

## HALL DESTINATION CONTROLLER

### FIELD

Embodiments described herein relate generally to a hall destination controller.

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### BACKGROUND

In general, in the hall of each floor of buildings, a hall call button for registering a hall call is provided. When a passenger of the elevator operates the hall call button, a car responds to the registered floor of the hall call. When the passenger gets into the car and operates a destination floor button of a car control panel, the destination floor is registered, and the car moves to the destination floor.

In recent years, apart from the above hall call button, an elevator system comprising a hall destination controller (HDC) which enables a passenger to register a destination floor in a hall has been put to practical use. This type of elevator system is called a destination control system (DCS). The destination control system selects an optimal car from a plurality of cars based on the destination floor registered by a passenger in a hall and causes the selected car to respond to the hall. In this destination control system, an optimal car can be assigned, thereby improving the transport efficiency.

In the destination control system described above, it is necessary to accurately count the number of passengers who have operated the hall destination controller in order to select the most appropriate car. However, if a passenger mistakenly performs a double registration operation, the destination control system counts one passenger as two, and therefore cannot select the most appropriate car.

Embodiments described herein aim to provide a hall destination controller which can accurately count the number of passengers who have performed the registration operation.

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#### SUMMARY

According to one embodiment, a hall destination controller scans a two-dimensional code presented by a passenger, generates a hall call corresponding to a destination floor of the passenger using the two-dimensional code, and transmits the hall call to an elevator controller. The hall destination controller includes a scan unit, a control unit and a communication unit. The scan unit scans a two-dimensional code including destination floor information indicating the passenger's destination floor and date-and-time information indicating the prepared date-and-time of the two-dimensional code. The control unit determines, based on the destination floor information and the date-and-time information included in the two-dimensional code scanned by the scan unit, whether or not a registration operation is carried out double by one passenger, and when it is determined that no double registration operation is carried out by one passenger, generates a hall call using the two-dimensional code scanned by the scan unit, and when it is determined that a registration operation is carried out double by one passenger, does not generate a hall call using the two-dimensional code scanned by the scan unit. The communication unit transmits the hall call generated by the control unit to the elevator controller.

#### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a diagram showing a general

configuration example of an elevator system according to an embodiment.

FIG. 2 is a diagram for explaining a hall destination controller in the embodiment.

5        FIG. 3 is a block diagram showing a configuration example of the hall destination controller in the embodiment.

10       FIG. 4 is a flowchart showing an example of a procedure of a destination floor registration process in the embodiment.

FIG. 5 is a block diagram showing a configuration example of the hall destination controller in the first modified example.

15       FIG. 6 is a flowchart showing an example of a procedure of a destination floor registration process in the first modified example.

FIG. 7 is a block diagram showing a configuration example of the hall destination controller in the second modified example.

20       FIG. 8 is a flowchart showing an example of a procedure of a destination floor registration process in the second modified example.

25       FIG. 9 is a block diagram showing a configuration example of the hall destination controller in the third modified example.

FIG. 10 is a flowchart showing an example of a procedure of a destination floor registration process in the third modified example.

#### DETAILED DESCRIPTION

30       Embodiments will be described hereinafter with reference to the accompanying drawings.

The disclosure is merely an example and is not limited by contents described in the embodiments

described below. Modification which is easily conceivable by a person of ordinary skill in the art comes within the scope of the disclosure as a matter of course. In some cases, in order to make the description clearer, the sizes, shapes, etc., of the respective parts are illustrated schematically in the drawings, rather than as an accurate representation of what is implemented. Constituent elements corresponding to each other in a plurality of drawings are denoted by like reference numerals and their detailed descriptions may be omitted unless necessary.

FIG. 1 is a diagram showing a general configuration example of an elevator system according to an embodiment. In the elevator system of the embodiment, the drive operation of a plurality of cars 10 is controlled overall.

As shown in FIG. 1, the elevator system comprises a plurality of cars 10, a hall destination controller 20 and an elevator controller 30. FIG. 1 shows three cars 10, namely, car A, car B and car C. However, the number of cars 10 is not limited to this example and may be an arbitrary number greater than or equal to two. Further, FIG. 1 shows a single hall destination controller 20. However, the number of hall destination controllers 20 is not limited to this example and may be an arbitrary number.

For example, when the hall destination controller 20 scans a two-dimensional code (for example, a QR code [registered trademark]) displayed in a mobile terminal (for example, a smartphone, a tablet terminal, etc.) owned by a passenger and obtains destination floor information indicating the destination floor of the passenger, the hall destination controller 20 generates

a hall call in which the destination floor is associated with the floor on which the registration operation of the destination floor has been conducted (in other words, the floor on which the hall destination controller 20 is provided), and transmits the generated hall call to the elevator controller 30.

The elevator controller 30 controls the drive operation of each car (car 10). When the elevator controller 30 receives a hall call from the hall destination controller 20, the elevator controller 30 performs an assignment process for selecting the assignment car of the hall call from the managed cars (cars 10). The elevator controller 30 controls the drive operation of the car (car 10) selected as the assignment car so as to cause the car (car 10) to respond to the floor on which the registration operation has been conducted. The elevator controller 30 transmits assignment car information for notifying the passenger of the car selected as the assignment car to the hall destination controller 20.

When the hall destination controller 20 receives the assignment car information from the elevator controller 30, the hall destination controller 20 notifies the passenger of the assignment car indicated by the assignment car information. By this configuration, the passenger can know on which car the passenger should ride to go to the destination floor.

FIG. 2 is a diagram for explaining the hall destination controller 20 in the embodiment.

As shown in FIG. 2, the hall destination controller 20 comprises a display area 20a in which a display is provided, and a scan area 20b which can scan a two-dimensional code. In the display, an assignment

car indicated by assignment car information is displayed. For example, the display example of FIG. 2 allows the passenger to know that the passenger should ride on car A to go to the destination floor. The scan area 20b is an area equivalent to the capturing range of a camera 21 (FIG. 3) incorporated into the hall destination controller 20. The hall destination controller 20 can scan a two-dimensional code held (presented) over the scan area 20b.

Note that although the details thereof will be described later, but the two-dimensional code in the embodiment includes destination floor information indicating the passenger's destination floor and date-and-time information indicating the date-and-time when the two-dimensional code was prepared (generated).

FIG. 3 is a block diagram showing a configuration example of the hall destination controller 20 in the embodiment.

As shown in FIG. 3, the hall destination controller 20 comprises the camera 21, a control unit 22, a communication unit 23, a data storage unit 24 and a display unit 25.

The camera 21 scans a two-dimensional code held over the scan area 20b shown in FIG. 2. Therefore, the camera 21 may be referred to as a scan unit. Here, the two-dimensional code held over the scan area 20b is assumed to be displayed on the screen of the mobile terminal 40. However, the two-dimensional code is not limited to this example and may be printed on a piece of paper, etc. The two-dimensional code scanned by the camera 21 is output to the control unit 22.

The control unit 22 comprises a data conversion function 22a. When the two-dimensional code scanned by

the camera 21 is input to the control unit 22, the control unit 22 obtains the destination floor information and the date-and-time information included in the two-dimensional code by using the data  
5 conversion function 22a.

The control unit 22 determines whether or not the input two-dimensional code is a two-dimensional code that was scanned due to a double registration operation by one passenger. As a result, when it is determined  
10 that a double registration operation has been performed by one passenger, the control unit 22 does not generate a hall call using the input two-dimensional code. On the other hand, when it is determined that a double registration operation has not been performed by one  
15 passenger, the control unit 22 generates a hall call using the destination floor information included in the input two-dimensional code.

The communication unit 23 is a communication interface for communicating with an external device  
20 (for example, the elevator controller 30), and transmits a hall call generated by the control unit 22 to the elevator controller 30. The communication unit 23 receives assignment car information which is transmitted by the elevator controller 30 based on the  
25 transmitted hall call. The received assignment car information is output to the display unit 25.

The data storage unit 24 stores the destination floor information and date-and-time information included in the two-dimensional code used to generate  
30 the hall call that was transmitted to the elevator controller 30 immediately before.

When the assignment car information received by the communication unit 23 is input to the display unit

25, as shown in FIG. 2, the display unit 25 causes the display provided in the display area 20a to display the car indicated by the assignment car information.

FIG. 4 is a flowchart showing an example of the procedure of the destination floor registration process in the embodiment. The process shown in the flowchart of FIG. 4 is executed by the hall destination controller 20 (or the control unit 22).

When the mobile terminal 40 which is in a state where a two-dimensional code is displayed on the screen is held over the scan area 20b by a passenger, the hall destination controller 20 scans the two-dimensional code by the camera 21, obtains the destination floor information and the date-and-time information included in the two-dimensional code by using the data conversion function 22a of the control unit 22 (step S1).

Then, the hall destination controller 20 refers to the history information stored in the memory (not shown in the figure) and confirms whether or not a hall call has been transmitted to the elevator controller 30 within a predetermined time period (for example, within ten seconds) (step S2). Note that the history information indicating the transmission history of the hall call is generated each time a hall call is transmitted from the hall destination controller 20 to the elevator controller 30. The history information indicates at least the transmission date-and-time of the hall call, and is stored in, for example, the memory of the hall destination controller 20 (or a data storage unit 24). In the embodiment, an example of the predetermined time mentioned above is ten seconds. Note that the predetermined time is not limited to this

but may be set to an arbitrary numerical value.

When, as a result of the processing in step S2, it is confirmed that a hall call has not been transmitted to the elevator controller 30 within the predetermined time (No in step S2), the hall destination controller 20 generates a hall call using the destination floor information obtained in the processing in step S1, and transmits it to the elevator controller 30. In more detail, the hall destination controller 20 generates a hall call in which a destination floor indicated by the destination floor information obtained in step S1 is associated with the floor on which the hall destination controller 20 is provided, and transmits it to the elevator controller 30 (step S3).

Thereafter, the hall destination controller 20 stores the destination floor information and date and time information obtained in the processing of step S1 in the data storage unit 24 (step S4), and the processing here is terminated.

On the other hand, when, as a result of the processing in step S2 described above, it is confirmed that a hall call has been transmitted to the elevator controller 30 within a predetermined time period (Yes in step S2), the hall destination controller 20 confirms whether or not the destination floor indicated by the destination floor information obtained in the processing of step S1 (hereinafter, which will be referred to as a "destination floor of the current two-dimensional code") coincides with the destination floor indicated by the destination floor information stored in the data storage unit 24 (that is, the destination floor of the two-dimensional code used in the generation of the hall call just previously transmitted

to the elevator controller 30, which will be referred to as the "destination floor of the previous two-dimensional code") (step S5).

When, as a result of the processing in step S5, it  
5 is confirmed that the destination floor of the current two-dimensional code does not coincide with the destination floor of the previous two-dimensional code (No in step S5), the hall destination controller 20 determines that the current two-dimensional code is  
10 different from the previous two-dimensional code and that a different passenger has carried out the registration operation, and executes the processing of step S3 described above. That is, the hall destination controller 20 generates a hall call using the  
15 destination floor information included in the current two-dimensional code and transmits it to the elevator controller 30.

On the other hand, when, as a result of the processing of step S5, it is confirmed that the  
20 destination floor of the current two-dimensional code coincides with the destination floor of the previous two-dimensional code (Yes in step S5), the hall destination controller 20 confirms whether or not the prepared date-and-time indicated by the date-and-time  
25 information obtained in the processing of step S1 (hereinafter, which will be referred to as the "prepared date-and-time of the current two-dimensional code") coincides with the prepared date-and-time indicated by the date-and-time information stored in  
30 the data storage unit 24 (hereinafter, which will be referred to as the "prepared date-and-time of the previous two-dimensional code") (step S6).

When, as a result of the processing of step S6, it

is confirmed that the prepared date-and-time of the current two-dimensional code does not coincide with the prepared date-and-time of the previous two-dimensional code (No in step S6), the hall destination controller 20 determines that the current two-dimensional code is different from the previous two-dimensional code and that a different passenger has carried out the registration operation, and executes the processing of step S3 described above. That is, the hall destination controller 20 generates a hall call using the destination floor information included in the current two-dimensional code and transmits it to the elevator controller 30.

On the other hand, when, as a result of the processing of step S6, it is confirmed that the prepared date-and-time of the current two-dimensional code coincides with the prepared date-and-time of the previous two-dimensional code (Yes in step S6), the hall destination controller 20 determines that the current two-dimensional code is the same as the previous two-dimensional code and that same passenger has carried out the double registration operation, and terminates the processing here without carrying out the generation and transmission of a hall call using the destination floor information included in the current two-dimensional code (step S7).

According to the embodiment described above, the hall destination controller 20 comprises the camera 21 which scans two-dimensional codes including destination floor information and date-and-time information, and based on the destination floor information and date-and-time information included in the two-dimensional code scanned by the camera 21, the control unit 22

which determines whether or not a double registration operation has been carried out by one passenger, when it determines that a double registration operation has not been carried out by one passenger, the control unit  
5 22 generating a hall call using the two-dimensional code scanned by the camera 21, and when it determines that a double registration operation has been carried out by one passenger, the control unit 22 not  
10 generating a hall call using the two-dimensional code scanned by the camera 21, and the communication unit 23 which transmits the hall call generated by the control unit 22 to the elevator controller 30.

With the above-described configuration, even if a registration operation is carried out double by one  
15 passenger, a hall call is not generated, and thus the elevator controller 30 can accurately count the number of passengers. Therefore, the elevator controller 30 can select the most appropriate car from among the multiple cars 10, thereby making it possible to achieve  
20 the most appropriate car dispatching.

Further, in the embodiment, the hall destination controller 20 further comprises the data storage unit 24 which stores the destination floor information and the date-and-time information included in the two-  
25 dimensional code used to generate the hall call that was transmitted immediately before to the elevator controller 30. Further, even in the case where the control unit 22 has transmitted a hall call to the elevator controller 30 within a predetermined time,  
30 when the destination floor of the current two-dimensional code does not coincide the destination floor of the previous two-dimensional code, or the prepared date-and-time of the current two-dimensional

code does not coincides with the prepared date-and-time  
of the previous two-dimensional code, then the control  
unit 22 determines that the current two-dimensional  
code is different from the previous two-dimensional  
5 code and can generate a hall call using the current  
two-dimensional code. Therefore, for example, even if  
the two-dimensional code is continuously presented by  
several passengers (group passengers) who are going to  
the same destination floor, the elevator controller 30  
10 can accurately count the number of passengers, thereby  
making it possible to achieve the most appropriate car  
dispatching.

Note that the embodiment is described in  
connection with the case where the two-dimensional code  
held over by the passenger includes the destination  
15 floor information indicating the destination floor of  
the passenger and the date-and-time information  
indicating the date-and-time when the two-dimensional  
code was prepared, but the embodiment is not limited to  
this case. Note that, in place of the date-and-time  
20 information described above, the two-dimensional code  
may include terminal identification information that  
can identify the terminal that prepared the two-  
dimensional code. In this case, simply by replacing  
25 the above-described date-and-time information with the  
terminal identification information described above,  
the hall destination controller 20 can execute the  
destination floor registration process shown in FIG. 4,  
and advantageous effects similar to those already  
30 described can be obtained.

Further, in the embodiment, as shown in steps S5  
and S6 of FIG. 4, after confirming whether or not the  
current and previous destination floors coincide with

each other, the hall destination controller 20 confirms whether or not the current and previous prepared dates-and-times coincide with each other, respectively. But, alternatively, the order of processing in steps S5 and S6 in FIG. 4 can be switched, and after confirming whether or not the current and previous prepared dates-and-times coincide with each other, whether or not the current and previous destination floors coincide with each other can be confirmed.

A modified example of the hall destination controller 20 according to the embodiment will now be described.

(First Modified Example)

FIG. 5 is a block diagram showing a configuration example of the hall destination controller 20 in the first modified example. The hall destination controller 20 of the first modified example is different from that of FIG. 3 in the configuration that it further comprise a human motion sensor 26 as shown in FIG. 5. The human motion sensor 26 detects a passenger approaching the hall destination controller 20 and notifies the control unit 22 of this fact. Therefore, the human motion sensor 26 may be referred to as a detection unit. In this modified example, the control unit 22 generates a hall call only once when the approaching of a passenger is detected by the human motion sensor 26 until such approaching of the passenger is no longer detected.

FIG. 6 is a flowchart showing an example of the procedure of the destination floor registration process in the first modified example. The process shown in the flowchart in FIG. 6 is executed by the hall destination controller 20 (or control unit 22).

When the hall destination controller 20 detects approaching of a passenger by the human motion sensor 26 (step S11), it refers to the history information stored in the memory and confirms whether or not a hall call has been transmitted to the elevator controller 30 while detecting the approaching of the passenger (step S12).

When, as a result of the processing in step S12, it is confirmed that a hall call has not been transmitted to the elevator controller 30 while detecting the approaching of a passenger (No in step S12), the hall destination controller 20, when the passenger holds a two-dimensional code over the scan area 20B, scans the two-dimensional code by the camera 21. The hall destination controller 20 obtains the destination floor information included in the scanned two-dimensional code by using the data conversion function 22a of the control unit 22 and generates a hall call using the destination floor information (step S13).

Thereafter, the hall destination controller 20 transmits the hall call generated in step S13 to the elevator controller 30 (step S14), and the process here is terminated.

On the other hand, when, as a result of the processing in step S12 described above, it is confirmed that the hall call has been transmitted to the elevator controller 30 while detecting the approaching of a passenger (Yes in step S12), the hall destination controller 20 determines that the registration operation has already been made by the passenger. Then, until the approaching of the passenger is no longer detected, the hall destination controller 20

does not scan the two-dimensional code and does not generate and transmit a hall call using the destination floor information included in the two-dimensional code (step S15), and thus the processing here is terminated.

5           According to the first modified example described above, when the approaching of a passenger is detected by the human motion sensor 26, the control unit 22 only once carries out generation of a hall call using the two-dimensional code scanned by the camera 21 until the  
10           approaching of the passenger is no longer detected, and thus even if a registration operation is carried out double by one passenger, the hall call is not generated. Therefore, the elevator controller 30 can accurately count the number of passengers, thereby  
15           making it possible to achieve the most appropriate car dispatching.

(Second Modified Example)

FIG. 7 is a block diagram showing a configuration example of the hall destination controller 20 in the  
20           second modified example. As shown in FIG. 7, the hall destination controller 20 of the second modified example is different from that of FIG. 3 in the configuration that it further comprises a face  
recognition camera 27. The face recognition camera 27  
25           captures the face of a passenger approaching the hall destination controller 20 and outputs this image to the control unit 22. Therefore, the face recognition camera 27 may be referred to as a capture unit. In  
this modified example, when the control unit 22  
30           receives an image showing the face of a passenger from the face recognition camera 27 input thereto, it recognizes the passenger's face in the image and, until a predetermined period of time after the recognition of

the passenger's face (until the passenger's face is no longer recognized), it only once generates a hall call using the two-dimensional code presented by the passenger.

5           FIG. 8 is a flowchart showing an example of the procedure of the destination floor registration process in the second modified example. The process shown in the flowchart of FIG. 8 is executed by the hall destination controller 20 (or the control unit 22).

10           When the hall destination controller 20 recognizes the face of a passenger included in an image captured by the face recognition camera 27 (step S21), it refers to the history information stored in the memory and confirms whether or not a hall call of the passenger  
15           has been transmitted to the elevator controller 30 within a predetermined time (that is, whether or not a hall call of the same passenger has been transmitted to the elevator controller 30) (step S22). Note here that in the second modified example, the history information  
20           is assumed to indicate, in addition to the transmission date-and-time of the hall call, an image showing the face of the passenger who carried out the registration operation for the hall call.

          When, as a result of the processing of step S22,  
25           it is confirmed that a hall call of the same passenger has not been transmitted to the elevator controller 30 within a predetermined period of time (No in step S22), the hall destination controller 20, when the passenger holds a two-dimensional code over the scan area 20B,  
30           scans the two-dimensional code by the camera 21. The hall destination controller 20 obtains the destination floor information included in the scanned two-dimensional code by using the data conversion function

22a of the control unit 22 and generates a hall call using the destination floor information (step S23).

Thereafter, the hall destination controller 20 transmits the hall call generated in step S23 to the elevator controller 30 (step S24), and the process here  
5 is terminated.

On the other hand, when, as a result of the processing in step S22 described above, it is confirmed that a hall call of the same passenger has been  
10 transmitted to the elevator controller 30 within a predetermined time (Yes in step S22), the hall destination controller 20 determines that the registration operation has already been made by the passenger. Then, until a predetermined time has  
15 elapsed after the recognition of the passenger's face, the hall destination controller 20 does not scan the two-dimensional code and does not generate and transmit a hall call using the destination floor information included in the two-dimensional code (step S25), and  
20 thus the process here is terminated.

According to the second modified example described above, when the control unit 22 recognizes the face of a passenger captured by the face recognition camera 27, the control unit 22 only once carries out generation of  
25 a hall call using the two-dimensional code scanned by the camera 21 until a predetermined period of time has elapsed after the recognition of the passenger's face, and thus even if a registration operation is carried out double by one passenger, the hall call is not  
30 generated. Therefore, the elevator controller 30 can accurately count the number of passengers, thereby making it possible to achieve the most appropriate car dispatching.

(Third Modified Example)

FIG. 9 is a block diagram showing a configuration example of the hall destination controller 20 in the third modified example. As shown in FIG. 9, the hall destination controller 20 in the third modified example is different from that of FIG. 3 in the configuration that a weight sensor 50 is installed on the floor around the hall destination controller 20, and a notification can be received therefrom that a passenger approaching the hall destination controller 20 has been detected. The weight sensor 50 detects a passenger approaching the hall destination controller 20 and notifies the hall destination controller 20 of this fact. In this modified example, when the control unit 22 receives a notification from the weight sensor 50 that a passenger approaching is detected, until the approaching of the passenger is no longer detected, it only once generates a hall call.

FIG. 10 is a flowchart showing an example of the procedure of the destination floor registration process in the third modified example. The process shown in the flowchart of FIG. 10 is executed by the hall destination controller 20 (or the control unit 22).

When the hall destination controller 20 detects the approaching of a passenger based on a notification from the weight sensor 50 (when it recognizes that the approaching of a passenger has been detected) (step S31), it refers to the history information stored in the memory and confirms whether or not a hall call has been transmitted to the elevator controller 30 while the approach of the passenger is being detected (step S32).

When, as a result of the process in step S32, it

is confirmed that the hall call has not been transmitted to the elevator controller 30 while the approaching of the passenger is being detected (No in step S32), the hall destination controller 20, when the passenger holds a two-dimensional code over the scan area 20B, scans the two-dimensional code by the camera 21. The hall destination controller 20 obtains the destination floor information included in the scanned two-dimensional code by using the data conversion function 22a of the control unit 22 and generates a hall call using the destination floor information (step S33).

Thereafter, the hall destination controller 20 transmits the hall call generated in step S33 to the elevator controller 30 (step S34), and the process here is terminated.

On the other hand, when, as a result of the processing in step S32 described above, it is confirmed that the hall call has been transmitted to the elevator controller 30 while the approaching of a passenger is being detected (Yes in step S32), the hall destination controller 20 determines that the registration operation has already been made by the passenger. Then, until the approaching of the passenger is no longer detected, the hall destination controller 20 does not scan the two-dimensional code and does not generate and transmit a hall call using the destination floor information included in the two-dimensional code (step S35), and thus the process here is terminated.

According to the third modified example described above, when the control unit 22 receives a notification from the weight sensor 50 that the approaching of a passenger has been detected, the control unit 22 only

once carries out generation of a hall call using the two-dimensional code scanned by the camera 21 until the approaching of the passenger is no longer detected, and thus even if a registration operation is carried out double by one passenger, the hall call is not generated. Therefore, the elevator controller 30 can accurately count the number of passengers, thereby making it possible to achieve the most appropriate car dispatching.

In the embodiment and modified examples explained above, a two-dimensional code (QR code) including the various types of information described above is presented to the hall destination controller 20 by a passenger. However, a passenger can present other types of codes. For example, a barcode including the various types of information described above may be presented by a passenger. Even in this case, the various types of information included in the barcode is the same as the various types of information included in a two-dimensional code. Therefore, the hall destination controller 20 can perform the various destination floor registration processes described above. Effects similar to the various effects described above can be obtained.

According to the embodiment described above, it is possible to provide a hall destination controller 20 which can accurately count the number of passengers who have performed the registration operation.

While certain embodiments have been described, these embodiments have been presented by way of example only, and are not intended to limit the scope of the inventions. Indeed, the novel embodiments described herein may be embodied in a variety of other forms;

furthermore, various omissions, substitutions and changes in the form of the embodiments described herein may be made without departing from the spirit of the inventions. The accompanying claims and their  
5 equivalents are intended to cover such forms or modifications as would fall within the scope and spirit of the inventions.

WHAT IS CLAIMED IS:

1. A hall destination controller which scans a two-dimensional code presented by a passenger, generates a hall call corresponding to a destination floor of the passenger using the two-dimensional code,  
5 and transmits the hall call to an elevator controller, the hall destination controller comprising:

a scan unit which scans a two-dimensional code including destination floor information indicating a destination floor of the passenger and date-and-time  
10 information indicating a prepared date-and-time of the two-dimensional code;

a control unit which determines, based on the destination floor information and the date-and-time  
15 information included in the two-dimensional code scanned by the scan unit, whether or not a registration operation is carried out double by one passenger, and

when it is determined that no double registration operation is carried out by one passenger, generates a  
20 hall call using the two-dimensional code scanned by the scan unit,

when it is determined that a registration operation is carried out double by one passenger, does not generate a hall call using the two-dimensional code  
25 scanned by the scan unit; and

a communication unit which transmits the hall call generated by the control unit to the elevator controller.

2. The hall destination controller of claim 1,  
30 further comprising:

a data storage unit which stores destination floor information included in a previous two-dimensional code used to generate a hall call transmitted immediately

before, to the elevator controller, and date-and-time information included in the previous two-dimensional code, wherein

the control unit,

5           when the two-dimensional code is scanned by the scan unit, confirms whether or not a hall call is transmitted to the elevator controller within a predetermined period of time,

10           when the hall call is transmitted to the elevator controller within the predetermined period of time, confirms whether or not a destination floor of a current two-dimensional code indicated by the destination floor information included in the two-dimensional code scanned by the scan unit coincides  
15 with a destination floor of the previous two-dimensional code indicated by the destination floor information stored in the data storage unit,

20           when the destination floor of the current two-dimensional code coincides with the destination floor of the previous two-dimensional code, confirms whether or not a prepared date-and-time of the current two-dimensional code indicated by the date-and-time information included in the two-dimensional code scanned by the scan unit coincide with a prepared date-  
25 and-time of the previous two-dimensional code indicated by the date-and-time information stored in the data storage unit, and

30           when the prepared date-and-time of the current two-dimensional code coincide with the prepared date-and-time of the previous two-dimensional code, does not generate a hall call using the two-dimensional code scanned by the scan unit.

3. The hall destination controller of claim 2,

wherein

the control unit,

when the hall call is not transmitted to the  
elevator controller within the predetermined period of  
5 time, or when the destination floor of the current two-  
dimensional code does not coincide with the destination  
floor of the previous two-dimensional code, or when the  
prepared date-and-time of the current two-dimensional  
code does not coincide with the prepared date-and-time  
10 of the previous two-dimensional code, generates a hall  
call using the two-dimensional code scanned by the scan  
unit, and

stores the destination floor information and the  
date-and-time information included in the two-  
15 dimensional code scanned by the scan unit in the data  
storage unit.

4. A hall destination controller which scans a  
two-dimensional code presented by a passenger,  
generates a hall call corresponding to a destination  
20 floor of the passenger using the two-dimensional code,  
and transmits the hall call to an elevator controller,  
the hall destination controller comprising:

a scan unit which scans a two-dimensional code  
including destination floor information indicating a  
25 destination floor of a passenger and terminal  
identification information to identify a terminal which  
prepares the two-dimensional code;

a control unit determines, based on the  
destination floor information and the terminal  
30 identification information included in the two-  
dimensional code scanned by the scan unit, whether or  
not a registration operation is carried out double by  
one passenger, and

when it is determined that the registration operation is not carried out double by one passenger, generates a hall call using the two-dimensional code scanned by the scan unit,

5           when it is determined that the registration operation is carried out double by one passenger, does not generate a hall call using the two-dimensional code scanned by the scan unit; and

          a communication unit which transmits the hall call  
10 generated by the control unit to the elevator controller.

5. The hall destination controller of claim 4, further comprising:

          a data storage unit which stores destination floor  
15 information included in a previous two-dimensional code used to generate a hall call transmitted immediately before, to the elevator controller, and terminal identification information included in the previous two-dimensional code, wherein

20           the control unit,

          when the two-dimensional code is scanned by the scan unit, confirms whether or not a hall call is transmitted to the elevator controller within a predetermined period of time,

25           when the hall call is transmitted to the elevator controller within the predetermined period of time, confirms whether or not a destination floor of a current two-dimensional code indicated by the destination floor information included in the two-  
30 dimensional code scanned by the scan unit coincides with a destination floor of the previous two-dimensional code indicated by the destination floor information stored in the data storage unit,

when the destination floor of the current two-dimensional code coincides with the destination floor of the previous two-dimensional code, confirms whether or not a terminal having prepared the current two-dimensional code indicated by the terminal  
5 identification information included in the two-dimensional code scanned by the scan unit coincides with a terminal having prepared the previous two-dimensional code indicated by the terminal  
10 identification information stored in the data storage unit, and

when the terminal having prepared the current two-dimensional code coincides with the terminal having prepared the previous two-dimensional code, does not  
15 generate a hall call using the two-dimensional code scanned by the scan unit.

6. The hall destination controller of claim 5, wherein

the control unit,  
20 when the hall call is not transmitted to the elevator controller within the predetermined period of time, or when the destination floor of the current two-dimensional code does not coincide with the destination floor of the previous two-dimensional code, or when the  
25 terminal having prepared the current two-dimensional code does not coincides with the terminal having prepared the previous two-dimensional code, generates a hall call using the two-dimensional code scanned by the scan unit, and

30 stores the destination floor information and the terminal identification information included in the two-dimensional code scanned by the scan unit in the data storage unit.

7. A hall destination controller which scans a two-dimensional code presented by a passenger, generates a hall call corresponding to a destination floor of the passenger using the two-dimensional code, and transmits the hall call to an elevator controller, the hall destination controller comprising:

a detection unit which detects approaching of a passenger;

a scan unit which scans a two-dimensional code;

a control unit which generates a hall call using the two-dimensional code scanned by the scan unit; and

a communication unit which transmits the hall call generated by the control unit to the elevator controller, wherein

the control unit, when the approaching of the passenger is detected by the detection unit, carries out only once generating the hall call using the two-dimensional code scanned by the scan unit until the approaching of the passenger is no longer detected by the detection unit.

8. A hall destination controller which scans a two-dimensional code presented by a passenger, generates a hall call corresponding to a destination floor of the passenger using the two-dimensional code, and transmits the hall call to an elevator controller, the hall destination controller comprising:

a capture unit which captures an image of a face of a passenger;

a scan unit which scans a two-dimensional code;

a control unit which generates a hall call using the two-dimensional code scanned by the scan unit; and

a communication unit which transmits the hall call generated by the control unit to the elevator

controller, wherein

the control unit recognizes the face of the passenger captured by the capture unit and carries out only once generating the hall call using the two-dimensional code presented by the passenger of the face recognized until a predetermined period of time elapses after recognition of the face of the passenger.

9. A hall destination controller which scans a two-dimensional code presented by a passenger, generates a hall call corresponding to a destination floor of the passenger using the two-dimensional code, and transmits the hall call to an elevator controller, the hall destination controller comprising:

a scan unit which scans a two-dimensional code;  
a control unit which generates a hall call using the two-dimensional code scanned by the scan unit; and  
a communication unit which transmits the hall call generated by the control unit to the elevator controller, wherein

the control unit, upon receiving a notification from a weight sensor installed on a floor around the hall destination controller that approaching of a passenger is detected, carries out only once generating the hall call using the two-dimensional code scanned by the scan unit until the approaching of the passenger is no longer detected.