

AUTOMATED INSPECTION SYSTEM FOR ELEVATOR

BACKGROUND

1. Technical Field

The present invention relates to an automated inspection system for elevator that automatically performs periodic inspection and check.

2. Related Art

Conventionally, it is a legal obligation that elevators be periodically inspected and checked annually for maintenance and management purposes. Recently, in reaction to past frequent accidents and failure cases, for example, periodic inspection and check items are increased and become strict. In association with this, the following situation may occur, which causes a problem. On-site inspection and check work by operator takes long time, and therefore a user (a passenger) cannot use the elevator when required. Accordingly, there is a problem that the inspection and check work is temporally imitated.

Therefore, a technique to shorten time required for the on-site inspection and check has been proposed. As such well-known technique, the following "elevator inspection device" (see Japanese Unexamined Patent Application Publication No. 2004-345764 (hereinafter referred to as Patent Literature 1)) has been proposed, for example. The elevator inspection device ensures elevator inspection work by an automatic elevator inspection operation, for example, and ensures convenience for general users at the same time.

SUMMARY

The technique according to the above-described Patent Literature 1 has an automatic inspection function of an elevator at a monitor unit in the elevator with the following basic functions. An elevator control unit moves and controls a riding car to a floor specified by a stop floor registration with a car-internal operating panel disposed in the riding car or a floor specified by a car call with a stop floor call button installed at an elevator hall of each floor. The monitor unit of the elevator also has an automatic elevator inspection function. If the monitor unit monitors an operation of the riding car via the elevator control unit and detects an error at any time, the monitor unit reports the error to the monitor center via a telephone line.

Specifically, the elevator has the following basic function. When an operator operates a car-internal operating panel in the riding car to transmit an inspection operation command to the monitor unit via the elevator controller, the monitor unit starts an automatic inspection operation on the elevator. The monitor unit transmits sequentially obtained inspection results to the monitor center upon termination of an automatic inspection operation. Here, in the case where the car call is generated with the stop floor call button during the automatic inspection operation, the automatic inspection operation is paused and the elevator is ordinary operated by the elevator controller. After termination of the ordinary operation, the monitor unit resumes the automatic inspection operation again. Although this requires

some extent of implementation time involving the actual operation of the riding car, this ensures more reliable inspection operation by the automatic inspection operation of the elevator. During the automatic inspection operation, convenience for general users can also be ensured.

However, the technique according to Patent Literature 1 has the following problems. Generally, to avoid a failure of a device in each unit of an elevator beforehand, a state of the device needs to be precisely grasped by surely performing periodic inspection and check. However, in the case where the car call is generated to the riding car during the automatic inspection operation, the automatic inspection operation is paused at each time, and after the ordinary operation is performed, the automatic inspection operation must be resumed (recovered) again. Consequently, there is a drawback that completion of the automatic inspection operation takes a long time. Moreover, the more the items on the automatic inspection, the higher a frequency of pause by users is. Accordingly, the automatic inspection operation is not completed within limited predetermined time. This cannot deny the possibility of reduction in collection efficiency of the inspection results; therefore, such elevator is not practically preferable.

The present invention has been configured to solve these problems, and it is a technological object thereof to provide an automated inspection system for elevator that can accurately inspect and check each device and a control operation of an elevator periodically and also can ensure service for users by efficiently collecting data.

To solve the above-described technical problems, the present invention provides an automated inspection system for elevator that includes a monitor and a terminal. The monitor is coupled to an elevator control unit. The elevator control unit is coupled to a car-internal operating panel installed inside of a riding car of an elevator that moves up and down multiple stories and floors in an elevator shaft equipped for a building. The elevator control unit is coupled to a stop floor call button installed at each landing floor of the building. The elevator control unit is configured to control an operation of the riding car. The monitor has a function that monitors an operating status of the elevator via the elevator control unit. The monitor has a function that automatically inspects and checks the elevator via the elevator control unit. The terminal is coupled to the monitor via a communication unit. If an error is found from the monitor result, the monitor reports the error to the terminal. The terminal is able to display a plurality of items required for the inspection and check on a display screen. The terminal is able to configure a setting of specifying a date and time of a selected item. The monitor includes an automatic inspection command unit. The automatic inspection command unit is configured to instruct the elevator control unit to automatically perform the inspection and check on the selected items at the specified date and time set in the terminal. The automatic inspection command unit is also configured to instruct the elevator control unit to pause the inspection and check in execution.

According to the automated inspection system for elevator

of the present invention, the monitor has a function that automatically inspects and checks an elevator via the elevator control unit. The elevator control unit controls an operation of the riding car of the elevator. The terminal is coupled to the monitor via the communication means. The terminal has a display screen. A date and time of an item selected among a plurality of items required for inspection and check displayed on the display screen is specified and set. The automatic inspection command unit of the monitor executes a command to automatically perform the inspection and check on the selected item at the specified date and time and a command to pause the inspection and check during execution to the elevator control unit as needed. This allows periodically inspects and checks each device and the control operation of the elevator accurately, efficiently collecting data and ensuring service for users.

BRIEF DESCRIPTION OF THE DRAWINGS

Embodiments of the present invention will be described in detail based on the following drawings, in which:

FIG. 1 is a schematic block view illustrating a basic configuration of an automated inspection system for elevator according to Embodiment 1 of the present invention;

FIG. 2 illustrates exemplary data of setting screen required for automatic inspection and check displayed on a display screen of a terminal included in the automated inspection system for elevator illustrated in FIG. 1;

FIG. 3 illustrates exemplary data of an automatic inspection status screen in accordance with automatic inspection

and check displayed on the display screen of the terminal included in the automated inspection system for elevator illustrated in FIG. 1;

FIG. 4 illustrates exemplary data of an inspection result screen in accordance with automatic inspection and check displayed on the display screen of the terminal included in the automated inspection system for elevator illustrated in FIG. 1; and

FIG. 5 illustrates exemplary data of an inspection recording table screen that includes an inspection result in accordance with the automatic inspection and check displayed on the display screen of the terminal included in the automated inspection system for elevator illustrated in FIG. 1.

DETAILED DESCRIPTION

An automated inspection system for elevator of the present invention will be described in detail herein below by giving embodiments with reference to the drawings.

(Embodiment 1)

FIG. 1 is a schematic block view illustrating a basic configuration of the automated inspection system for elevator according to Embodiment 1 of the present invention. The automated inspection system for elevator includes a monitor 5 coupled to a control unit (elevator control unit) 4. The control unit 4 is coupled to a car-internal operating panel 2 installed inside of a riding car 1 of the elevator, which moves up and down the multiple stories and floors, in an elevator shaft 16 equipped for a building. The control unit 4 is coupled to a stop floor call

button 3 installed at each landing floor of the building (each elevator hall). The control unit 4 controls an operation of the riding car 1. The monitor 5 monitors an operating status of the elevator via the control unit 4. The monitor 5 has the following basic functions. The monitor 5 automatically inspects and checks the elevator via the control unit 4. Besides, the monitor 5 is coupled to a plurality of terminals (here, which mean a control center 7, a maintenance-site remote monitoring terminal 10, and a maintenance terminal 11, which will be described later) via communication means (here, the communication means includes a communication unit 5A or a telephone line 6 coupled to the communication unit 5A, which will be described later). If an error is found from a monitor result, the monitor 5 reports the error to each terminal via the communication means.

Among them, the riding car 1 internally includes the car-internal operating panel 2. The car-internal operating panel 2 is accompanied by stop floor registration where a stop floor is specified by a user, commands to open and close a car door, and various button operations to call for telephone call to outside in case of emergency. The riding car 1 itself is coupled to a balance weight 8 with ropes. The ropes are wound around a hoisting machine 9 installed in a machine room upward of an elevator shaft 16 (may be installed in the elevator shaft 16). A driving force by the hoisting machine 9 moves up and down the riding car 1. The control unit 4 is coupled to various buttons of the car-internal operating panel 2 and the stop floor call button 3 at each floor. In a basic operation, the control unit 4 executes a control that moves the riding car 1 to the floor

specified by a stop floor registration with a stop floor registration button of the car-internal operating panel 2 and the floor specified by a car call with the stop floor call button 3.

The monitor 5 coupled to the control unit 4 includes the communication unit 5A, an automatic inspection command unit 5B, and an inspection result storage unit 5C. The communication unit 5A communicates with an outside. The automatic inspection command unit 5B instructs to the control unit 4. The instruction includes: a command to automatically perform inspection and check on selected items at a specified date and time in accordance with setting that specifies a date and time for the items selected from a plurality of items required for inspection and check displayed on a display screen of each terminal (here, the terminal mainly corresponds to the control center 7 and the maintenance-site remote monitoring terminal 10) via the communication unit 5A; and a command to pause inspection and check in execution. The inspection result storage unit 5C sequentially obtains results of automatic inspection and check via the control unit 4 and temporarily stores the results. Here, the automatic inspection command unit 5B includes an inspection date and time specification unit 5B1, an inspection item table 5B2, an automatic inspection command unit 5B3, and an automatic inspection pause command unit 5B4. The inspection date and time specification unit 5B1 stores a specified date and time required for inspection and check specified by input from each external terminal (here, the terminal also mainly corresponds to the control center 7 and the maintenance-site remote monitoring terminal 10) via the communication unit 5A and manages the data.

The inspection item table 5B2 is for selecting an inspection item that stores a specified item preliminary selected and set among a plurality of items required for inspection and check performed at the specified date and time managed by the inspection date and time specification unit 5B1 and manages the data. The automatic inspection command unit 5B3 issues a command to perform inspection and check on an item selected and set at the specified date and time. The automatic inspection pause command unit 5B4 issues a command to pause inspection and check on an item selected and set in cases where any failure occurs during inspection and check, a third person registers a stop floor with the stop floor registration button, which registers a stop floor, in the car-internal operating panel 2, and car call is generated with the stop floor call button 3, for example.

Further, each terminal (the control center 7, the maintenance-site remote monitoring terminal 10, and the maintenance terminal 11) can display a plurality of items required for inspection and check on inspection setting units 7B2, 10B2, and 11B2 of monitor screens 7B, 10B, and 11B, which are display screens attached to the terminal, and configure a setting of specifying a date and time of the selected item. Besides, the terminal obtains results of automatic inspection and check performed via the inspection result storage unit 5C and the communication means (here, this also indicates a configuration including the communication unit 5A of the monitor 5 or the telephone line 6 coupled to the communication unit 5A) of the monitor 5 via respective communication units 7A, 10A, and 11A, and displays the results on monitoring monitors 7B1, 10B1, and

11B1 of the monitor screens 7B, 10B, and 11B, which are attached display screens. That is, the monitor screens 7B, 10B, and 11B include monitoring monitors 7B1, 10B1, and 11B1 and the inspection setting units 7B2, 10B2, and 11B2. The monitoring monitors 7B1, 10B1, and 11B1 display results of automatic inspection and check. The inspection setting units 7B2, 10B2, and 11B2 are for setting by inputting or specifying specified date and time and items required for the inspection and check.

The following describes details of each terminal (the control center 7, the maintenance-site remote monitoring terminal 10, the maintenance terminal 11). The control center 7 is coupled to the communication unit 5A of the monitor 5 via the telephone line 6 (besides, communication means such as optical communications and wireless LAN are applicable) and installed at a remote location. The control center 7 obtains results of automatic inspection and check stored in the inspection result storage unit 5C via the communication unit 7A and accumulates and stores the data in a database 7C. The monitoring monitor 7B1 of the monitor screen 7B can display an inspection result recording table generated by reflecting the automatic inspection and check results, which are accumulated and stored in the database 7C. The inspection result recording table can be printed via the communication unit 7A. In an ordinary operation, the monitor screen 7B basically displays a running state of the elevator during maintenance obtained at the communication unit 7A via the communication unit 5A of the monitor 5 and the telephone line 6 without via the inspection result storage unit 5C. However, here, the monitor screen 7B especially displays the monitoring monitor

7B1 and the inspection setting unit 7B2 with the above-described roles for inspection and check. Incidentally, the database 7C with a large capacity that can collectively store the results of automatic inspection and check on each elevator is employed.

The maintenance-site remote monitoring terminal 10 is coupled to the communication unit 7A of the control center 7 and installed at a remote location, which will be a maintenance site. The maintenance-site remote monitoring terminal 10 has a function that obtains the inspection result recording table generated at the control center 7 at the communication unit 10A and prints the data. Besides, similarly to the case described for the control center 7, in an ordinary operation, the maintenance-site remote monitoring terminal 10 displays the monitoring monitor 10B1 and the inspection setting unit 10B2 with the above-described roles for inspection and check in the monitor screen 10B, which displays a running state of the elevator during maintenance.

The maintenance terminal 11 is coupled to the communication unit 5A of the monitor 5 and carried with the operator on-site. Similarly to the cases described for the control center 7 and the maintenance-site remote monitoring terminal 10, in an ordinary operation, the maintenance terminal 11 displays the monitoring monitor 11B1 and the inspection setting unit 11B2 with the above-described roles for inspection and check in the monitor screen 11B, which displays a running state of the elevator during maintenance, through the communication unit 5A of the monitor 5 via the communication unit 11A.

FIG. 2 illustrates exemplary data of a setting screen 12 required for automatic inspection and check displayed on a

display screen of the terminal (the control center 7 and the maintenance-site remote monitoring terminal 10) included in the automated inspection system for elevator according to Embodiment 1. Here, the setting screen 12 is shown as follows. The setting screen 12 basically displays an automatic inspection date and time setting input unit 12A and an automatic inspection item setting unit 12B in the respective inspection setting units 7B2 and 10B2 in the monitor screens 7B and 10B of the control center 7 or the maintenance-site remote monitoring terminal 10 installed at a remote location from the monitor 5. The automatic inspection date and time setting input unit 12A is employed for inputting and setting the date and time for executing automatic inspection and check. The automatic inspection item setting unit 12B selects and sets items to be inspected among any of a first inspection, a second inspection, a third inspection, ..., $N-1^{\text{th}}$ inspection, and an N^{th} inspection, which are contents of a plurality of any given inspection items for specification. Here, the setting screen 12 can also display the automatic inspection date and time setting input unit 12A and the automatic inspection item setting unit 12B in the inspection setting unit 11B2 of the monitor screen 11B of the maintenance terminal 11 carried with the operator who performs maintenance inspection in the riding car 1, for example.

Here, the date and time required for the automatic inspection and check can be set and at least a part of a plurality of items (all items are possible) can be selected accommodating the following conventional problem. This is because that the car call by a third person, an elevator user, with the stop floor call button 3, for example, pauses the automatic

inspection and check and lengthen working time, preventing ordinary use. The items required to be automatically inspected and checked can be collectively set and summarized to a software at late night hours. However, here, it is obvious that the date and time of performing the automatic inspection and check can be set avoiding the date and time of an event when the elevator is frequently used, such as entertainment, from information on a tentative events calendar provided by the client, for example. Moreover, the monitor 5 can grasp a running trend of running time, for example. Accordingly, the date and time is preferably to be set when the elevator is used at the least frequency in an inspection month (for example, late night hours on Sunday for business premises, early morning hours on weekdays for multitenant buildings where an eating establishment, for example, operates, and a time slot about 2 to 3 p.m. on weekdays for an apartment, for example) so as not to prevent ordinary use as much as possible. The reason for optionally selecting items required for the automatic inspection and check is as follows. Considering prevention of ordinary use, if there is a possibility of prevention of ordinary use due to maximum working time, the working time can be shorten by decreasing the items to important items. Conversely, the items on automatic inspection and check can be selected such that the automatic inspection and check may be performed within the workable time predicted from the recorded running trend considering a degree of importance. Besides, in the case where each floor is automatically inspected and checked in a sequence of flows, if at any given floor there is, for reasons of the building's characteristics, a setting not to stop, the

following situation may occur. The automatic inspection and check at every floor are not completed. The automatic inspection and check are repeatedly retried for many times at the floor where the a setting not to stop is configured, resulting in incompleteness of the work and interference of ordinary use. Considering an application of the elevator by users and the usage conditions, for example, selecting an item is effective from the circumstances that an inconvenient item is not automatically inspected and checked. In this manner, setting the setting date and time and item flexibly by selection in accordance with the characteristics of the building rather than the setting of correctively performing automatic inspection and inspection at late night hours, ensures highly convenient functionality even for a user side.

In any cases, the setting contents configured for the automatic inspection date and time setting input unit 12A and the automatic inspection item setting unit 12B of the setting screen 12 are treated as follows. The date and time for the automatic inspection and check is stored and managed at the inspection date and time specification unit 5B1 of the automatic inspection command unit 5B via the telephone line 6 from the communication unit 7A of the control center 7 and the communication unit 10A of the maintenance-site remote monitoring terminal 10 and through the communication unit 5A of the monitor 5. Then, the item selected and set is stored and managed in the inspection item table 5B2. Therefore, in the monitor 5, when the date and time for the automatic inspection and check stored in the inspection date and time specification unit 5B1 arrives, the automatic

inspection command unit 5B confirms that a user is not present in the riding car 1 (the confirmation method (not illustrated) includes: sensing with a camera image, sensing by a motion sensor, and a load sensing by a load sensor installed below the riding car 1, for example). The automatic inspection command unit 5B3 instructs the control unit 4 to perform the automatic inspection and check on the selected and set item stored in the inspection item table 5B2. Accordingly, the control unit 4 controls the elevator in accordance with the command and starts the operation of the riding car 1. Then, the automatic inspection and check are performed on the specified item. In the case where the car call is generated with the stop floor call button 3 during automatic inspection and check, for example, the automatic inspection pause command unit 5B4 instructs the control unit 4 to pause the automatic inspection and check. Accordingly, the control unit 4 pauses the automatic inspection and check in accordance with the command, and switches the elevator into ordinary operation. After termination of the ordinary operation, the control unit 4 resumes the automatic inspection and check again. However, here, a setting that efficiently performs the automatic inspection and check at the predetermined shortest time is configured. Accordingly, a possibility of pause of the automatic inspection and check during execution is extremely low. After termination of all automatic inspections and checks, the control unit 4 switches the elevator to the ordinary operation. Incidentally, the results of performing each item obtained by the automatic inspection and check are stored in the inspection result storage unit 5C. The results of performing each item stored here are accumulated and

stored to the database 7C via the communication unit 5A and the telephone line 6 through the communication unit 7A of the control center 7.

Meanwhile, the status (a condition) of the results of performing each item obtained by the above-described automatic inspection and check can be checked on the monitoring monitor 7B1 of the monitor screen 7B and the monitoring monitor 10B1 of the monitor screen 10B through the respective communication unit 7A of the control center 7 and the communication unit 10A of the maintenance-site remote monitoring terminal 10 via the communication unit 5A and the telephone line 6. Besides, the results can also be checked in the monitoring monitor 11B1 of the monitor screen 11B via the communication unit 5A through the communication unit 11A of the maintenance terminal 11.

FIG. 3 illustrates exemplary data of an automatic inspection status screen 13 in accordance with automatic inspection and check displayed on the display screen (which indicates the monitoring monitor 7B1 of the monitor screen 7B and the monitoring monitor 10B1 of the monitor screen 10B) of the terminal (the control center 7 and the maintenance-site remote monitoring terminal 10) included in the automated inspection system for elevator. The automatic inspection status screen 13 includes an automatic inspection status unit 13A. In the automatic inspection status unit 13A, the date and time of inspecting every items on the automatic inspection and check and the execution situation of the automatic inspection and check can be confirmed. This function allows viewing the automatic inspection status screen 13 from the maintenance-site remote

monitoring terminal 10 in advance before the operator goes to the site on an inspection date and time. This allows preparing a required tool and preparing a corrective action such as troubleshooting and, for example, in case of abnormal termination of the automatic inspection and check, for example. This ensures smooth inspection and check work on-site, reducing non-operating time of the elevator due to the work. Besides, the automatic inspection status screen 13 also includes a pause button 13B, a resume button 13C, and a result display button 13D. These buttons can instruct to pause the automatic inspection and check in execution and resumption of the automatic inspection and check. These buttons can also instruct transition to a screen showing the inspection results.

FIG. 4 illustrates exemplary data of an inspection result display screen 14 in accordance with automatic inspection and check displayed on the display screen (which indicates the monitoring monitor 7B1 of the monitor screen 7B and the monitoring monitor 10B1 of the monitor screen 10B) of the terminal (the control center 7 and the maintenance-site remote monitoring terminal 10) included in the automated inspection system for elevator according to Embodiment 1. The inspection result display screen 14 displays the inspection result showing a measurement value and an operating situation in accordance with execution of the automatic inspection and check for every inspection item as the inspection result display and the inspection date and time. In the above-described control center 7, since the results of the automatic inspection and check are accumulated and stored in the database 7C, the inspection result

recording table to which the stored data are reflected can be generated and output. The inspection result can be confirmed. In the case where, for example, an error is found by the automatic inspection and check, this allows preparing a required tool and preparing a corrective action such as troubleshooting required for correcting and repairing the error item, for example. After all, this ensures smooth inspection and check work on-site, reducing non-operating time of the elevator due to the work.

FIG. 5 illustrates exemplary data of an inspection recording table screen 15 that includes the inspection result in accordance with the automatic inspection and check displayed on the display screen (which indicates the monitoring monitor 7B1 of the monitor screen 7B and the monitoring monitor 10B1 of the monitor screen 10B) of the terminal (the control center 7 and the maintenance-site remote monitoring terminal 10) included in the automated inspection system for elevator according to Embodiment 1. The inspection recording table screen 15 lists the inspection results of each inspection item as the inspection result recording table. When the inspection recording table screen 15 is preliminarily obtained from the control center 7, printed, and used as an inspection report before the date and time of maintenance and inspection performed by the operator at the maintenance site where the maintenance-site remote monitoring terminal 10 is installed, all instructed items of the inspection and check items that should be performed on the day and the results of the automatic inspection and check previously performed can be grasped. This allows easily determining inspected items and items not yet inspected. In view of this, the

operator can easily perform maintenance and inspection work on the day by referring the inspection report on which the inspection recording table screen 15 is printed and performing the inspection and check only on the inspection and check items not yet performed.

Meanwhile, even with the maintenance terminal 11 carried with the operator on-site, coupling the maintenance terminal 11 to the communication unit 5A of the monitor 5 allows referring the above-described automatic inspection status screen 13, inspection result display screen 14, or inspection recording table screen 15 on the monitoring monitor 11B1 of the monitor screen 11B and performing automatic inspection and check on, for example, an item that has not been previously performed and an item that abnormally terminated.

The above-described automated inspection system for elevator according to Embodiment 1 includes the monitor 5. The monitor 5 has a function that automatically inspects and checks an elevator via the control unit 4. The control unit 4 controls an operation of the riding car 1. Each terminal (the control center 7, the maintenance-site remote monitoring terminal 10, and the maintenance terminal 11) is coupled to the monitor 5 via the communication means (the communication unit 5A and the telephone line 6). The terminal has a display screen (the inspection setting unit 7B2 of the monitor screen 7B, the inspection setting unit 10B2 of the monitor screen 10B, the inspection setting unit 11B2 of the monitor screen 11B). On the display screen, a date and time of an item selected among a plurality of items required for inspection and check displayed on the display screen is

specified and set. The automatic inspection command unit 5B of the monitor 5 executes a command to automatically perform the inspection and check on the selected item at the specified date and time and a command to pause the inspection and check during execution to the control unit 4. This allows periodically inspects and checks each device and the control operation of the elevator accurately, efficiently collecting data and ensuring service for users. In other words, a management side can specify and select a date and time and an item to perform the automatic inspection and check. In automatic inspection and check of the elevator, preliminary specifying time during which the elevator is not used due to circumstances of the building from an operation trend by users, for example, ensures efficiently collecting data of results of many items. This also ensures shortening working time taken for the automatic inspection and check on the day (maintenance inspection working time by an operator) compared with the conventional working time. Accordingly, non-operating time of the elevator for users can be reduced, thus improving service.

In the automated inspection system for elevator according to the above-described Embodiment 1 is targeted for a configuration where the single riding car 1 moves up and down for ease of explanation. However, for the elevators where the riding cars 1 are arranged side by side, the automated inspection systems for elevator are similarly applicable by the number of the riding cars 1 insofar as the control units 4 and the monitors 5 are equipped. Therefore, the automated inspection system for elevator of the present invention is not limited to the one

disclosed in Embodiment 1.

CLAIMS

1. An automated inspection system for elevator, comprising:
a monitor coupled to an elevator control unit, the elevator control unit being coupled to a car-internal operating panel installed inside of a riding car of an elevator that moves up and down multiple stories and floors, in an elevator shaft equipped for a building and a stop floor call button installed at each landing floor of the building, the elevator control unit being configured to control an operation of the riding car, the monitor having a function that monitors an operating status of the elevator via the elevator control unit, the monitor having a function that automatically inspects and checks the elevator via the elevator control unit; and

a terminal coupled to the monitor via a communication unit, if an error is found from the monitor result, the monitor reporting the error to the terminal; wherein

the terminal is able to display a plurality of items required for the inspection and check on a display screen, the terminal being able to configure a setting of specifying a date and time of a selected item, and

the monitor includes an automatic inspection command unit, the automatic inspection command unit being configured to instruct the elevator control unit to automatically perform the inspection and check on the selected items at the specified date and time set in the terminal, the automatic inspection command unit being also configured to instruct the elevator control unit to pause the inspection and check in execution.

2. The automated inspection system for elevator according to claim 1, wherein

the automatic inspection command unit includes:

an inspection date and time specification unit configured to store and manage a specified date and time required for the inspection and check specified through the terminal by input;

an inspection item database for selection of an inspection item, the inspection item database being configured to store and manage a specified item preliminarily selected and set among a plurality of items required for the inspection and check performed at the specified date and time managed by the inspection date and time specification unit;

an automatic inspection command unit configured to issue a command to perform the inspection and check on the item selected and set at the specified date and time; and

an automatic inspection pause command unit configured to issue a command to pause the inspection and check during the inspection and check.

3. The automated inspection system for elevator according to claim 1 or 2, wherein

the monitor includes an inspection result storage unit, the inspection result storage unit being configured to sequentially obtain results of automatic execution of the inspection and check via the elevator control unit and stores the results.

4. The automated inspection system for elevator according to claim 3, wherein

the terminal is able to obtain results of automatic execution of the inspection and check via the inspection result storage unit and the communication unit, the terminal being able to display the results on an attached display screen as a monitor screen.

5. The automated inspection system for elevator according to claim 4, wherein

the terminal includes a control center, the control center being configured to obtain results of automatic execution of the inspection and check stored in the inspection result storage unit via the communication unit, the control center being configured to accumulate and store the results in a database.

6. The automated inspection system for elevator according to claim 5, wherein

the control center is able to display an inspection result recording table on a monitoring monitor of the monitor screen, the inspection result recording table being generated by reflecting results of automatic execution of the inspection and check accumulated and stored in the database, the control center being able to print the inspection result recording table via the communication unit.

7. The automated inspection system for elevator according to claim 6, wherein

the terminal include a maintenance-site remote monitoring terminal coupled to the control center via the communication unit and installed at a remote location, the maintenance-site remote monitoring terminal being configured to obtain the inspection result recording table generated at the control center via the communication unit and print the inspection result recording table.