opened/closed can be taken.

Solution to Problem

In an elevator system according to an embodiment, an imaging unit installed above a doorway of a car to perform an imaging operation to obtain an image of a hall, the doorway of the car and the vicinity of the doorway in an interior of the car; a measuring unit which measures an exposure amount of a specified detection area in the image obtained by the imaging unit; and a controller which adjusts an exposure adjustment parameter of the imaging unit in accordance with the exposure amount measured by the measuring unit, to execute a control such that the exposure amount of the detection area is set to a proper exposure value. While the door is being opened, as the detection area, the controller specifies a detection area in the interior of the car, and notifies the measuring unit of the specified detection area; and while the door is being closed, as the detection area, the controller specifies a detection area in the hall, and notifies the measuring unit as the specified detection area.

According to an aspect, there is provided an elevator system comprising a camera installed above a doorway of a car to obtain an image of vicinity of a door in an interior of the car and set the interior of the car and a hall as an imaging range, and configured to analyze the image obtained by the camera and manage a state of the vicinity of the door, the elevator system comprising: selection means of selecting one of an exposure amount detection area in the interior of the car and an exposure amount detection area in the hall; detection means of detecting an exposure amount of the exposure amount detection area selected by the selection means from the image obtained by the camera; adjustment means of adjusting exposure of the camera to a proper exposure value in accordance with the exposure amount detected by the detection means; and control

means of controlling the selection means to select the exposure amount detection area in the interior of the car while the door changes from a fully-closed state to a fully-opened state, and controlling the selection means to select the exposure amount detection area in the hall while the door changes from a fully-opened state to a fully-closed state.

Advantageous Effects of Invention

According to the embodiment, it is possible to provide an elevator system in which in an imaging operation for the vicinity of the doorway, the quality of an image obtained by the imaging operation when the door is opened/closed can be improved, and more effective countermeasures for ensuring safety when the door is opened/closed can be taken.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram illustrating a configuration of an elevator system according to an embodiment.

FIG. 2 is a view for explaining opening and closing operations of a car as illustrated in FIG. 1, which are performed when the car arrives at a hall.

CLAIMS:

[Claim 1]

An elevator system comprising a camera installed above a doorway of a car to obtain an image of vicinity of a door in an interior of the car and set the interior of the car and a hall as an imaging range, and configured to analyze the image obtained by the camera and manage a state of the vicinity of the door,

the elevator system comprising:

selection means of selecting one of an exposure amount detection area in the interior of the car and an exposure amount detection area in the hall;

detection means of detecting an exposure amount of the exposure amount detection area selected by the selection means from the image obtained by the camera;

adjustment means of adjusting exposure of the camera to a proper exposure value in accordance with the exposure amount detected by the detection means; and

control means of controlling the selection means to select the exposure amount detection area in the interior of the car while the door changes from a fully-closed state to a fully-opened state, and controlling the selection means to select the exposure amount detection area in the hall while the door changes from a fully-opened state to a fully-closed state.

[Claim 2]

The elevator system of Claim 1, further comprising registration means of registering the exposure amount detection area in the interior of the car and the exposure amount detection area in the hall in advance.

[Claim 3]

The elevator system of Claim 1, wherein the adjustment means controls at least any of exposure time, sensitivity and a frame interval of the camera to set the exposure amount to a proper value.

[Claim 4]

The elevator system of Claim 1, wherein the control means executes control in accordance with an instruction to open the door.

[Claim 5]

The elevator system of Claim 1, wherein in a case where the camera is allowed to be set externally with respect to an exposure value, the control means detects a position of the door and fixes or changes the exposure value in accordance with the position of the door.

[Claim 6]

The elevator system of Claim 1, wherein the control means changes the proper exposure value of the adjustment means in accordance with at least one of time and seasons.

[Claim 7]

The elevator system of Claim 6, wherein the control means has a function of learning exposure adjustment, and obtains a

proper exposure value of at least one of the time and the seasons and carries out exposure setting.

[Claim 8]

The elevator system of claim 1, wherein the control means controls the exposure adjustment such that a brightness value of the exposure amount detection area in the interior of the car and a brightness value of the exposure amount detection area in the hall fall within a predetermined range.

[Claim 9]

The elevator system of Claim 1, wherein the control means sets the proper exposure value in accordance with a color of a flooring of a hall of each floor.

[Claim 10]

The elevator system of Claim 9, wherein the control means changes the proper exposure value in accordance with a combination of a time zone and a color of a flooring of a hall of each floor.

[Claim 11]

The elevator system of Claim 1, further comprising:

a sensor installed close to the camera to acquire data regarding a brightness of the hall when the door is opened,

wherein the control means calculates a proper exposure value based on the data regarding the brightness acquired by the sensor, and sets exposure based on the calculated proper exposure value.