ELEVATOR CONTROL SYSTEM

FIELD

Embodiments described herein relate generally to an elevator control system.

BACKGROUND

Recently, mobile terminals such as smartphones and tablet terminals have been widespread. In accordance with this, development of a technology associated with the mobile terminals has also been pursued in the technical field of elevators.

SUMMARY

According to one embodiment, an elevator control system may include a hall call accepting module, a car response module, a door opening time calculator and a door opening/closing controller. The hall call accepting module is configured to accept an input of a hall call generated from a mobile terminal. The car response module is configured to urge a car to respond to a registered floor of the hall call having the input accepted. The door opening time calculator is configured to calculate a door opening time indicating a time to maintain a state of the car after a door of the car is closed, based on number of hall calls having the input accepted. The door opening/closing controller is configured to control opening/closing of the door of the car, based on the calculated door opening time. The elevator control system may further include an image taking means for, if the car arrives at the registered floor of the hall call and the door opens, sequentially taking images of the hall of the registered floor including the car, wherein the door opening time calculating means calculates an extension time to extend the door opening time, based on each of the images taken, and calculates the door opening time again by adding the calculated extension time to the

door opening time.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are incorporated in and constitute a part of the specification, illustrate embodiments of the invention, and together with the general description given above and the detailed description of the embodiments given below, serve to explain the principles of the invention.

FIG. 1 is a diagram showing a schematic structure

CLAIMS:

[Claim 1]

An elevator control system comprising:

hall call accepting means for accepting an input of a hall call generated from a mobile terminal;

car response means for urging a car to respond to a registered floor of the hall call having the input accepted;

door opening time calculating means for calculating a door opening time indicating a time to maintain a state of the car after a door of the car is closed, based on number of hall calls having the input accepted;

door opening/closing control means for controlling opening/closing of the door of the car, based on the calculated door opening time; and

image taking means for, if the car arrives at the registered floor of the hall call and the door opens, sequentially taking images of the hall of the registered floor including the car,

wherein

the door opening time calculating means calculates an extension time to extend the door opening time, based on each of the images taken, and calculates the door opening time again by adding the calculated extension time to the door opening time.

[Claim 2]

The elevator control system of Claim 1, wherein

the hall call accepting means accepts the inputs of one or more hall calls generated from the mobile terminal, and

the door opening time calculating means calculates the door opening time, based on number of hall calls for a same registered floor, of the hall calls having the inputs accepted.

[Claim 3]

The elevator control system of Claim 1, wherein

the door opening time calculating means calculates the door opening time by multiplying an estimated time for each

passenger to get into the car by the number of the hall calls having the inputs accepted.

[Claim 4]

The elevator control system of Claim 1, further comprising:

number-of-passengers-off-car calculating means for calculating number of passengers getting off the car to the hall, based on each of the images taken,

wherein

the door opening time calculating means calculates an estimated time for the passengers to get off the car as a first extension time, based on the calculated number of passengers getting off the car.

[Claim 5]

The elevator control system of Claim 1, further comprising:

number-of-passengers-in-car calculating means for calculating number of passengers getting into the car from the hall, based on each of the images taken,

wherein

the door opening time calculating means does not urge the hall call to be generated from the mobile terminal but an estimated number of passengers to get into the car, based on a difference between the calculated number of passengers and number of hall calls setting the hall to be on the registered floor, and calculates an estimated time for the passengers to get into the car as a second extension time, based on the number of passengers.

[Claim 6]

The elevator control system of Claim 1, wherein

the door opening time calculating means comprises a counter which counts the number of hall calls having the inputs accepted.

[Claim 7]

The elevator control system of Claim 6, wherein

the door opening time calculating means resets a value of the counter if the door of the car is closed by the door opening/closing control means and the car departs to the other floor.

[Claim 8]

The elevator control system of Claim 1, wherein

the door opening/closing control means closes the door of the car without awaiting the calculated door opening time elapsing if it is detected that the passengers are not at the hall, based on each of the images taken.

[Claim 9]

The elevator control system of Claim 1, wherein

the door opening time calculating means determines whether the calculated door opening time exceeds a preset threshold value or not, and

the door opening/closing control means urges a return call to be generated to return the other car to the floor on which the car currently stops, if it is determined that the calculated door opening time exceeds the preset threshold value.