BORDER CONTROL EGATE AND AUTOMATED BORDER CONTROL SYSTEM

TECHNICAL FIELD

The present disclosure relates generally to a border control eGate for customs clearance field, and more particularly relates to a border control eGate and an automated border control system.

BACKGROUND

When there are few passengers, their inbound and outbound clearances are always carried out at the same floor. As the space is limited, there are not many areas for arranging multiple eGates only allows the unidirectional clearance for satisfying both the inbound and outbound clearances. How to design a border control eGate capable of allowing the bi-directional passage so that the passengers can pass through the same border control eGate from both sides, thus satisfying the deployment of the border control eGate in the limited space, has become an urgent problem to be solved in the present field.

SUMMARY

The object of the present disclosure is to provide a border control eGate and an automated border control system, aiming at the technical problems mentioned in the above prior arts.

According to a first aspect, a border control eGate is provided which comprising a base plate and an eGate; wherein the eGate has a verification mechanism at one or two side and a management terminal with one or two work mode.

Alternatively, the management terminal comprises a first work mode and a second work mode; wherein when the verification mechanism verifies normally, the management terminal adopts the first work mode, while when the verification mechanism fails, the management terminal adopts the second work mode.

Alternatively, the eGate is provided with a drive device for driving the management terminal, wherein the drive device can adjust the management terminal to adopt the first work mode or the second work mode

Alternatively, the drive device comprises a connection part connected with the management

terminal and a drive module connected with the connection part.

Alternatively, the first work mode comprises driving the management terminal to be retracted into the eGate along the connection part by the drive module, while the second work mode comprises driving the management terminal to be initiated from the eGate along the connection part by the drive module.

Alternatively, the drive module comprises a drive motor and a transmission part connected with an output end of the drive motor, wherein the transmission part matches with the connection part.

Alternatively, the transmission part comprises at least one transmission mechanism linked with the connection part to bring the management terminal to be retracted into or be extended from the eGate along the connection part.

Alternatively, the verification mechanism comprises a first side verification part and a second side verification part, and a control mechanism rotatablely arranged under the verification mechanism for adjusting the verification mechanism to switch to the first side verification part or the second side verification part.

Alternatively, the control mechanism comprises a fixation part arranged at a bottom of the verification mechanism, and a rotation part passing through the fixation part and rotatablely arranged with the verification mechanism, wherein the verification mechanism is driven to switch to the first side verification part or the second side verification part by a rotation of the rotation part.

According to a second aspect, an automated border control system is provided, which comprising at least one border control eGate described above, wherein a plurality of the border control eGates are arranged with intervals to form at least one group of border control eGate channel.

Alternatively, the automated border control system comprises at least one verification mechanism and at least one management terminal.

Alternatively, the automated border control system comprises at least one passage device.

The technical scheme of the present application has provided a verification mechanism with the multi-faceted detection function by arranging a verification mechanism capable of implementing a verification on at least one side and a management terminal having at least one

work mode on the eGate and adjusting the work mode of the management terminal according to the verification mechanism, so that the passenger can be detected and verified in a plurality of directions when entering and leaving the border control eGate in any direction. In addition, by arranging the management terminal with different work modes in cooperation with the verification mechanism, it is convenient for the administrator to operate the border control eGate in different work modes, thus improving the border control eGate management.

BRIEF DESCRIPTION OF THE DRAWINGS

In order to more clearly illustrate the technical solution 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 the present application. For ordinary technicians in the present art, they can also obtain other drawings without paying creative labor according to these drawings.

Fig. 1 is an overall structure diagram of a border control eGate provided according to the present application.

Fig. 2 is a first structural diagram of the border control eGate provided according to the present application.

Fig. 3 is a second structural diagram of the border control eGate provided according to the present application.

Fig. 4 is a first partial diagram of the second structure of the border control eGate provided according to the present application.

Fig. 5 is a second partial diagram of the second structure of the border control eGate provided according to the present application.

Fig. 6 is a third structural diagram of the border control eGate provided according to the present application.

Fig. 7 is a fourth structural diagram of the border control eGate provided according to the present application.

Fig. 8 is an overall structure diagram of a further border control eGate provided according to the present application.

Fig. 9 is a partial structure diagram of the further border control eGate provided according

to the present application.

Fig. 10 is an overall structure diagram of a first automated border control system provided according to the present application.

Fig. 11 is an overall structure diagram of a second automated border control system provided according to the present application.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

In order to make the object, technical scheme and advantages of the present application more clear, the present application will be further described in detail in combination with the drawings and the embodiments. It should be understood that the specific embodiments described herein are only used to explain the present application and are not used to limit the present application.

It should be noted that when an element/component is mentioned as being "fixed" or "arranged" on another element/component, it can be directly on another element/component or it may be indirectly fixed or arranged on another element/component through a third element/component. When an element/component is mentioned as being "connected" with another element/component, it may be directly connected with another element/component or it may be indirectly connected to another element/component through a third component.

It should be noted that the technical terms, such as “length”, “width”, “upper”, “lower”, “front”, “back”, “left”, “right”, “vertical”, “horizontal”, “top”, “bottom”, “inner”, “outer”, indicating the orientation or position relationship are based on the orientation or position relationship shown in the attached drawings. They are just for the description convenience and simplifying, rather than indicating or implying that the device or element referred to must have the specific orientation, or be constructed and operated in the specific orientation, and cannot be understood as the limitation of the present application.

In addition, the terms "first" and "second" are used for descriptive purposes only and cannot be understood as indicating or implying the relative importance or implicitly indicating the number of technical features. Thus, the features defined with "first" and "second" can explicitly or implicitly comprise one or more of these features. In the description of the present application, “a plurality of” means two or more, unless otherwise is specifically defined.

As shown in Fig. 1 to Fig. 9, the present application provides a border control eGate 100.

Specifically, as shown in Fig. 1, the border control eGate 100 comprises a base plate 20 and an eGate 30 arranged on the base plate 20. The eGate 30 has a verification mechanism 40 has a verification mechanism at one or two side and a management terminal 50 with one or two working mode. The work mode of the management terminal 50 is adapted to the verification mechanism 40.

In this embodiment, the management terminal 50 adopts an integrated terminal device, which is convenient for the administrator to manage the device parameters on the border control eGate 100 and check the status of other devices on the border control eGate 100. Preferably, the management terminal 50 can comprise any mobile intelligent terminal device with a display screen, such as a micro tablet computer, a small notebook, etc.. There is no specific restriction for such arrangement here.

In this embodiment, the management terminal 50 comprises a first work mode and a second work mode. When the verification mechanism 40 verifies normally, the management terminal 50 adopts the first work mode, while when the verification mechanism 40 fails, the management terminal 50 adopts the second work mode. Specifically, in the application scenario of the present application, the management terminal 50 communicates with the main control circuit of the border control eGate 100. The management terminal 50 can send an electrical signal to the main control circuit to control the border control eGate 100, and then obtain the device status or device parameters on the border control eGate 100. It should be noted that, in the application scenario of the present application, when the main control circuit controls the border control eGate 100 to operate normally, the verification mechanism 40 is in the normal verification state, and the management terminal 50 works in the first work mode in which the border control eGate 100 cannot be controlled. At this time, the administrator cannot operate the management terminal 50. If and only if the main control circuit controls the border control eGate 100 to stop working, the verification mechanism 40 stops the verification, and the management terminal 50 works in the second work mode in which the border control eGate 100 can be controlled. At this time, the administrator can operate the management terminal 50 to control the device status on the border control eGate 100 and obtain the device status. For example, the administrator can obtain the device parameters and status of the eGate door through the

management terminal 50, check whether the eGate door is normal or damaged, and obtain the device parameters and status of the eGate motor.

In this embodiment, the eGate 30 is provided with a drive device 60 for driving the management terminal 50. The drive device 60 can adjust the management terminal 50 to adopt the first work mode or the second work mode. Specifically, in the application scenario of the present application, the drive device 60 can adjust the management terminal 50 to be retracted into the eGate 30, thus enabling the management terminal 50 to work in the first work mode, and adjust the management terminal 50 to be initiated from the eGate 30 thus enabling the management terminal 50 to work in the second work mode. Preferably, in the present embodiment, the drive device 60 can adjust the management terminal 50 to be far away from the eGate 30 and retracted into the eGate 30, such that the management terminal 50 can work in the first work mode in which the border control eGate 100 cannot be controlled by the management terminal 50. Correspondingly, the drive device 60 can also adjust the management terminal 50 to be close to the eGate 30 and initiated from the eGate 30, such that the management terminal 50 can work in the second work mode in which the border control eGate 100 can be controlled by the management terminal 50.

As shown in Fig.2, the drive device 60 can comprise a connection part 601 connected with the management terminal 50 and a drive module 602 connected with the connection part 601.

Specifically, the connecting part 601 adopts an installation platform 603 which is arranged on a surface of the eGate 30 and located at the bottom of the management terminal 50. In one embodiment of the present application, the installation platform 603 can be used for clamping the management terminal 50. Preferably, the upper surface of the installation platform 603 is provided with a clamping part 6012 which adopts a U-shaped clamping structure and has a first clamping portion 60121 and a second clamping portion 60122. The outer side of the management terminal 50 is provided with a fixation housing 501. One side of the fixation housing 501 is connected with the first clamping portion 60121, preferably through bolts or pins. Correspondingly, the second clamping portion 60122 can be connected with the other side of the fixation housing 501, preferably through bolts or pins.

In this embodiment, a drive module 602 is arranged at the bottom of the installation platform 603. The drive module 602 drives the management terminal 50 to be retracted into the

eGate 30 along the installation platform 603, so that the management terminal 50 works in the first work mode. Correspondingly, the drive module 602 drives the management terminal 50 to be initiated from the eGate 30 along the installation platform 603. Specifically, the driver module 602 drives the management terminal 50 to be retracted into the eGate 30 in the direction far away from the installation platform 603, so that the administrator cannot contact the management terminal 50. Correspondingly, the driver module 602 can drive the management terminal 50 to be initiated from the eGate 30 along the installation platform 603, so that the administrator can contact and operate the management terminal 50, so as to control the border control eGate 100 through the management terminal 50.

As shown in Fig.3, in the present embodiment, the drive module 602 comprises a drive motor 6021 and a transmission part 6022 connected with the output end of the drive motor 6021 and driven by the drive motor 6021. At the same time, the transmission part 6022 matches with the installation platform 603, such that transmission part 6022 drives the management terminal 50 through the installation platform 603. In addition, the drive motor 6021 can also be replaced by other the drive mode such as air cylinder and so on, which will not be specifically described here.

In the embodiment of the present application, the transmission part 6022 comprises at least one transmission mechanism 70 linked with the installation platform 603 to drive the management terminal 50 to be retracted into or be extended from the body along the installation platform 603.

As shown in Fig. 4 and Fig.5, specifically, the transmission mechanism 70 comprises a first transmission mechanism 701 and a second transmission mechanism 702 driven by the first transmission mechanism 701, wherein the first transmission mechanism 701 is linked with the installation platform 603 to drive the management terminal 50 to move.

In this embodiment, the first transmission mechanism 701 adopts a vertical lifting mechanism, while the second transmission mechanism 702 adopts a telescopic opening and closing mechanism.

Specifically, the first transmission mechanism 701 comprises a screw mandrel mechanism 7011 driven by the drive motor 6021 and a guide rail 7013 for the installation platform 603 to move reciprocally along. The screw mandrel mechanism 7011 is perpendicular to the installation

platform 603 and can drive the installation platform 603 to move vertically and reciprocally. Preferably, the output end of the drive motor 6021 is connected with one end of the screw mandrel mechanism 7011, the other end of the screw mandrel mechanism 7011 is fixed on the installation platform 603, preferably, through the screw mandrel and thread connection. In addition, the end of the installation platform 603 is sheathed with the guide rail 7013. When the drive motor 6021 rotates, the screw mandrel mechanism 7011 drives the installation platform 603 to move reciprocally along the guide rail 7013.

In this embodiment, the drive motor 6021 is used to drive the screw mandrel mechanism 7011, thus bringing the installation platform 603 to move. On the one hand, such arrangement effectively reduces the installation space by replacing the existing belt, rack and pinion mechanism, on the other hand, enables the installation platform 603 to move smoothly, avoiding the interferences with other parts in the eGate 30 caused by the shaking of the management terminal 50 when moving along the installation platform 603.

In the embodiment of the present application, specifically, a second transmission mechanism 702 (not shown) is connected with the installation platform 603. Preferably, the second transmission mechanism 702 comprises a door opening mechanism 7021 and a guide mechanism 7022. A pulley mechanism 604 is arranged under the installation platform 603 for linking it with the guide mechanism 7022. The door opening mechanism 7021 can be driven by the guide mechanism 7022.

Preferably, in an embodiment of the present application, an installation bracket 605 is arranged at the bottom of the installation platform 603. The installation bracket 605 adopts a U-shaped notch design, and its both ends are connected to the bottom of the installation platform 603 through threads. The bottom of the installation bracket 605 is provided with a hole for passing through the pulley mechanism 604. When the installation platform 603 moves vertically, the pulley mechanism 604 is driven by the installation bracket 605 to bring the guide mechanism 7022 to move vertically, thus further driving the door opening mechanism 7021 to open and close, so as to realize the retraction and initiation of the management terminal 50.

Specifically, a fixation bracket 606 is arranged under the installation platform 603, and the guide mechanism 7022 is fixed through the fixation bracket 606. Specifically, the guide mechanism 7022 comprises an installation base 80 fixed on the fixation bracket 606 and a guide

rail 81 passing into the installation base 80. The installation base 80 is provided with an installation hole 801, through which the guide rail 81 is slidably passed through the installation base 80. The pulley mechanism 604 comprises a pulley 6041 arranged at the bottom of the fixation bracket 606 and an elastic steel wire 6042 passing through the pulley 6041. One end of the elastic steel wire 6042 is connected with the guide rail 81, and the other end passes through the installation bracket 605.

In the optional embodiment of the present application, one end of the guide rail 81 is provided with a connection piece 82. Preferably, the bottom of the connection piece 82 is provided with a connection hole position 83 for installing the elastic steel wire 6042, and the elastic steel wire 6042 passes through the connection hole position 83 to improve the convenience of installation.

Through the above structural arrangement, when the installation platform 603 moves up and down vertically, the installation bracket 605 at the bottom stretch or retract the elastic steel wire 6042. As one end of the elastic steel wire 6042 is connected with the guide rail 81, the guide rail 81 is driven to move reciprocally along the installation base 80.

As shown in Fig. 5 and Fig.6, the door opening mechanism 7021 further comprises a door opening baffle 90 and a door opening structure 901. The door opening baffle 90 is connected with the guide rail 81 through the door opening structure 901. Preferably, the door opening structure 901 is realized by a hinge structure, such as a hinge 902 with a return spring. Specifically, a roller 903 is arranged between the hinge 902 and the door opening baffle 90, such that the door baffle 90 can be opened or closed by folding for 90 degree though the force acted on the roller 903 through the hinge 902.

In this embodiment, one end of the hinge 902 is connected with the guide rail 81, and the other end of the hinge 902 is connected with the roller 903. When the guide rail 81 moves up and down along the installation base 80, the hinge 902 can rotate clockwise or counterclockwise, so as to drive the roller 903 to roll in the opposite direction, thus opening or closing the door opening baffle 90. Specifically, when the guide rail 81 moves downward, the hinge 902 rotates clockwise to drive the roller 903 to roll upward, so as to push out the door opening baffle 90, thus completely opening the door opening mechanism 7021. Correspondingly, when the guide rail 81 moves upward, the hinge 902 rotates counterclockwise due to its return spring to drive the

roller 903 to roll downward, so as to retract and close the door opening baffle 90, and thus completely retracting and closing the door opening mechanism 7021.

In the present application, preferably, the second transmission mechanisms 702 are symmetrically distributed in two groups along the installation platform 603, and the management terminal 50 can be stably moved reciprocally and vertically along the installation platform 603 through the two groups of symmetrically arranged second transmission mechanisms 702, so that the management terminal 50 can work in the first work mode and the second work mode for better controlling the devices and states of the border control eGate 100.

As shown in Fig.7, in the embodiment of the present application, the verification mechanism 40 comprises a first side verification part 401, a second side verification part 402 arranged opposite with the first side verification part 401, and a control mechanism 200 rotatablely arranged under the verification mechanism 40 for adjusting the verification mechanism 40 to switch to the first side verification part 401 or the second side verification part 402.

As shown in Fig. 8, specifically, the verification mechanism 40 is arranged on a position of the eGate 30 close to the eGate door, and is used to identify the information of the passenger, implement a verification according to the obtained information, and control the opening and closing of the gate based on the verification results.

As shown in Figs.7 and 8, in the embodiment of the present application, the eGate 30 is divided into a front eGate 301 and a back eGate 302. The passenger can pass through the gate through the front eGate 301 or the back eGate 302, thus entering and leaving the border control eGate 100. When the passenger enter from the front eGate 301, the corresponding first side verification unit 401 is used to verify the information of the passenger, but when the passenger enter from the corresponding back eGate 302, the second side verification unit 402 should be adjusted for verification. Specifically, the verification mechanism 40 is adjusted by a control mechanism 200 arranged at the bottom of the verification mechanism 40. Preferably, the control mechanism 200 comprises a fixation part 201 arranged at the bottom of the verification mechanism 40, and a rotation part 202 passing through the fixation part 201 and rotatablely arranged with the verification mechanism 40. The verification mechanism 40 is driven to switch to the first side verification part 410 or the second side verification part 402 by a rotation of the

rotation part 202.

In this embodiment, the fixation part 201 adopts an installation plate 2012 with a first fixation part 2011. Correspondingly, the bottom of the verification mechanism 40 is provided with a second fixation part (not shown) installed in coordination with the first fixation part 2011. The rotation part 202 drives the verification mechanism 40 to rotate through the installation plate 2012. Specifically, the rotation part 202 comprises a rotation motor 2021 and a rotation sleeve 2022. The rotation sleeve 2022 is sheathed with the bottom of the verification mechanism 40. In addition, the output shaft of the rotation motor 2021 is connected with the rotation sleeve 2022. Therefore, the rotation sleeve 2022 is driven by the rotation motor 2021 for bring the verification mechanism 40 to rotate. In this way, the verification mechanism 40 can realize the verification and identification at a plurality of side parts. In addition, a position sensor is arranged on the rotation sleeve 2022 to detect the position information of the verification mechanism 40, transmit the detected position information to the rotation motor 2021 for further controlling the verification mechanism 40 to rotate accordingly.

Preferably, in this embodiment, the verification institution 40 comprises one or more of the document information enrollment module, the barcode scanning module and the biometric module, which respectively acquire the document information and the biological information held by the passenger. Since some document information is stored on the chip inside the document, the document information enrollment module with RFID module can be used for the information verification. In addition, some document information is printed into a bar code, a two-dimensional code and some special check codes. Therefore, the document information can be obtained through the bar code scanning module with the OCR recognition mode. Herein, the document information can include the number, type of the document number, etc.. The document type supporting such information enrollment can comprise but not be limited to such as ICAO passport/ePassport, China ID card, Singapore ID card, Hong Kong and Macao ID cards, etc.. In addition, the biometric module can use one or more of the face recognition and fingerprint recognition modules to acquire the face information of the passenger through the face recognition module, and acquire the fingerprint information of the passenger through the fingerprint recognition module. At present, when the public security department registers the personal information, the document information of the personal document, such as the ICAO

passport/ePassport, China ID card, Singapore ID card, Hong Kong and Macao ID cards, has been combined and stored together with the face identification information and fingerprint identification information. Accordingly, no matter what kind of enrollment module is used, it can verify whether the passenger have the permission to pass through the border control eGate.

In an optional embodiment of the present application, since the front eGate 301 of the border control eGate 100 can be used as an entrance or an exit, while the back eGate 301 can also be used as an entrance or an exit, the verification mechanism 40 can be arranged at the entrance of the front eGate 301 or the entrance of the back eGate 302. With this arrangement, when passenger enter the border control eGate 100 along the front eGate 301 or the back eGate 302 of the border control eGate 100, he/she can also be verified at the entrance and then leave from the corresponding exit after passing the verification.

Alternatively, one verification mechanism 40 may be provided along the entrance and exit of the front eGate 301 and the back eGate 302 respectively. In this way, when the passenger enters the border control eGate 100 from the front eGate 301, the verification mechanism 40 at the entrance of the front eGate 301 is used for verification, and the passenger enters the back eGate 302 after passing the verification. At this time, the verification mechanism 40 corresponding to the back eGate 302 used as the exit carries out the secondary verification on the passenger. After the verification is passed, the passenger leaves the border control eGate 100 from the back eGate 302. Correspondingly, when the passenger enters the border control eGate 100 from the back eGate 301, the verification is carried out through the verification mechanism 40 at the entrance of the back eGate 301. After the verification is passed, the passenger enters the front eGate 301. At this time, the verification mechanism 40 at the front eGate 301 used as the exit carries out the secondary verification on the passenger. When the verification is passed, the passenger leaves the border control eGate 100 from the front eGate 301. Through the above arrangement, not only the passage efficiency is improved, but also the accuracy of verification is improved.

As shown in Fig.8, in this embodiment, an interval device 303 is arranged between the front eGate 301 and the back eGate 302. In addition, the front eGate 301 and the back eGate 302 are symmetrically arranged along the interval device 303. In order to reduce the weight of the border control eGate 100, the interval device 303 adopts the light tempered glass. Both sides of the

tempered glass are detachably connected with the front eGate 301 and the back eGate 302 respectively.

In an embodiment of the present application, as shown in Fig.8 and Fig.9, the eGate 30 is also provided with a credential print device 304, which is arranged in the front of the gate. Preferably, the credential print device 304 comprises a printer 3041 in communication with the verification mechanism 40, and a credential outlet 3042. When the verification mechanism 40 has passed the verification, the printer 3041 prints the corresponding credential which then slides out from the credential outlet 3042. After getting the credential, the passenger can pass through the eGate door. The credential is stamped with the security inspection seal, and used for the subsequent verification to prove that the passenger has completed the verification.

As shown in Fig.8, in this embodiment, a passing indicator 305 is arranged at the end of the eGate 30 to indicate whether the border control eGate 100 is available through the color change of the passing indicator 304. Specifically, when the border control eGate 100 is available, the light of the passing indicator 304 turns to green. When the border control eGate 100 is occupied, the light of the passing indicator 304 turns to red and the passenger needs to wait for a moment before entering the border control eGate 100.

As shown in Fig.10, another embodiment of present application has provided an automated border control system 101 comprising at least one border control eGate 100 for forming at least one group of border control eGate channel. For example, the automated border control system 101 can comprise a first side border control eGate 100 and a second side border control eGate 100 forming a group of border control eGate channel therebetween. The passenger can enter and leave the automated border control system 101 alternately along the first side border control eGate 100 and the second side border control eGate 100.

Specifically, when the passenger enters and leaves the border control eGate channel along the first side border control eGate 100, the second side border control eGate 100 is not available, otherwise the passage chaos would be resulted. Correspondingly, when the passenger enters and leaves the border control eGate channel along the second side border control eGate 100, the first side border control eGate 100 is not available. In this way, by arranging the border control eGate on both sides, the passenger can enter and leave the border control eGate channel alternatively in different periods, thus improving the passage efficiency of the border control eGate.

In addition, either the first side border control eGate 100 or the second side border control eGate 100 may comprise at least one verification mechanism 40 and one management terminal 50. When the passenger enters and leaves the border control eGate channel along the first side border control eGate100, the verification mechanism 40 arranged on the first side border control eGate 100 verifies the passenger. When the main control circuit of the first side border control eGate 100 controls the verification mechanism 40 to stop working, the management terminal 50 arranged on the first side border control eGate 100 checks the device status of the first side border control eGate 100. Correspondingly, when the passenger enters and leaves the border control eGate channel along the second side border control eGate 100, the verification mechanism 40 arranged on the second side border control eGate100 verifies the passenger. When the main control circuit of the second side border control eGate 100 controls the verification mechanism 40 to stop working, the management terminal 50 arranged on the second side border control eGate 100 checks the device status of the second side border control eGate 100.

In another embodiment of present application, both of the first side border control eGate 100 and the second side border control eGate 100 comprises a front eGate 301 and a back eGate 302. Since the passenger can enter and leave the border control eGate channel along the front eGate 301 and the back eGate 302 at random, the verification mechanism 40 can rotate and adjust the verification side according to the different entrance and exit directions of the passenger. Specifically, when the passenger enters the border control eGate channel along the front eGate 301, the position sensor of the verification mechanism 40 detects their position and feeds back the detection information to the rotation motor 2021. The rotation motor 2021 controls the verification mechanism 40 to be adjusted to verify the passenger by the first side verification part 401. After the verification is passed, the eGate door is opened, and the passenger leaves the border control eGate channel through the back eGate 302. When the passenger enters the border control eGate channel along the back eGate 302, the position sensor of the verification mechanism 40 detects their position and feeds back the detection information to the rotation motor 2021. The rotation motor 2021 controls the verification mechanism 40 to be adjusted to verify the passenger by the second side verification part 402.

In an optional embodiment of present application, two passage devices can be respectively arranged along the front eGate 301 and the back eGate 302 of the first side border control eGate

100 or the second side border control eGate. The two passage devices can be respectively controlled by the two verification mechanisms 40 corresponding arranged. When the passenger has passed the verification of the verification mechanism 40 of the front eGate 301, he/she enters the border control eGate channel through the first passage device and then goes through the verification of the verification mechanism 40 of the back eGate 302, and finally leaves the border control eGate channel through the second passage device. It should be noted that when the passenger enters the back eGate 302 but fails the verification of the verification mechanism 40 at the back eGate 302, the front eGate 301 is arranged to be impassable at this time, which avoids the passage chaos. For example, when the previous passenger has not passed the verification of the verification mechanism 40 of the back eGate 302, and if the subsequent passenger enters the front eGate 301 one after another, there would be too many passenger to enter the border control eGate channel, thus resulting in the passage chaos.

In another optional embodiment of present application, as shown in Fig. 11, the automated border control system 101 can also comprise a third side border control eGate 100, which forms two border control eGate channels with the first side border control eGate 100 and the second side border control eGate100. Through any combination of the border control eGate channels, the passage efficiency is greatly improved, and the passage pressure in the peak period is relieved.

The technical scheme of the present application has provided a verification mechanism 40 with multi-faceted detection function, so that the passenger can be detected and verified in a plurality of directions when entering and leaving the border control eGate 100 in any direction, thus improving the passage efficiency of the border control eGate 100. In addition, by arranging the management terminal 50 with different work modes in cooperation with the verification mechanism 40, it is convenient for the administrator to operate the border control eGate 100 in different work modes, thus improving the border control eGate management.

The above embodiments are preferred embodiments of the present application, and the present application is not limited to the above embodiments. For one skilled in the art, any obvious changes made on the basis of the present application without departing from the technical principles of the present application belong to the protection scope of the concept of the present application and the attached claims. Moreover, although the exemplary embodiments

have been described herein, their scope comprises any and all embodiments with equivalent elements, modifications, omissions, combinations (such as intersect schemes of various embodiments), adaptations, or variations of the present application.

The above description is intended to be illustrative rather than restrictive. For example, the above examples (or one or more of them) may be used in combination with each other. For example, one skilled in the art may use other embodiments when reading the above description.

CLAIMS

1. A border control eGate comprising a base plate and an eGate arranged on the base plate; wherein the eGate has a verification mechanism at one or two side and a management terminal with one or two work mode.

2. The border control eGate according to claim 1, wherein the management terminal comprises a first work mode and a second work mode; wherein when the verification mechanism verifies normally, the management terminal adopts the first work mode, while when the verification mechanism fails, the management terminal adopts the second work mode.

3. The border control eGate according to claim 2, wherein the eGate is provided with a drive device for driving the management terminal, wherein the drive device can adjust the management terminal to adopt the first work mode or the second work mode.

4. The border control eGate according to claim 3, wherein the drive device comprises a connection part connected with the management terminal and a drive module connected with the connection part.

5. The border control eGate according to claim 4, wherein the first work mode comprises driving the management terminal to be retracted into the eGate along the connection part by the drive module, while the second work mode comprises driving the management terminal to be initiated from the eGate along the connection part by the drive module.

6. The border control eGate according to claim 5, wherein the drive module comprises a drive motor and a transmission part connected with an output end of the drive motor, wherein the transmission part matches with the connection part.

7. The border control eGate according to claim 6, wherein the transmission part comprises at least one transmission mechanism linked with the connection part to bring the management terminal to be retracted into or be extended from the eGate along the connection part.

8. The border control eGate according to any one of claims 1-7, wherein the verification mechanism comprises a first side verification part, a second side verification part, and a control mechanism rotatablely arranged under the verification mechanism for adjusting the verification mechanism to switch to the first side verification part or the second side verification part.

9. The border control eGate according to claim 8, wherein the control mechanism comprises

a fixation part arranged at a bottom of the verification mechanism, and a rotation part passing through the fixation part and rotatablely arranged with the verification mechanism, wherein the verification mechanism is driven to switch to the first side verification part or the second side verification part by a rotation of the rotation part.

10. An automated border control system comprising at least one border control eGate according to any one of claims 1-9, wherein a plurality of the border control eGates are arranged with intervals to form at least one group of border control eGate channel.

11. The automated border control system according to claim 10, wherein the automated border control system comprises at least one verification mechanism and at least one management terminal.

12. The automated border control system according to claim 11, wherein the automated border control system comprises at least one passage device.