PASSAGE CONTROL METHOD AND PASSAGE DEVICE

TECHNICAL FIELD

The present disclosure generally relates to an identity verification device field, and particularly relates to a passage control method and a passage device.

BACKGROUND

At present, eGate is widely used in the passage fields, such as entrances or exits of public places, immigration and emigration clearances and so on, for effectively realizing the control and management of a large flow of passage persons. The known eGate is one-way passenger channel, and the passage person can only pass through from one side to the other side of the eGate. If the passage direction of the eGate needs to be changed, the configuration parameters of the eGate should be reset. When there is a large flow of passage persons on one side of the eGate and the number of eGates in this passage direction is insufficient, the management personnel needs to adjust the configuration of the corresponding eGates, which results in a low configuration efficiency and low passage efficiency of the eGate.

SUMMARY

The object of the present disclosure is to provide a passage control method and a passage device, aiming at improvements on the configuration efficiency and passage efficiency of the eGates.

According to a first aspect, a passage control method, which is applied to a passage device, is provided, wherein the passage device comprises a passage channel, a first body and a second body which are relatively arranged at both ends of the passage channel, wherein the passage control method comprises:

acquiring a control instruction and enabling one of the first body or the second body to obtain a document information according to the control instruction;

obtaining a first passage signal according to the document information; and

adjusting a state of the first body and a state of the second body correspondingly according to the first passage signal.

Preferably, adjusting a state of the first body and a state of the second body correspondingly according to the first passage signal, comprises:

adjusting the state of the first body according to the first passage signal, and enabling the second body to obtain a biometric information;

obtaining a second passage signal according to the document information and the biometric information; and

adjusting the state of the first body and/or the state of the second body correspondingly according to the second passage signal.

Preferably, adjusting a state of the first body and a state of the second body correspondingly according to the first passage signal, comprises:

adjusting the state of the first body according to the first passage signal, and enabling the second body to obtain a biometric information;

obtaining a second passage signal according to the document information and the biometric information; and

adjusting the state of the second body correspondingly according to the second passage signal.

Preferably, adjusting a state of the first body and a state of the second body correspondingly according to the first passage signal, comprises:

adjusting the state of the first body according to the first passage signal, and enabling the second body to obtain a biometric information;

obtaining a second passage signal according to the document information and the biometric information; and

adjusting the state of the first body and the state of the second body correspondingly according to the second passage signal.

Preferably, adjusting a state of the first body and a state of the second body correspondingly according to the first passage signal, comprises:

adjusting the state of the state of the second body according to the first passage signal, and enabling the first body to obtain a biometric information;

obtaining a second passage signal according to the document information and the biometric information; and

adjusting the state of the first body and/or the state of the second body correspondingly according to the second passage signal.

Preferably, adjusting a state of the first body and a state of the second body correspondingly according to the first passage signal, comprises:

adjusting the state of the state of the second body according to the first passage signal, and enabling the first body to obtain a biometric information;

obtaining a second passage signal according to the document information and the biometric information; and

adjusting the state of the first body correspondingly according to the second passage signal.

Preferably, adjusting a state of the first body and a state of the second body correspondingly according to the first passage signal, comprises:

adjusting the state of the state of the second body according to the first passage signal, and enabling the first body to obtain a biometric information;

obtaining a second passage signal according to the document information and the biometric information; and

adjusting the state of the first body and the state of the second body correspondingly according to the second passage signal.

Preferably, obtaining a second passage signal according to the document information and the biometric information, comprises:

obtaining the second passage signal for adjusting the state of the first body and the state of the second body to block the passage channel when a prestored user information, which is corresponding to the document information, fails to accord with the biometric information, and generating a warning signal according to the second passage signal.

Preferably, obtaining a second passage signal according to the document information and the biometric information, comprises:

obtaining the second passage signal for adjusting the state of the first body or the state of the second body to unblock the passage channel when the prestored user information, which is corresponding to the document information, accords with the biometric information.

Preferably, the passage control method further comprises:

when receiving an authorized signal, obtaining a third passage signal based on the

authorized signal; and

adjusting the state of the first body and the state of the second body correspondingly according to the third passage signal.

Preferably, before acquiring the control instruction, the passage control method further comprises:

acquiring a state information of the first body or a state information of the second body; and

generating a corresponding control instruction when the first body or the second body is in an active state.

Preferably, before acquiring the control instruction, the passage control method further comprises:

acquiring an environmental information and obtaining a human body information in an area corresponding to the first body and an area corresponding to the second body according to the environmental information; and

generating a comparison result according to the human body information, and obtaining the control instruction according to the comparison result.

According to a second aspect, a passage device which applies the passage control method, is provided, wherein the passage device comprises a control circuit, a first body and a second body which are relatively arranged at both ends of a passage channel, wherein the control circuit is electrically connected with the first body and the second body, wherein both of the first body and the second body are provided with a first acquisition device which is operable to obtain a document information;

wherein the control circuit is operable to:

acquire a control instruction and enable the first acquisition device on one of the first body or the second body to obtain the document information according to the control instruction;

obtain a first passage signal according to the document information; and

adjust a state of the first body and a state of the second body correspondingly according to the first passage signal.

Preferably, both of the first body and the second body are provided with a second acquisition device which is operable to obtain a biometric information;

wherein the control circuit is further operable to:

adjust the state of the first body and/or the state of the second body according to the first passage signal, and enable the second acquisition device on the other one of the first body or the second body to obtain the biometric information;

obtain a second passage signal according to the document information and the biometric information; and

adjust the state of the first body and/or the state of the second body correspondingly according to the second passage signal.

Preferably, in order to obtain a second passage signal according to the document information and the biometric information, the control circuit is further operable to:

obtain the second passage signal for adjusting the state of the first body and the state of the second body to block the passage channel when a prestored user information, which is corresponding to the document information, fails to accord with the biometric information, and generate a warning signal according to the second passage signal; or

obtain the second passage signal for adjusting the state of the first body or the state of the second body to unblock the passage channel when the prestored user information, which is corresponding to the document information, accords with the biometric information.

Preferably, the passage device further comprises a control terminal which is communicated with the control circuit, wherein when receiving an authorized signal sent from the control terminal, the control circuit is further operable to:

obtain a third passage signal based on the authorized signal; and

adjust the state of the first body and the state of the second body correspondingly according to the third passage signal.

Preferably, the control circuit is further operable to:

acquire a state information of the first body and a state information of the second body;

generate a corresponding control instruction when the first body or the second body is in an active state.

Preferably, the passage device further comprises a visual terminal, wherein the control circuit is further operable to:

enable the visual terminal to acquire an environmental information;

obtain a human body information in an area corresponding to the first body and an area

corresponding to the second body according to the environmental information;

generate a comparison result according to the human body information; and

obtain the control instruction according to the comparison result.

The technical scheme of this disclosure acquires the control instruction and enables one of the first body or the second body to operate for obtaining the document information, obtains the first passage signal according to the document information, and adjusts states of the first body and the second body correspondingly according to the first passage signal. That is, when the document information accords with the prestored user information, the document information is legitimate, so the first passage signal is a state adjustment signal which allows the passage person to pass through. Such that, the states of the first body and the second body are adjusted to allow the passage person to pass through the passage channel. Among them, the control instruction can be triggered by the operation of the passage person or the operation of the management personnel, so as to improve the configuration efficiency of the eGate. The passage control method of this disclosure improves the configuration efficiency of the eGate and the passage efficiency of the eGate.

BRIEF DESCRIPTION OF THE DRAWINGS

In order to illustrate the technical solution more clearly in the embodiment of the present disclosure, the drawings used in the embodiments or prior arts will be briefly introduced. It is obvious that the drawings in the following description are only some embodiments of this disclosure. For those skilled in the present art, they can also obtain other drawings without paying creative labor according to these drawings.

Fig. 1 is a flow chart of a passage control method in an embodiment of the present disclosure.

Fig. 2 is a flow chart showing adjustments of a first body and a second body in a passage control method in an embodiment of the present disclosure.

Fig. 3 is a flow chart showing verification for document information and biometric information in a passage control method in an embodiment of the present disclosure.

Fig. 4 is a structure diagram of a passage device in an embodiment of the present disclosure.

The realization of the object, functional features and advantages of this disclosure will be further described with reference to the attached drawings in combination with the embodiment.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The technical scheme in the embodiment of this disclosure will be clearly and completely described below in combination with the attached drawings in the embodiment of this disclosure. Obviously, the described embodiments are only some of the embodiments of this disclosure, not all of the embodiments of this disclosure. Based on the embodiments of this disclosure, all other embodiments obtained by those skilled in the art without creative work belong to the protection scope of this disclosure.

It should be noted that if the embodiment of this disclosure involves any directional indication (such as up, down, left, right, front, rear...), the directional indication is only used to explain the relative position relationship and movement situation between components in a specific attitude (as shown in the attached drawings). If the specific attitude changes, the directional indication will change accordingly.

In addition, if there is a description of "first", "second" and the like in the embodiments of this disclosure, the description of "first", "second" and the like is only for descriptive purposes, and cannot be understood as indicating or implying its relative importance or implicitly indicating the number of the indicated technical features. Thus, the features defined by "first" and "second" may include at least one of the features explicitly or implicitly. In addition, the technical solutions between various embodiments can be combined with each other, and such combination must be based on the realization of those skilled in the art. When the combination of technical solutions is contradictory or impossible, it should be considered that the combination of technical solutions does not exist and is not within the protection scope of this disclosure.

This disclosure provides a passage device. As shown in Fig. 1, a first embodiment of a passage control method according to this disclosure, is provided. The passage control method of the embodiment is applied to a passage device, which comprises a passage channel, a first body and a second body. The first body and the second body are relatively arranged at both ends of the passage channel.

Based on the above, the first body and the second body can be connected through cables or wireless networks. The passage device further comprises a control circuit, which can be set-up

independently and communicated with the first body and the second body. Alternatively, the control circuit could be arranged on the first body and/or the second body. The first body and the second body include a motor and a baffle which is connected with the motor. The motors on the first body and the second body operate to fold the baffle for blocking or unblocking the passage channel.

This disclosure provides a passage control method, which comprises acquiring a control instruction and enabling one of the first body or the second body to obtain a document information according to the control instruction; obtaining a first passage signal according to the document information; and adjusting a state of the first body and a state of the second body correspondingly according to the first passage signal.

This embodiment acquires the control instruction and enables one of the first body or the second body to operate for obtaining the document information, obtains the first passage signal according to the document information, and adjusts states of the first body and the second body correspondingly according to the first passage signal. That is, when the document information accords with the prestored user information, the document information is legitimate, so the first passage signal is a state adjustment signal which allows the passage person to pass through. Such that, the states of the first body and the second body are adjusted to allow the passage person to pass through the passage channel. Among them, the control instruction can be triggered by the operation of the passage person or the operation of the management personnel, so as to improve the configuration efficiency of the eGate. The passage control method of this disclosure improves the configuration efficiency of the eGate and the passage efficiency of the eGate.

In an embodiment of this disclosure, as shown in Fig. 1, the passage control method comprises the following steps.

In step S110, a control instruction is acquired and one of the first body or the second body is enabled to obtain a document information according to the control instruction. Wherein, the document information refers to information corresponding to any one or more documents, such as China ID card, Singapore ID card, Hong Kong and Macao ID card, passport, immigration and emigration clearance card, etc.

When the passage device operates, the first body and the second body are in a working state which includes a blocking state and an unblocking state. The blocking state refers to that

the motor on the first body drives the baffle to block the passage channel, or the motor on the second body drives the baffle to block the passage channel. The unblocking state refers to that the motor on the first body drives the baffle to fold and unblock the passage channel, or the motor on the second body drives the baffle to fold and unblock the passage channel.

When operating the passage device, the passage person enables one of the first body or the second body to be in an activation state capable of obtaining the document information according to the control instruction, so that when the passage person places the document on the first body or the second body, the first body or the second body obtains the document information, and compares the document information with a prestored user information. When the document information presents in the prestored user information, the first body or the second body is controlled to be in the unblocking state, otherwise, the first body or the second body is controlled to be in the blocking state.

The prestored user information refers to data information which is stored in advance. The data information can be stored in a local storage medium of the passage device. Alternatively, the data information can be stored on a cloud storage medium connected to the passage device.

In practical applications, when the passage person needs to enter the passage channel from the first body and exit from the second body. The application scenarios are as follows.

The passage device acquires a control instruction, which includes a configuration information for configuring the first body as an entrance of the passage channel, and a configuration information for configuring the second body as an exit of the passage channel. At the same time, the first body is used as the device for obtaining the document information. According to the comparison result between the document information obtained by the first body and the prestored user information, when the document information does not present in the prestored user information, the document information is the unauthorized document information which is not recorded, then the first body and the second body are controlled to be in a blocking state. On the other hand, when the document information presents in the prestored user information, the document information is the document information that has been recorded and authorized. The first body is controlled to be unblocked, and the passage person can enter the passage channel from the first body.

At the same time, after the first body detects the entry of the passage person into the

passage channel, the state of the first body is adjusted to the blocking state, and the second body is maintained in the blocking state, so as to facilitate the secondary verification of identity. Among them, the secondary verification can be the biometric recognition of the passage person, such as fingerprint recognition, face recognition, iris recognition and voiceprint recognition, and so on.

Alternatively, it is not necessary to use a second body to realize the secondary verification. When the first body detects the entry of the passage person into the passage channel, the state of the first body is adjusted to the blocking state, and the second body is adjusted to the unblocking state.

Alternatively, it is not necessary to use a second body to realize the secondary verification, but ensure that only one person can pass through the passage channel. It is understandable that when the first body detects the entry of the passage person into the passage channel, the state of the first body is adjusted to the blocking state, and the second body is also adjusted to the blocking state, and whether there is only one passage person in the passage channel, is detected. If there is only one passage person in the passage channel, the second body is adjusted to the unblocking state. If there are more than one passage persons in the passage channel, the second body is adjusted to the blocking state. When detecting whether there is only one passage person in the passage channel, an infrared device or image acquisition device can be used to obtain the human body information within the passage channel for further confirming whether there is only one passage person in the passage channel.

In another application, when the passage person needs to enter the passage channel from the second body and leave the passage channel passage from the first body after passing through the passage channel. The application scenarios are as follows.

The passage device acquires a control instruction, which includes a configuration information for configuring the second body as an entrance of the passage channel, and a configuration information for configuring the first body as an exit of the passage channel. At the same time, the second body is used as the device for obtaining the document information. According to the comparison result between the document information obtained by the second body and the prestored user information, when the document information does not present in the prestored user information, the document information is the unauthorized document information

which is not recorded, then the second body and the first body are controlled to be in a blocking state. On the other hand, when the document information presents in the prestored user information, the document information is the document information that has been recorded and authorized. The second body is controlled to be unblocked, and the passage person can enter the passage channel from the second body.

At the same time, after the second body detects the entry of the passage person into the passage channel, the state of the second body is adjusted to the blocking state, and the first body is maintained in the blocking state, so as to facilitate the secondary verification of identity. Among them, the secondary verification can be the biometric recognition of the passage person, such as fingerprint recognition, face recognition, iris recognition and voiceprint recognition, and so on.

Alternatively, it is not necessary to use a first body to realize the secondary verification. When the second body detects the entry of the passage person into the passage channel, the state of the second body is adjusted to the blocking state, and the first body is adjusted to the unblocking state.

Alternatively, it is not necessary to use a first body to realize the secondary verification, but ensure that only one person can pass through the passage channel. It is understandable that When the second body detects the entry of the passage person into the passage channel, the state of the second body is adjusted to the blocking state, and the first body is also adjusted to the blocking state, and whether there is only one passage person in the passage channel, is detected. If there is only one passage person in the passage channel, the first body is adjusted to the unblocking state. If there are more than one passage persons in the passage channel, the first body is adjusted to the blocking state. When detecting whether there is only one passage person in the passage channel, an infrared device or image acquisition device can be used to obtain the human body information within the passage channel for further confirming whether there is only one passage person in the passage channel.

Based on the above, there are many ways to obtain the control instruction. In a first way, the control instruction can be obtained through an active recognition of the first body and/or the second body. In a second way, the control instruction can be obtained from an management personnel configuration. In a third way, the control instruction can be obtained by initializing and

configuring the passage device.

The first way further comprises a variety of implementation means. Examples of various implementation means are as follows.

In a first implementation means, when the passage person approaches the first body or the second body, the first body or the second body recognizes the biometric information of the human body and generates a response signal. The control circuit determines the first body or the second body that recognizes the biometric information of the human body as the entrance of the passage channel according to the response signal.

In a second implementation means, when the passage person places the document on the first body or the second body, the first body or the second body recognizes the document information of the document and generates a response signal. The control circuit determines the first body or the second body that recognizes the document information of the human body as the entrance of the passage channel according to the response signal.

In a third implementation means, the first body and the second body actively recognize the number of the passage persons in a visible area, and the control circuit determines the first body or the second body as the entrance of the passage channel according to the number of the passage persons in the two visible areas. Among them, the number of the passage persons in the two visible areas can be obtained through the face recognition technology or human contour recognition technology, and the first body or the second body which corresponds to the visible area with a larger number of the passage persons can be determined as the entrance of the passage channel. Alternatively, when the numbers of the passage persons in the two visible areas are equivalent within a certain range, the first body and the second body can be used alternately as the entrance of the passage channel. Within this certain range, the difference between the numbers of the passage persons in the two visible areas are in a certain range, and the difference is an integer, such as 1, 5, 7, 10, 13, 15, 20, etc.

In the second way, the management personnel can configure the passage directions of the first body and the second body through a personal computer. Alternatively, the management personnel can configure the passage directions of the first body and the second body through a mobile terminal. Alternatively, the management personnel can configure the passage directions of the first body and the second body through operation panels on the first body or the second

body.

In the third way, the passage device is initialized and configured. It can be understood that the management personnel or engineers have configured the configuration parameters of the passage device during the production of the passage device. For example, in a certain time period, one of the first body or the second body is used as the entrance of the passage channel, and the other one of the first body or the second body is used as the entrance of the passage channel when not in the certain time period. Among them, the time period can be a local peak time period, which can be obtained through local data statistics. Or, the time period is in days, such as 1 day, 2 days and 3 days.

At least one of the above three ways shall be applied to the passage device. When the above three ways are used in the passage device, the three ways have their own priority sequence, such as the priority of the first way > the priority of the second way > the priority of the third way, or the priority of the second way > the priority of the first way > the priority of the third way.

In step S120, a first passage signal is obtained according to the document information. That is, one of the first body and the second body is used as the entrance of the passage channel, and the other of the first body and the second body is used as the exit of the passage channel. The first body or the second body as the entrance needs to obtain the document information and compare the document information with the prestored data information. When there is corresponding document information in the stored data information, the document information is legal, and then the first passage signal can be obtained.

In step S130, a state of the first body and a state of the second body correspondingly are adjusted according to the first passage signal. That is, the first passage signal can adjust the state of the first body and the state of the second body.

Based on the above, the state of the first body can be changed, but the state of the second body cannot be changed, according to the first passage signal. Alternatively, the states of the first body and the second body can both be changed according to the first passage signal. That is, the following control can be realized through the first passage signal.

The following application scenarios are explained by taking the first body as the entrance of the passage channel. It is similar when the second body is taken as the entrance of the passage

channel.

In the first case, the first passage signal is an electrical signal which adjusts the first body and maintains the second body in the blocked\ state. When the first body is used as the entrance of the passage channel, the first body obtains the document information. When the document information is legitimate, the control circuit obtains the first passage signal which allows the first body to be in the unblocked state according to the document information obtained by the first body. Such that, the motor of the first body drives the baffle to fold and unblock one end of the passage channel. On the contrary, when the document information is illegal, the control circuit obtains the first passage signal which adjust the first body to be in the blocked state, according to the document information obtained by the first body. That is, the first passage signal can be an empty feedback signal without adjusting the state of the first body. Which means, the second body is positioned at the other end of the passage channel. When the first body operates, the first passage signal may not adjust the state of the second body, so that the second body remains in the original blocked state.

Based on the above, the passage control method of this disclosure can have the following embodiments after the passage person enters the passage channel.

In one embodiment, the passage control method may also include the recognitions of the human body in the passage channel by the second body or the first body. After the first body is adjusted to the unblocked state and the passage person enters the passage channel, the first body is reset and adjusted to the blocked state. The control circuit recognizes the number of the human bodies in the passage channel. When the number of the human bodies in the passage channel is single, it obtains a second control signal, which is used to control the second body to be unblocked.

In another embodiment, the passage control method may also include the biometric information acquisition of the human body in the passage channel by the second body. After the first body is adjusted to the unblocked state and the passage person enters the passage channel, the first body is reset and adjusted to the blocked state. The control circuit enables the second body to recognize the biometric information of the passage person corresponding to the passage channel for determining whether the passage person is the same person corresponding to the document information recognized by the first body. That is, after the second body obtains the

biometric information, the prestored user information of the person whose document information is recognized by the first body is retrieved for obtaining the corresponding biometric information. Then the biometric information obtained by the second body is compared with the biometric information of the prestored user information. When the biometric information obtained by the second body is correctly matched with the biometric information obtained from the prestored user information, the biometric information obtained by the second body is legitimate and the second control signal which allows the state of the second body to be adjusted to the unblocked state can be obtained. The state of the second body is adjusted to the unblocked state, so as to facilitate the passage person to pass through. On the contrary, when the biometric information obtained by the second body is not matched with biometric information obtained from the prestored user information, the biometric information obtained by the second body is illegal, and the second control signal which adjusts the state of the second body to the blocked state is obtained.

In the second case, the first passage signal is electrical signals which adjusts the first body and the second body. In other words, during the passage, only one verification of the document information is required. For example, when the document information obtained by the first body is legal, the first passage signal is obtained, and the states of the first body and the second body are adjusted to be the unblocked state according to the first passage signal. On the contrary, when the document information obtained by the first body is illegal, the first passage signal is obtained, and the states of the first body and the second body are adjusted to be the blocked state according to the first passage signal.

In an embodiment of this disclosure, as shown in Fig. 1 and Fig. 2, the step 103, in which a state of the first body and a state of the second body are correspondingly adjusted according to the first passage signal, further comprises following steps.

In step S131, the state of the first body and/or the state of the second body are adjusted according to the first passage signal, and the other one of the first body or the second body is enabled to obtain a biometric information. That is, the first body and the second body are respectively positioned at both ends of the passage channel, one of the first body and the second body is used as the entrance of the passage channel. The first body or the second body, which is used as the entrance, acquires the document information. On the other hand, the other one of the

first body and the second body is used as the exit of the passage channel. The first body or the second body, which is used as the exit, acquires the biometric information of the passage person, so as to facilitate the comparison of the biometric information and the document information. The comparison scheme of the biometric information and the document information can be as follows.

In step S132, a second passage signal is obtained according to the document information and the biometric information.

In step S133, the state of the first body and/or the state of the second body is/are adjusted correspondingly according to the second passage signal.

In this embodiment, the first body and the second body are used to obtain the document information and biometric information respectively, and match the document information with the prestored user information, so as to realize the double verification of the passage person and effectively improve the use safety of passage device.

Based on the above, the embodiments in which the first body is used as the entrance of the passage channel and the second body is used as the exit of the passage channel, are described as below. On the contrary, the corresponding scheme can also be realized by using the second body as the entrance of the passage channel and the first body as the exit of the passage channel.

The second body is enabled to recognize the biometric information of the passage person corresponding to the passage channel for determining whether the passage person is the same person corresponding to the document information recognized by the first body. That is, after the second body obtains the biometric information, the prestored user information of the person whose document information is recognized by the first body is retrieved for obtaining the corresponding biometric information. Then the biometric information obtained by the second body is compared with the biometric information obtained from the prestored user information. When the biometric information obtained by the second body is correctly matched with the biometric information obtained from the prestored user information, the biometric information obtained by the second body is legal and the second control signal which allows the state of the second body to be adjusted to the unblocked state can be obtained. The state of the second body is adjusted to the unblocked state, so as to facilitate the passage person to pass through. On the contrary, when the biometric information obtained by the second body is not matched with

biometric information obtained from the prestored user information, the biometric information obtained by the second body is illegal, and the second control signal which adjusts the state of the second body to the blocked state is obtained.

On the other hand, when the second passage signal is used to adjust the state of the first body and/or the state of the second body accordingly, there are the following application examples.

In the first application example, the second passage signal is used to adjust the state of the first body and the state of the second body accordingly. Understandably, when the obtained biometric information accords with the biometric information in the prestored user information, the obtained biometric information is legal, and the second passage signal is obtained, and the state of the first body and the state of the second body can be adjusted according to the second passage signal. In which, the state of the second body is adjusted to the unblocked state. As for the first body, its state can be adjusted to the blocked state according to the second passage signal, or the part of the second passage signal for the first body is null, that is, the second passage signal does not adjust the state of the first body. On the other hand, when the obtained biometric information is illegitimate, the state of the first body and the state of the second body are adjusted to be the blocked state according to the second passage signal. Alternatively, the state of the second body is adjusted to the blocked state, and the state of the first body is maintained in the blocked state, according to the second passage signal.

In the second application example, the second passage signal is used to adjust the state of the second body accordingly. It can be understood that according to the obtained biometric information which is illegitimate or legitimate, the second passage signal is obtained, and the state of the second body is adjusted to the blocked state or unblocked state according to the second passage signal, while the state of the first body is not adjusted.

In the third application example, the second passage signal is used to adjust the state of the first body accordingly. Understandably, when the obtained biometric information is illegitimate, the state of the first body can be adjusted to the blocked state. On the other hand, the second passage signal may not adjust the state of the second body so that the second body is in the original blocked state. Of course, when the obtained biometric information is legitimate, it is necessary to adjust the state of the second body to the unblocked state according to the second

passage signal.

In an optional embodiment of this disclosure, acquiring a control instruction and enabling one of the first body or the second body to obtain a document information according to the control instruction, further comprises obtaining a biometric information while obtaining the document information. The prestored user information is retrieved in combination with the document information, and the stored biometric information is obtained according to the prestored user information. When the obtained biometric information accords with the stored biometric information, the first passage signal which adjusts the state of the first body or the state of the second body to the unblocked state is obtained.

Among them, the biometric information can be the fingerprint information, face information, iris information, voiceprint information and so on.

Based on the above, after obtaining the first passage signal, step S131 can be implemented, in which the state of the first body and/or the state of the second body are adjusted according to the first passage signal, and the other one of the first body or the second body can be enabled to obtain the biometric information. In other words, after the passage person enters the passage channel from one end of the passage channel based on the biometric information and the document information, the biometric information is obtained again at the other end of the passage channel to carry out the secondary verification of the identity of the passage person, so as to improve the security of the passage device.

In an embodiment of this disclosure, as shown in Fig. 2 and Fig. 3, the step S132, in which a second passage signal is obtained according to the document information and the biometric information, can comprise following steps.

In step S1321, when the prestored user information, which is corresponding to the document information, fails to accord with the biometric information, the second passage signal for adjusting the state of the first body and the state of the second body to block the passage channel is obtained and a warning signal is generated according to the second passage signal. That is, when the biometric information of the passage person in the passage channel fails to accord with the biometric information of the prestored user information, the passage device is in an abnormal state and the passage person are unable to pass. The warning signal is generated to let the management personnel know the abnormality which is waiting for he/she to deal with.

In this embodiment, the scheme of generating the warning signal can enable the first body or the second body to give a warning which can be an indication sound and/or light to effectively indicate the management personnel to check the condition of the passage channel corresponding to the warning.

Alternatively, in step S1322, when the prestored user information, which is corresponding to the document information, accords with the biometric information, the second passage signal for adjusting the state of the first body or the state of the second body to unblock the passage channel is obtained.

In an embodiment of this disclosure, the passage control method further comprises when receiving an authorized signal, obtaining a third passage signal based on the authorized signal; and adjusting the state of the first body and the state of the second body correspondingly according to the third passage signal.

In this embodiment, the authorized signal refers to the authorized signal sent by the management personnel with a management authority. After receiving the authorized signal, the authorized signal has the highest management authority to control the first body and the second body, so as to facilitate the passage person to pass through the exit of the passage channel or return to the entrance through the passage channel.

Based on the above, when the first passage signal, the second passage signal and the third passage signal present at the same time, the third passage signal is used as the electrical signal with the highest priority, followed by the second passage signal and finally the first passage signal.

In an embodiment of this disclosure, the authorized signal can be sent by a specific terminal device and obtained through the operation system of the passage device. Or the management personnel logs in to the operation system of the passage device in the form of account and password, wherein the carrier of the operation system of the passage device is the control circuit of the passage device, and the control circuit has a control unit loaded with the operation system.

In a possible embodiment of this disclosure, the third passage signal can be used to control the state of the first body and the state of the second body at both ends of the passage. For example, the third passage signal can be used to adjust one of the first body and the second body

as the entrance and the other one of the first body and the second body as the exit. Alternatively, the third passage signal can be used to individually adjust the state of the first body to be the blocked state or unblocked state. Alternatively, the third passage signal can be used to individually adjust the state of the second body to be the blocked state or unblocked state.

In an optional embodiment of this disclosure, the authorized signal can get involved in the operation of the passage device at any time during the operation of the passage device, such as before or after the passage device obtains the control instruction, or when the passage device obtains the first passage signal or the second passage signal.

In an embodiment of this disclosure, before obtaining the control instruction, the method further comprises intelligently recognizing the passage direction of the passage channel through the first body and the second body.

Wherein, intelligently recognizing the passage direction of the passage channel through the first body and the second body, further comprises acquiring a state information of the first body or a state information of the second body; and generating a corresponding control instruction when the first body or the second body is in an active state. It can be understood that the active state is the preparatory state for recognizing the document information after the first body or the second body senses that there is a passage person who needs to enter the passage channel.

The preparatory state for recognizing the document information after the first body or the second body senses that there is a passage person who needs to enter the passage channel, can be understood as follows.

In a first application scenario, when the first body or the second body senses the approach of the passage person, it determines that there is a passage person who needs to enter the passage channel. Further, it can determine whether the passage person is recognized to face the first body or the second body.

In a second application scenario, when the first body or the second body senses that a passage person places a document on it, it determines that there is a passage person who needs to enter the passage channel.

In a third application scenario, when the first body or the second body senses that a passage person touches a sensing device on it, it determines that there is a passage person who needs to enter the passage channel.

Based on the description of the above application scenarios, when the state of the first body or the state of the second body is activated, the first body or the second body, that is activated, firstly is used as the entrance of the passage channel, and the other one is used as the exit of the passage channel, so as to intelligently control the passage direction of the passage channel and improve the convenience of use.

In an embodiment of this disclosure, before acquiring the control instruction, the passage control method further comprises intelligently recognizing the passage direction of the passage channel through acquiring an environmental information.

Wherein, intelligently recognizing the passage direction of the passage channel through acquiring an environmental information, further comprises acquiring the environmental information and obtaining a human body information in an area corresponding to the first body and an area corresponding to the second body according to the environmental information; and generating a comparison result according to the human body information, and obtaining the control instruction according to the comparison result.

It can be understood that, the first body and the second body are provided with visual terminals, such that the first body and the second body have a visible area. The first body and the second body actively recognize the number of the passage persons in the visible area. That is, the number of the passage persons in the two visible areas can be obtained through the face recognition technology or human contour recognition technology, the control circuit determines to take the first body or the second body as the entrance of the passage channel according to the number of the passage persons in the two visible areas.

Wherein the first body or the second body which corresponds to the visible area with a larger number of the passage persons can be determined as the entrance of the passage channel. That is, the control instruction is to adjust one of the first body or the second body as the entrance and the other one as the exit.

Furthermore, when the numbers of the passage persons in the two visible areas are equivalent within a certain range, the first body and the second body can be used alternately as the entrance of the passage channel. Within this certain range, the difference between the numbers of the passage persons in the two visible areas are in a certain range, and the difference is an integer, such as 1, 5, 7, 10, 13, 15, 20, etc. When the numbers of the passage persons in the

two visible areas are without a certain range, the first body or the second body which corresponds to the visible area with a smaller number of the passage persons can be determined as the entrance of the passage channel, while the other one is determined as the exit of the passage channel.

Further, when the authorized signal, the passage direction of the passage channel intelligently recognized through the first body and the second body, and the passage direction of the passage channel intelligently recognized through the acquisition of environmental information, mentioned in the above embodiments, all present, the authorized signal is used as the instruction with the highest priority to control the operation of the passage device.

Correspondingly, as shown in Fig.4, a passage device which applies the passage control method discussed above, is provided. When the passage control method discussed above is applied to the passage device, all the above beneficial effects brought by the above method can be obtained, which will not be repeated here.

The passage device comprises a control circuit, a first body 2 and a second body 3 which are relatively arranged at both ends of a passage channel 1. The control circuit is electrically connected with the first body 2 and the second body 3, wherein both of the first body 2 and the second body 3 are provided with a first acquisition device 4 which is operable to obtain a document information. The control circuit is operable to acquire a control instruction and enable the first acquisition device 4 on one of the first body 2 or the second body 3 to obtain the document information according to the control instruction. The control circuit is further operable to obtain a first passage signal according to the document information, and the control circuit is further operable to adjust a state of the first body 2 and a state of the second body 3 correspondingly according to the first passage signal.

In a preferable embodiment of this disclosure, the control circuit is a circuit board of any form, and the control circuit is wired or wirelessly connected with the first body 2 and the second body 3.

In a preferable embodiment of this disclosure, the first acquisition device 4 is can be a document recognition device, which can be one or more of an image acquisition module, an electromagnetic induction module and a near-field communication module.

In an embodiment of this disclosure, both of the first body 2 and the second body 3 are

provided with a second acquisition device 5 which is operable to obtain a biometric information. The control circuit is further operable to adjust the state of the first body 2 and/or the state of the second body 3 according to the first passage signal, and enable the second acquisition device on the other one of the first body 2 or the second body 3 to obtain the biometric information. The control circuit is further operable to obtain a second passage signal according to the document information and the biometric information. The control circuit is further operable to adjust the state of the first body 2 and/or the state of the second body 3 correspondingly according to the second passage signal.

In an alternative embodiment of this disclosure, the second acquisition device 5 is a biometric recognition device, which can be an image acquisition device, an inductive acquisition device and a sound acquisition device, such as a camera, touch screen and microphone, etc.

In an embodiment of this disclosure, the first body 2 or the second body 3 is provided with a third acquisition device 6, which is another biometric recognition device different from the second acquisition device 5. That is, when the second acquisition device 5 is an image recognition module device, the third acquisition device 6 is an inductive acquisition device or a sound acquisition device.

In an embodiment of this disclosure, in order to obtain a second passage signal according to the document information and the biometric information, the control circuit is further operable to obtain the second passage signal for adjusting the state of the first body 2 and the state of the second body 3 to block the passage channel 1 when a prestored user information, which is corresponding to the document information, fails to accord with the biometric information, and generate a warning signal according to the second passage signal; or

obtain the second passage signal for adjusting the state of the first body 2 or the state of the second body 3 to unblock the passage channel 1 when the prestored user information, which is corresponding to the document information, accords with the biometric information.

In an embodiment of this disclosure, the passage device further comprises a control terminal 7 which is communicated with the control circuit, wherein when receiving an authorized signal sent from the control terminal 7, the control circuit is further operable to obtain a third passage signal based on the authorized signal; and adjust the state of the first body 2 and the state of the second body 3 correspondingly according to the third passage signal.

Preferably, the control circuit is further operable to acquire a state information of the first body 2 and a state information of the second body 3 and generate a corresponding control instruction when the first body or the second body 3 is in an active state.

Preferably, the passage device further comprises a visual terminal, wherein the control circuit is further operable to enable the visual terminal to acquire an environmental information; obtain a human body information in an area corresponding to the first body 2 and an area corresponding to the second body 3 according to the environmental information; generate a comparison result according to the human body information; and obtain the control instruction according to the comparison result.

Further, the visual terminal can be integrated on the first acquisition device 4, the second acquisition device 5 or the third acquisition device 6.

In an optional embodiment of this disclosure, the control terminal 7 can be any form of control terminal, such as a tablet computer, a personal computer, a notebook, etc.

In an embodiment of this disclosure, the first body 2 and the second body 3 are positioned at both ends of the passage channel 1. The first body 2 comprises a first eGate 21 and a second eGate 22 arranged opposite to each other, and the first eGate 21 and the second eGate 22 are positioned at the same end of the passage channel 1. The second body 3 includes a third eGate 31 and a fourth eGate 32 arranged opposite to each other, and the third eGate 31 and the fourth eGate 32 are positioned at the same end of the passage channel 1.

It can be understood that the first eGate 21, the second eGate 22, the third eGate 31 and the fourth eGate 32 can have the same structure.

Alternatively, taking the first eGate 21 and the second eGate 22 as the same unit and the third eGate 31 and the fourth eGate 32 as another unit, on the basis that the two units have the same functions, the structures between the first eGate 21, the second eGate 22, between the third eGate 31 and the fourth eGate 32 can be different. That is, the first acquisition device 4, the second acquisition device 5 and the third acquisition device 6 can be arranged on the first eGate 21 or the second eGate 22. Alternatively, the first acquisition device 4, the second acquisition device 5 and the third acquisition device 6 can be respectively arranged on the first eGate 21 and the second eGate 22. By analogy, the first acquisition device 4, the second acquisition device 5 and the third acquisition device 6 can be arranged on the third eGate 31 or the fourth eGate 32.

Alternatively, the first acquisition device 4, the second acquisition device 5 and the third acquisition device 6 can be respectively arranged on the third eGate 31 and the fourth eGate 32 respectively.

The above embodiments only express several embodiments of this disclosure, and the description is more specific and detailed, but it cannot be understood as limiting the protection scope of this disclosure. It should be noted that for those skilled in the art, several modifications and improvements can be made without departing from the concept of this disclosure, and these modifications and improvements still belong to the protection scope of this disclosure. Therefore, the protection scope of this disclosure shall be subject to the appended claims.

CLAIMS

1. A passage control method, which is applied to a passage device, wherein the passage device comprises a passage channel, a first body and a second body which are relatively arranged at both ends of the passage channel, wherein the passage control method comprises:

acquiring a control instruction and enabling one of the first body or the second body to obtain a document information according to the control instruction;

obtaining a first passage signal according to the document information; and

adjusting a state of the first body and a state of the second body correspondingly according to the first passage signal.

2. The passage control method according to claim 1, wherein, adjusting a state of the first body and a state of the second body correspondingly according to the first passage signal, comprises:

adjusting the state of the first body according to the first passage signal, and enabling the second body to obtain a biometric information;

obtaining a second passage signal according to the document information and the biometric information; and

adjusting the state of the first body and/or the state of the second body correspondingly according to the second passage signal.

3. The passage control method according to claim 1, wherein, adjusting a state of the first body and a state of the second body correspondingly according to the first passage signal, comprises:

adjusting the state of the first body according to the first passage signal, and enabling the second body to obtain a biometric information;

obtaining a second passage signal according to the document information and the biometric information; and

adjusting the state of the second body correspondingly according to the second passage signal.

4. The passage control method according to claim 1, wherein, adjusting a state of the first body and a state of the second body correspondingly according to the first passage signal, comprises:

adjusting the state of the first body according to the first passage signal, and enabling the second body to obtain a biometric information;

obtaining a second passage signal according to the document information and the biometric information; and

adjusting the state of the first body and the state of the second body correspondingly according to the second passage signal.

5. The passage control method according to claim 1, wherein, adjusting a state of the first body and a state of the second body correspondingly according to the first passage signal, comprises:

adjusting the state of the state of the second body according to the first passage signal, and enabling the first body to obtain a biometric information;

obtaining a second passage signal according to the document information and the biometric information; and

adjusting the state of the first body and/or the state of the second body correspondingly according to the second passage signal.

6. The passage control method according to claim 1, wherein, adjusting a state of the first body and a state of the second body correspondingly according to the first passage signal, comprises:

adjusting the state of the state of the second body according to the first passage signal, and enabling the first body to obtain a biometric information;

obtaining a second passage signal according to the document information and the biometric information; and

adjusting the state of the first body correspondingly according to the second passage signal.

7. The passage control method according to claim 1, wherein, adjusting a state of the first body and a state of the second body correspondingly according to the first passage signal, comprises:

adjusting the state of the state of the second body according to the first passage signal, and

enabling the first body to obtain a biometric information;

obtaining a second passage signal according to the document information and the biometric information; and

adjusting the state of the first body and the state of the second body correspondingly according to the second passage signal.

8. The passage control method according to any one of claims 2-7, wherein, obtaining a second passage signal according to the document information and the biometric information, comprises:

obtaining the second passage signal for adjusting the state of the first body and the state of the second body to block the passage channel when a prestored user information, which is corresponding to the document information, fails to accord with the biometric information, and generating a warning signal according to the second passage signal.

9. The passage control method according to any one of claims 2-7, wherein, obtaining a second passage signal according to the document information and the biometric information, comprises:

obtaining the second passage signal for adjusting the state of the first body or the state of the second body to unblock the passage channel when the prestored user information, which is corresponding to the document information, accords with the biometric information.

10. The passage control method according to claim 1, wherein, the passage control method further comprises:

when receiving an authorized signal, obtaining a third passage signal based on the authorized signal; and

adjusting the state of the first body and the state of the second body correspondingly according to the third passage signal.

11. The passage control method according to claim 1, wherein, before acquiring the control instruction, the passage control method further comprises:

acquiring a state information of the first body or a state information of the second body; and

generating a corresponding control instruction when the first body or the second body is in an active state.

12. The passage control method according to claim 1, wherein, before acquiring the control

instruction, the passage control method further comprises:

acquiring an environmental information and obtaining a human body information in an area corresponding to the first body and an area corresponding to the second body according to the environmental information; and

generating a comparison result according to the human body information, and obtaining the control instruction according to the comparison result.

13. A passage device comprises a control circuit, a first body and a second body which are relatively arranged at both ends of a passage channel, wherein the control circuit is electrically connected with the first body and the second body, wherein both of the first body and the second body are provided with a first acquisition device which is operable to obtain a document information;

wherein the control circuit is operable to:

acquire a control instruction and enable the first acquisition device on one of the first body or the second body to obtain the document information according to the control instruction;

obtain a first passage signal according to the document information; and

adjust a state of the first body and a state of the second body correspondingly according to the first passage signal.

14. The passage device according to claim 13, wherein, both of the first body and the second body are provided with a second acquisition device which is operable to obtain a biometric information;

wherein the control circuit is further operable to:

adjust the state of the first body and/or the state of the second body according to the first passage signal, and enable the second acquisition device on the other one of the first body or the second body to obtain the biometric information;

obtain a second passage signal according to the document information and the biometric information; and

adjust the state of the first body and/or the state of the second body correspondingly according to the second passage signal.

15. The passage device according to claim 14, wherein in order to obtain a second passage signal according to the document information and the biometric information, the control circuit

is further operable to:

obtain the second passage signal for adjusting the state of the first body and the state of the second body to block the passage channel when a prestored user information, which is corresponding to the document information, fails to accord with the biometric information, and generate a warning signal according to the second passage signal; or

obtain the second passage signal for adjusting the state of the first body or the state of the second body to unblock the passage channel when the prestored user information, which is corresponding to the document information, accords with the biometric information.

16. The passage device according to claim 13, wherein the passage device further comprises a control terminal which is communicated with the control circuit, wherein when receiving an authorized signal sent from the control terminal, the control circuit is further operable to:

obtain a third passage signal based on the authorized signal; and

adjust the state of the first body and the state of the second body correspondingly according to the third passage signal.

17. The passage device according to claim 13, wherein, the control circuit is further operable to:

acquire a state information of the first body and a state information of the second body;

generate a corresponding control instruction when the first body or the second body is in an active state.

18. The passage device according to claim 13, wherein, the passage device further comprises a visual terminal, wherein the control circuit is further operable to:

enable the visual terminal to acquire an environmental information;

obtain a human body information in an area corresponding to the first body and an area corresponding to the second body according to the environmental information;

generate a comparison result according to the human body information; and

obtain the control instruction according to the comparison result.