

DESCRIPTION

Title of Invention

ELEVATOR DEVICE

5

Technical Field

[0001]

The present invention relates to an elevator device which enables hands-free destination floor registration.

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Background Art

[0002]

In the present technical field, a conventional technique disclosed in Japanese Patent Literature 1 is known. An elevator control system according to this technique has: a first radio wave reception device for receiving an ID (identifier) of a mobile terminal, owned by a user of the elevator, transmitted from the mobile terminal; a second radio wave reception device, provided on the near side of the elevator from the first radio wave reception device, for receiving the ID of the mobile terminal; and a hall destination call automatic registration part for, after the reception of the ID with the first radio wave reception device, when the second radio wave reception device receives the same ID,

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automatically registering a hall destination call
indicating movement from the floor where the first and
second radio wave reception devices are provided to a floor
previously determined in correspondence with the ID. One
5 of reception ranges of the first and second radio wave
reception devices is narrower than the other reception
range. Accordingly, a person who does not use the elevator
can move without passing through one of the reception
ranges of the first and second radio wave reception devices.
10 With this arrangement, it is possible to suppress automatic
registration of a call with respect to the person who does
not use the elevator, and the operation efficiency of the
elevator is improved.

15 Citation List

Patent Literature

[0003]

Patent Literature 1: Japanese Patent Application

Laid-Open No. 2015-105189

20 Summary of Invention

Technical Problem

[0004]

However, in the above-described conventional
25 technique, in a floor layout including a point possibly to

be other destination than the elevator in the middle of a passage to the elevator, when a person with a previously-registered ID moves via an unpredictable route, the call is erroneously registered.

5 [0005]

The present invention provides an elevator device which enables destination floor registration with improved reliability by suppressing erroneous registration due to unpredictable movement.

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Solution to Problem

[0006]

To address the above-described object, the present invention provides an elevator device comprising: a plurality of elevators; an information terminal owned by an elevator user; and a group management control system that selects an elevator to be arranged at an elevator hall from the plurality of elevators, based on information transmitted from the information terminal. When a movement route of the elevator user corresponds with a movement route previously registered at the information terminal, the elevator to be arranged at the elevator hall is selected.

25 Advantageous Effects of Invention

[0007]

According to the present invention, it is possible to perform destination floor registration with improved reliability by suppressing erroneous registration due to unpredictable movement.

[0008]

Other objects, the features and advantages of the present invention than those described above may be clearer with the following detailed description.

Brief Description of Drawings

[0009]

Fig. 1 is a functional block diagram of an elevator device as an embodiment of the present invention;

Fig. 2 is a plan view showing an example of arrangement of communication devices in the vicinity of an elevator hall;

Fig. 3 is a flowchart showing a processing operation of the elevator device shown in Fig. 1;

Fig. 4 is a flowchart showing the details of communication device ID reception processing;

Fig. 5 is a flowchart showing the details of destination floor registration processing;

Fig. 6 is a flowchart showing the details of allocated elevator display processing;

Fig. 7 is a plan view of a particular example (case 1) of the operation according to the embodiment in the vicinity of the elevator hall;

Fig. 8 is a plan view of the particular example (case 1) of the operation according to the embodiment in the vicinity of the elevator hall;

Fig. 9 is a plan view of the particular example (case 1) of the operation according to the embodiment in the vicinity of the elevator hall;

Fig. 10 is a plan view of the particular example (case 1) of the operation according to the embodiment in the vicinity of the elevator hall;

Fig. 11 is a plan view of a particular example (case 2) of the operation according to the embodiment in the vicinity of the elevator hall;

Fig. 12 is a plan view of the particular example (case 2) of the operation according to the embodiment in the vicinity of the elevator hall;

Fig. 13 is a plan view of a particular example (case 3) of the operation according to the embodiment in the vicinity of the elevator hall;

Fig. 14 is a plan view of the particular example (case 3) of the operation according to the embodiment in the vicinity of the elevator hall;

Fig. 15 is a plan view of the particular example

(case 3) of the operation according to the embodiment in the vicinity of the elevator hall;

Fig. 16 is a plan view of a particular example (case 4) of the operation according to the embodiment in the vicinity of the elevator hall;

Fig. 17 is a plan view of the particular example (case 4) of the operation according to the embodiment in the vicinity of the elevator hall; and

Fig. 18 is a plan view of the particular example (case 4) of the operation according to the embodiment in the vicinity of the elevator hall.

Description of Embodiments

[0010]

Hereinbelow, an embodiment of the present invention will be described based on the drawings. In the respective figures, the elements having the same reference numerals are the same constituent elements or constituent elements having similar functions.

[0011]

Fig. 1 is a functional block diagram of an elevator device as an embodiment of the present invention.

[0012]

The elevator device is installed at an elevator hall (hereinbelow referred to as a "hall"). The elevator device

has: a hall destination floor registration device 010 to register a destination floor by an elevator user's operation; an input-output control system 020 to control input/output signals to/from the respective parts; an
5 access control system 030 to manage previously registered IDs and the like; a main mobile terminal 050 to automatically register the destination floor using a previously-registered communication device IDs by floor (IDs imparted to communication devices 060 to be described
10 later); the plural communication devices 060 provided, on a floor having a hall, at the hall or its peripheral passages; a group management control system 070 having an operation management control system 071 to read a signal from an elevator control device 080 of each elevator 081 or
15 a signal from the main mobile terminal 050 or the like, perform call registration, elevator allocation and the like, and select an elevator to be arranged at the hall from the plural elevators; a sub mobile terminal 090 owned by a previously registered elevator user, with the main
20 mobile terminal 050; and an access point 040, provided in the vicinity of the hall, to perform communication with the main mobile terminal 050, the communication device 060 and the sub mobile terminal 090.

[0013]

25 The hall destination floor registration device 010

has: a ten-key device 001; an input information reading unit 011 to read input information from a tag and information terminal 002 or the like; a notification unit 012 to notify the input information or elevator allocation result; and a floor guide display unit 013 to perform guide display on the floor using the notification unit 012.

[0014]

The access control system 030 has an ID management processing unit 031 to manage previously registered communication device IDs by floor and the like, and a data transmission/reception unit 032 to perform data transmission/reception.

[0015]

The main mobile terminal 050 has: an automatic registration setting unit 051 to perform automatic registration; a communication device/access point connection processing unit 052 to perform connection processing with respect to the communication device 060 and with respect to the access point 040; a communication device communication status monitoring unit 053 to monitor communication status with respect to the communication device 060 or the like; a destination floor registration processing unit 054 to perform processing to register a destination floor in the access control system 030; and an allocated elevator notification unit 055 to notify an

allocated elevator. Note that as a main mobile terminal, an information terminal such as a cellular phone, a smart phone or a tablet-type terminal is applied.

[0016]

5 The sub mobile terminal 090 has: a destination floor registration notification unit 091 to notify registration of a destination floor with the main mobile terminal 050; and an allocated elevator notification unit 072 to notify an allocated elevator. The sub mobile terminal is a
10 wearable terminal such as a wristwatch type terminal or a wristband type terminal. It is possible with the sub mobile terminal to easily check information processed with the main mobile terminal 090.

[0017]

15 The communication device 060, the details of which will be described later, is discretely provided in plural positions at the hall and passages to the hall. The respective communication devices have different IDs.

[0018]

20 The group management control system 070 has the operation management control system 071. The operation management control system 071 has a destination floor registration processing unit 072 to perform destination floor registration processing for the user, an allocated
25 elevator selection processing unit 073 to select an

elevator with appropriate waiting time or the like and perform allocation processing, and an allocated elevator output processing unit 074 to output the result of allocation.

5 [0019]

Note that the respective parts in Fig. 1 function by execution of a predetermined program with a computation processing device such as a microcomputer.

[0020]

10 Fig. 2 is a plan view showing an example of arrangement of the above-described communication devices 060 in the vicinity of the hall.

[0021]

In the vicinity of the hall, the plural communication
15 devices 060 are discretely provided as shown in Fig. 2. Different IDs are imparted to the respective communication devices 060 in accordance with installation location. For example, IDs: 001 to 006 are imparted to the communication devices 060 installed on the passage, and ID:100 is
20 imparted to the communication device 060 installed at the hall 2. Note that the communication device 060 has a short-range wireless communication device based on Bluetooth (registered trademark) applied to a wearable device or the like. The main mobile terminal 050 obtains
25 positional information of the main mobile terminal 050 i.e.

the elevator user having the main mobile terminal 050 by communicating with these communication devices 060, obtaining the IDs of the communication devices 060, and discriminating the communication devices 060 based on the
5 obtained IDs.

[0022]

Further, the access point 040 is provided in the vicinity of the hall 2. The access point belongs to a wireless communication LAN such as a WiFi (registered
10 trademark) network with a communicable range wider than that of Bluetooth (registered trademark) or the like.

[0023]

Fig. 3 is a flowchart showing a processing operation of the elevator device shown in Fig. 1.

15 [0024]

First, at step S000, the automatic registration setting unit 051 of the main mobile terminal 050 first determines whether or not passage and final registration point are set, i.e., whether or not the elevator user's
20 movement route is set, in a storage device in the main mobile terminal 050. Next, at step S001, the automatic registration setting unit 051 determines whether or not WiFi (registered trademark) connection and Bluetooth (registered trademark) connection are permitted. Next, at
25 step S002, the automatic registration setting unit 051

determines whether or not an automatically registered floor is set. Further, at step S003, the automatic registration setting unit 051 determines whether or not automatic registration mode is permitted. Note that at each step, when the determination result is "YES", the next step is performed, while when the determination result is "NO", the processing ends.

[0025]

At step S004, the communication device/access point connection processing unit 052 determines whether or not connection with the access point 040 for automatic registration has been established. When the determination result is "YES", it performs automatic registration standby status shift processing at step S005. When the result of determination at step S004 is "NO", the processing ends.

[0026]

At step S006, the communication device communication status monitoring unit 053 determines whether or not connection with the communication device 060 and the access control system 030 has been established. When the determination result is "YES", i.e., the connection is established, the communication device communication status monitoring unit 053 performs communication device ID reception processing to be described later shown in Fig. 4 at step S007. Next, at step S008, the communication device

communication status monitoring unit 053 updates the history information. When the result of determination at step S006 is "NO", the processing ends.

[0027]

5 Thereafter, at step S009, the destination floor registration processing unit 054 determines whether or not the order of detection of history IDs of the communication devices 060 stored in the main mobile terminal 050 corresponds with a previously registered pattern from the
10 passage to the final registration point, i.e., whether or not the detected movement route of the elevator user (main mobile terminal 050) corresponds with the previously registered movement route. When the determination result is "YES", i.e. the routes correspond with each other,
15 destination floor registration processing unit 054 determines at step S010 whether or not continuous reception time at the final registration point has exceeded a predetermined threshold value. When the determination result is "YES", i.e., the continuous reception time has
20 exceeded the threshold value, and arrival at the final registration point has determined, the destination floor registration processing unit 054 performs destination floor registration processing to be described later shown in Fig. 5 at step S011. When the result of determination at steps
25 S009 and S010 are "NO", the processing ends.

[0028]

Note that the registered pattern will be described later. Further, the threshold value for the continuous reception time is set to prevent erroneous destination floor registration when the elevator user having the main mobile terminal 050, who has not arrived at a final registration point, but passes through the vicinity of the point.

[0029]

10 In the destination floor registration processing at step S011, the destination floor registered in the main mobile terminal 050 is registered in the access control system 030 through the access point 040 by communication between the main mobile terminal 050 and the access control
15 system 030 via the access point 040. Further, information on the completion of the destination floor registration is transmitted to the sub mobile terminal 090. Thereafter, at step S012, the main mobile terminal 050 enters a transmission data waiting status to determine whether or
20 not transmission data (e.g. allocated elevator name or number) from the elevator side has been received.

[0030]

In the operation management control system 071 of the group management control system, through the processing
25 with the destination floor registration processing unit 072

and the allocated elevator selection processing unit 073 as usual, the allocated elevator information of the elevator allocated with respect to the received registered destination floor is notified from the allocated elevator output processing unit 073 via the access control system 030 to the corresponding main mobile terminal 050.

[0031]

When the allocated elevator information is received with the main mobile terminal 050, i.e., when the result of determination at step S012 is "YES", the allocated elevator notification unit 055 performs allocated elevator display processing shown in Fig. 6 to be described later at step S013. Thereafter, the allocated elevator notification unit 055 cancels the automatic registration mode permission at step S016. With this cancellation, the number of execution times of automatic registration is limited to only once. This prevents erroneous recognition with the group management control system as existence of a large number of users at the hall due to plural times of registration even when each registration is normally performed. Thereafter, at step S017, the allocated elevator notification unit 055 performs processing to terminate the automatic registration stand-by status.

[0032]

Further, when the result of determination at step

S012 is "NO", i.e. when it is determined that the transmission data from the elevator side has not been received in the waiting status and time-out has been detected at step S014, the allocated elevator notification unit 055 performs error notification at step S015 and terminates the processing. Note that when the result of determination at step S014 is "NO", the error notification is not performed and the processing ends.

[0033]

Fig. 4 is a flowchart showing the details of the above-described communication device ID reception processing at step S007 (Fig. 3).

[0034]

At step S100, the communication device communication status monitoring unit 053 of the main mobile terminal 050 determines whether or not the received data has been normally updated. When it is determined that the received data has normally updated (YES at S100), it is determined at step S101 whether or not the radio wave intensity exceeds a threshold value. When it is determined that the radio wave intensity exceeds the threshold value (YES at S101), the received IDs are sorted in the order of radio wave intensity at step S102. Next, at step S103, the screen display of the currently received ID is updated. Note that as the threshold value is set regarding the radio

wave intensity, it is possible to prevent erroneous detection and improve the accuracy. When the determination results at steps S100 and S101 are "NO", the processing ends.

5 [0035]

Fig. 5 is a flowchart showing the details of the above-described destination floor registration processing at step S011 (Fig. 3).

[0036]

10 At step S200, the destination floor registration processing unit 054 determines whether or not the received data from the access control system 030 having a server has been normally updated. When it is determined that the received data has been normally updated (YES at S200), it
15 is determined at step S201 whether or not the call registration includes option setting. Note that the option setting is setting of information on e.g. the attribute of the elevator user. This attribute information is, e.g., information as to whether or not the registration type is
20 wheelchair user, VIP user or the like, information on the lowest desired degree of congestion for a user who does not ride a congested elevator, or the like. When it is determined that the call registration includes option setting (YES at S201), the destination floor registration
25 processing unit 054 of the main mobile terminal 050

transmits the option information, the destination floor information and the terminal ID information at step S202. When it is determined that the call registration does not include option setting (NO at S201), the destination floor registration processing unit 054 transmits the destination floor information and the terminal ID information registered in the storage device of the main mobile terminal 050 at step S203. Note that when the determination result at step S200 is "NO", the processing ends.

[0037]

Fig. 6 is a flowchart showing the details of the above-described allocated elevator display processing at step S013 (Fig. 3).

[0038]

At step S300, the allocated elevator notification unit 055 determines whether or not the received data has been normally updated. When the determination result is "YES", i.e., it is determined that the received data has been normally updated, the allocated elevator notification unit 055 enters a data reception waiting status at step S301 to determine whether or not data on allocated elevator information has been received. Thereafter, it is determined at step S302 whether or not the received data indicates a car number. When it is determined that the

data indicates an elevator number (YES at S302), the received elevator number (elevator name) is determined as notification information at step S303. On the other hand, when it is determined that the received data does not
5 indicates an elevator number (NO at S302), it is determined that other communication has been made. Then at step S304, not-allocatable notification, indicating that an elevator number is not allocated, is determined as the notification information.

10 [0039]

Thereafter, at step S305, the allocated elevator notification unit 055 determines whether or not notification to the sub mobile terminal 090 is set as the option setting and connection with the sub mobile terminal
15 090 is established. When the determination result is "YES", the process proceeds to step S306, at which the sub mobile terminal 090 or, the main mobile terminal 050 and the sub mobile terminal 090 inform notification information indicating the received elevator number (elevator name), by
20 image display, sound, vibration or the like.

[0040]

On the other hand, when the result of determination at step S305 is "NO", e.g., when notification to the sub mobile terminal 090 is not set as the option setting, or
25 even when the notification is set, connection with the sub

mobile terminal 090 is not established, the process proceeds to step S307, at which the main mobile terminal 050 informs notification information indicating the received elevator number (elevator name) by image display, sound, vibration or the like.

[0041]

The notification information is transmitted via the main mobile terminal 050 to the sub mobile terminal. Note that the notification information may be transmitted directly to the sub mobile terminal.

[0042]

Next, the operation of the present embodiment will be described using Figs. 7 to 18. Note that four particular examples (cases 1 to 4) will be described.

[0043]

Figs. 7 to 10 are plan views of the particular example (case 1) of the operation according to the embodiment in the vicinity of the hall. Note that time advances in the numerical order in Figs. 7 to 10.

[0044]

As shown in Fig. 7, an elevator user A (hereinbelow "user A") having the main mobile terminal 050 enters from a passage. Regarding the user A, as a registered pattern indicating a movement route for use of the elevator, a first reception ID of the communication device 060 "001" is

registered; then a second reception ID, "002" is
registered; and a third reception ID at the final
registration point, "100" is registered. Further, as a
registered floor (destination floor) of the user A, "5th
5 floor" is registered.

[0045]

As shown in Fig. 7, at the main mobile terminal 050
of this user A, first, the reception ID "001" of the
communication device 060 is detected. Then the terminal
10 enters a status to display temporary visualized information
4A temporarily showing the visualized ID, and continuous
monitoring is performed. Next, as shown in Fig. 8, the
reception ID "002" of the communication device 060 is
detected. Then the terminal enters a status to display
15 temporary visualized information 4B. Thereafter, as shown
in Fig. 9, when the reception ID "100" of the communication
device 060 is detected, the terminal enters a status to
display temporary visualized information 4C. In the
present embodiment, as the temporary visualized information,
20 the detected reception ID, the registered floor
(destination floor), and history information of the already
detected reception IDs (encircled numbers in Figs. 7 to 9)
are displayed on a liquid crystal display screen of the
main mobile terminal 050.

25 [0046]

As the movement routes correspond with the registered pattern previously registered regarding the user A, in the determination processing at step S009 shown in Fig. 3, it is possible to perform automatic registration with regard to the user A. Thereafter, at step S010 shown in Fig. 3, when the reception ID "100" of the communication device 060 is detected and the continuous reception time exceeds the threshold value, the destination floor registration processing at step S011 is performed.

10 [0047]

Thereafter, at step S012 shown in Fig. 3, when an allocated elevator number "A" is notified, as shown in Fig. 10, the allocated elevator number "A" is displayed as temporary visualized information 4D on the main mobile terminal 050 of the user A. Note that as shown at step S305 in Fig. 6, when the sub mobile terminal 090 is set, temporary visualized information 4E (the allocated elevator_ number "A" and the registered floor (destination floor) "5F") shown in Fig. 10 is displayed on the sub mobile terminal 090.

20 [0048]

Figs. 11 and 12 are plan views of the particular example (case 2) of the operation according to the embodiment in the vicinity of the hall. Note that time advances in the numerical order in Figs. 11 and 12.

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[0049]

As shown in Fig. 11, the same user A (the user in the case 1) comes out from the elevator. At this time, at the main mobile terminal 050 of the user A, since the communication device 060 is not detected, as temporary visualized information 4F, no reception ID is displayed but the registered floor is displayed. As shown in Fig. 12, at the hall, at the main mobile terminal 050 of the user A, first, the reception ID "100" of the communication device 060 is detected. Then the terminal enters a status to display the temporary visualized information 4F temporarily showing the visualized ID, and continuous monitoring is performed.

[0050]

In the present case, since the movement route of the user A is different from the registered pattern, the automatic registration is not performed in the determination processing at step S009 shown in Fig. 3.

[0051]

Figs. 13 to 15 are plan views of the particular example (case 3) of the operation according to the embodiment in the vicinity of the hall. Note that time advances in the numerical order in Figs. 13 to 15.

[0052]

As shown in Fig. 13, at the main mobile terminal 050

of the same user A, first, the reception ID "004" of the communication device 060 is detected. Then the terminal enters a status to display temporary visualized information 4H temporarily showing the visualized ID, and continuous
5 monitoring is performed. Next, as shown in Fig. 14, the reception ID "003" of the communication device 060 is detected. Then the terminal enters a status to display temporary visualized information 4I. Thereafter, as shown in Fig. 15, when the reception ID "100" of the
10 communication device 060 is detected, the terminal enters a status to display temporary visualized information 4J.

[0053]

At this time, the entrance direction of the movement route does not correspond with that of the registered
15 pattern previously registered regarding the user A. Accordingly, the automatic registration is not performed in the determination processing at step S009 shown in Fig. 3. At this time, it is possible for the user A to operate the general destination floor registration device 010 (Fig. 1)
20 to register a call.

[0054]

Figs. 16 to 18 are plan views of the particular example (case 4) of the operation according to the embodiment in the vicinity of the hall. Note that time
25 advances in the numerical order in Figs. 16 to 18.

[0055]

As shown in Fig. 16, at the main mobile terminal 050 of the same user A, first, the reception ID "001" of the communication device 060 is detected. Then the terminal
5 enters a status to display temporary visualized information 4K temporarily showing the visualized ID, and continuous monitoring is performed. Next, as shown in Fig. 17, the reception ID "002" of the communication device 060 is detected, and the terminal enters a status to display
10 temporary visualized information 4L. Thereafter, as shown in Fig. 18, the user A does not go to the hall but moves on the passage in another direction. Accordingly, the reception ID "005" of the communication device 060 is detected, and the terminal enters a status to display
15 temporary visualized information 4M. There is a possibility that the reception ID "100" of the communication device 060 is detected immediately before the detection of the reception ID "005". However, at step S010 shown in Fig. 3, the continuous reception time at the final
20 registration point i.e. with the reception ID "100" does not exceed the threshold value. Accordingly, the reception ID "100" at the final registration point is not adopted.

[0056]

At this time, in the movement route of the user A,
25 the direction is not toward the reception ID "100" at the

final registration point, and the route does not correspond with the registered pattern previously registered regarding the user A. Accordingly, the automatic registration with respect to the user A is not performed in the determination
5 processing at step S009 shown in Fig. 3.

[0057]

As described above, according to the present embodiment, at the floor provided with a hall, the plural communication devices 060 with different IDs are discretely
10 provided in the vicinity of the hall, and the main mobile terminal 050 is provided with the communication device communication status monitoring unit 053 to obtain the ID from the communication device 060 upon passing in the vicinity, and the destination floor registration processing
15 unit 054 to perform destination floor registration in the operation management control system 071 through the access control system 030 when the acquisition order of the respective IDs corresponds with the previously registered pattern of the movement route. It is possible to eliminate
20 a pattern not corresponding with a registered pattern even when movement of the elevator user is close to the registered pattern, and to realize hands-free destination floor registration, i.e., automatic registration without elevator user's operating the destination floor
25 registration device or terminal, with suppressed erroneous

operation.

[0058]

The registered pattern of movement route as described above includes the ID obtained from the communication device provided at the final registration point. After the ID acquisition at the final registration point, the acquisition order of the respective IDs and the registered pattern are compared with each other. That is, the detected movement route of the elevator user and the previously registered movement route are compared with each other. With this configuration, it is possible to prevent erroneous operation in the destination floor registration due to the elevator user's movement along an unpredictable route.

15 [0059]

Further, upon destination floor registration processing, the ID information of the main mobile terminal 050 is added to the destination floor registration processing unit 054. Accordingly, it is possible to obtain allocated elevator information on the elevator allocated from the operation management control system 071 with the main mobile terminal 050.

[0060]

Further, upon destination floor registration processing, the option information regarding the sub mobile

terminal 090 is added to the destination floor registration processing unit 054. Accordingly, it is possible to obtain allocated elevator information on the elevator allocated from the operation management control system 071 with the sub mobile terminal 090.

[0061]

In the present embodiment, positional information of the main mobile terminal 050 carried by the user (i.e. the position of the user) is obtained by communication

connection with the communication device 060. The acquisition of positional information is not limited to this configuration. The positional information may be obtained with a GPS function of the mobile terminal.

Otherwise, the positional information may be obtained based on WiFi (registered trademark) radio wave intensity.

[0062]

Note that the present invention is not limited to the above-described embodiment, but includes various modifications. For example, the above embodiment has been described in detail for explaining the present invention, and the invention is not necessarily limited to an embodiment having all the described constituent elements. Further, it is possible to perform addition/deletion/replacement with respect to a part of constituent elements of the respective embodiments with

other constituent elements.

[0063]

For example, in the above embodiment, the comparison between a detected movement route and a previously
5 registered movement route is performed with the main mobile terminal. The comparison is not limited to this configuration, but it may be performed with the group management control system. In this case, it is preferable that when arrival at the hall is detected, the main mobile
10 terminal transmits the ID imparted to the main mobile terminal, and the group management control system stores the registered movement route and the destination floor information, with linkage with the ID imparted to the main mobile terminal.

15 [0064]

Further, it may be configured such that, when the elevator user arrives at the hall through a route different from the registered movement route, a message that the destination floor is not automatically registered and
20 operation of the destination floor registration device is required is displayed on the main mobile terminal.

Reference Signs List

[0065]

25 001 ... ten-key device, 002 ... tag and information terminal,

010 ... hall destination floor registration device, 011 ...
 input information reading unit, 012 ... notification unit,
 013 ... floor guide display unit, 020 ... input-output control
 system, 030 ... access control system, 031 ... ID management
 5 processing unit, 032 ... data transmission/reception unit,
 040 ... access point, 050 ... main mobile terminal, 051 ...
 automatic registration setting unit, 052 ... communication
 device/access point connection processing unit, 053 ...
 communication device communication status monitoring unit,
 10 054 ... detected destination floor registration processing
 unit, 055 ... allocated elevator notification unit, 060 ...
 communication device, 070 ... group management control
 system, 071 ... operation management control system, 072 ...
 destination floor registration processing unit, 073 ...
 15 allocated elevator selection processing unit, 074 ...
 allocated elevator output processing unit, 080 ... elevator
 control device, 081 ... elevator, 090 ... sub mobile terminal,
 091 ... destination floor registration notification unit, and
 092 ... allocated elevator notification unit.

Claim 1

An elevator device comprising:

a plurality of elevators;

5 an information terminal owned by an elevator user;

and

a group management control system that selects an elevator
to be arranged at an elevator hall from the plurality of
elevators, based on information transmitted from the
10 information terminal,

wherein when a movement route of the elevator user
corresponds with a movement route previously registered at the
information terminal, the elevator to be arranged at the
elevator hall is selected.

15

Claim 2

The elevator device according to claim 1, wherein when
arrival at a final registration point of the previously
registered movement route is detected, the information terminal
20 transmits the information.

Claim 3

The elevator device according to claim 1, wherein the
information includes information related to a destination floor
25 of the elevator user.

Claim 4

The elevator device according to claim 1, wherein the movement route of the elevator user is detected based on positional information of the information terminal on a floor provided with the elevator hall.

Claim 5

The elevator device according to claim 4, wherein the positional information of the information terminal is obtained by discriminating the plurality of communication devices with the information terminal, through communication between the information terminal and the plurality of communication devices installed on the floor.

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Claim 6

The elevator device according to claim 5, wherein the previously registered movement route is registered as an order of communication establishment with IDs of the communication devices.

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Claim 7

The elevator device according to claim 2,
wherein the movement route of the elevator user is detected based on positional information of the information terminal on

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a floor provided with the elevator hall,

wherein the positional information of the information terminal is obtained by discriminating the plurality of communication devices with the information terminal, through
5 communication between the information terminal and the plurality of communication devices installed on the floor, and

wherein when continuous communication time between the information terminal and the communication device exceeds a predetermined threshold value, the arrival of the elevator user
10 at the final registration point is detected.

Claim 8

The elevator device according to claim 1, wherein the group management control system transmits information on an elevator
15 to be arranged at the elevator hall to the information terminal.

Claim 9

The elevator device according to claim 8, wherein the information terminal displays positional information of the
20 information terminal and information on the elevator to be arranged at the elevator hall.

Claim 10

The elevator device according to claim 9, the information
25 on the elevator arranged at the elevator hall is displayed on

a sub information terminal, owned by the elevator user, and used in communication with the information terminal.

Claim 11

5 The elevator device according to claim 2,
 wherein the movement route of the elevator user is detected based on positional information of the information terminal on a floor provided with the elevator hall,
 wherein the positional information of the information
10 terminal is obtained by discriminating the plurality of communication devices with the information terminal, through communication between the information terminal and the plurality of communication devices installed on the floor, and
 wherein it is possible to set information to use the
15 elevator, including the final registration point, or an order of communication establishment with IDs of the communication devices, or a destination floor, or information related to the destination floor, with the information terminal.

20 Claim 12

 The elevator device according to claim 3,
 wherein the movement route of the elevator user is detected based on positional information of the information terminal on a floor provided with the elevator hall,
25 wherein the positional information of the information

terminal is obtained by discriminating the plurality of communication devices with the information terminal, through communication between the information terminal and the plurality of communication devices installed on the floor, and

5 wherein it is possible to set information to use the elevator, including a final registration point, or an order of communication establishment with IDs of the communication devices, or the destination floor, or information related to the destination floor, with the information terminal.

10

Claim 13

15 The elevator device according to claim 5, wherein it is possible to set information to use the elevator, including a final registration point, or an order of communication establishment with IDs of the communication devices, or a destination floor, or information related to the destination floor, with the information terminal.