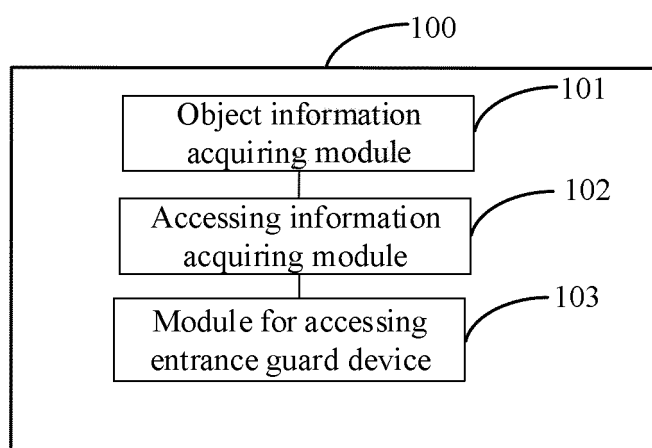


FIG.6

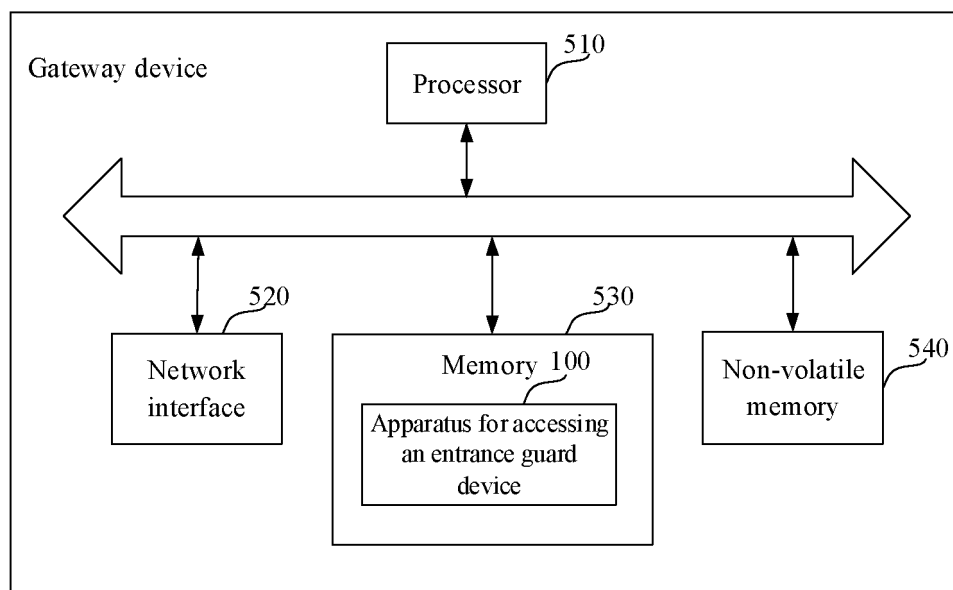


FIG.7

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2020/075615

A. CLASSIFICATION OF SUBJECT MATTER G07C 9/00(2020.01)i; E05B 49/00(2006.01)i According to International Patent Classification (IPC) or to both national classification and IPC																					
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) G07C; E05B Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched																					
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) VEN; CNTXT: 门禁, 网关, 管理, 安全, 智能, 小区, 社区, 匹配, 识别, 卡号, 控制, 指纹, 摄像头, 人脸, 采集, 语音, 标识, 比较, gateway, recognition, permit, visit, permission, access, entrance, gate, safety, entry, server, controller, sensor, fingerprint, voice, camera, card, collect, face, door, lock, unlock, intelligent, community, security, identification, photograph, identifier, image, pickup, authorize, compare, RFID																					
C. DOCUMENTS CONSIDERED TO BE RELEVANT <table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>Y</td> <td>CN 108846929 A (FAN, Liuliu) 20 November 2018 (2018-11-20) description, paragraphs [0019]-[0026], and figures 1-2</td> <td>1-28</td> </tr> <tr> <td>Y</td> <td>CN 106453009 A (SICHUAN YADING HUYANG HUMAN RESOURCES GROUP CO., LTD.) 22 February 2017 (2017-02-22) description, paragraphs [0039]-[0083], figures 1-2</td> <td>1-28</td> </tr> <tr> <td>Y</td> <td>JP 2011179170 A (SECOM CO., LTD.) 15 September 2011 (2011-09-15) description, paragraphs [0020]-[0070], figures 1-8</td> <td>1-28</td> </tr> <tr> <td>Y</td> <td>JP 2009046813 A (PROMISE KK) 05 March 2009 (2009-03-05) description, paragraphs [0018]-[0032], figures 1-8</td> <td>1-28</td> </tr> <tr> <td>A</td> <td>CN 206271146 U (CHENGDU UNIVERSITY OF TECHNOLOGY) 20 June 2017 (2017-06-20) entire document</td> <td>1-28</td> </tr> <tr> <td>A</td> <td>CN 103606214 A (NANJING UNIVERSITY OF POSTS AND TELECOMMUNICATIONS) 26 February 2014 (2014-02-26) entire document</td> <td>1-28</td> </tr> </tbody> </table>	Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	Y	CN 108846929 A (FAN, Liuliu) 20 November 2018 (2018-11-20) description, paragraphs [0019]-[0026], and figures 1-2	1-28	Y	CN 106453009 A (SICHUAN YADING HUYANG HUMAN RESOURCES GROUP CO., LTD.) 22 February 2017 (2017-02-22) description, paragraphs [0039]-[0083], figures 1-2	1-28	Y	JP 2011179170 A (SECOM CO., LTD.) 15 September 2011 (2011-09-15) description, paragraphs [0020]-[0070], figures 1-8	1-28	Y	JP 2009046813 A (PROMISE KK) 05 March 2009 (2009-03-05) description, paragraphs [0018]-[0032], figures 1-8	1-28	A	CN 206271146 U (CHENGDU UNIVERSITY OF TECHNOLOGY) 20 June 2017 (2017-06-20) entire document	1-28	A	CN 103606214 A (NANJING UNIVERSITY OF POSTS AND TELECOMMUNICATIONS) 26 February 2014 (2014-02-26) entire document	1-28
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Date of the actual completion of the international search 20 April 2020	Date of mailing of the international search report 06 May 2020																				
Name and mailing address of the ISA/CN China National Intellectual Property Administration (ISA/CN) No. 6, Xitucheng Road, Jimenqiao Haidian District, Beijing 100088 China Facsimile No. (86-10)62019451	Authorized officer Telephone No.																				

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INTERNATIONAL SEARCH REPORT

International application No.

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Information on patent family members

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Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
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