CLAIMS

1. An elevator passenger detection system, comprising:

an image capturing unit capturing an image of a predetermined range including a vicinity of a doorway at which a door is opened or closed, from an inside of a car;

a detection area setting unit setting a detection area on a front return panel provided on at least one of both sides of the doorway, on the captured image obtained by the image capturing unit; and

a detection processing unit detecting presence of a passenger or an object, based on the image in the detection area set by the detection area setting unit, wherein

the detection area setting unit calculates a position of the front return panel on the captured image, based on a design value of each of components of the car, and an installation angle and an angle of view of the image capturing unit, and sets the detection area on the front return panel of the calculated position.

2. An elevator passenger detection system, comprising:

an image capturing unit capturing an image of a predetermined range including a vicinity of a doorway at which a door is opened or closed, from an inside of a car;

a detection area setting unit setting a detection area on a front return panel provided on at least one of both sides of the doorway, on the captured image obtained by the image capturing unit; and

a detection processing unit detecting presence of a passenger or an object, based on the image in the detection area set by the detection area setting unit, wherein

the detection processing unit detects a boundary between

the front return panel and the doorway of the car based on the image in the detection area, and detects presence of a passenger or an object, based on the boundary is interrupted or not.

3. The elevator passenger detection system of claim 1 or 2, wherein

the detection area is set on an inner side surface of the front return panel, on the captured image.

4. The elevator passenger detection system of claim 3, wherein

the detection area is set to have a predetermined width, in a width direction of the inner side surface of the front return panel.

5. The elevator passenger detection system of claim 2, wherein

the detection area setting unit calculates a position of the front return panel on the captured image, based on a design value of each of components of the car, and an installation angle and an angle of view of the image capturing unit, and sets the detection area on the front return panel of the calculated position.

6. The elevator passenger detection system of claim 1 or 2, wherein

the detection processing unit detects presence of a passenger or an object, based on the image in the detection area during an operation of opening the door.

7. The elevator passenger detection system of claim 1 or 2, wherein

the image capturing unit is installed at an upper part of the doorway of the car.

8. The elevator passenger detection system of claim 1 or 2, wherein

the detection processing unit compares images in the detection area on a time-series basis and detects presence of a passenger or an object, based on a difference of each of the images.

9. The elevator passenger detection system of claim 1 or 2, wherein

the detection processing unit compares luminance of images in the detection area in block units, on a time-series basis, and detects presence of a passenger or an object, based on a block including motion.

10. The elevator passenger detection system of claim 1, wherein

the detection processing unit detects a boundary between the front return panel and the doorway of the car based on the image in the detection area, and detects presence of a passenger or an object, based on the boundary is interrupted or not.

11. The elevator passenger detection system of claim 1 or 2, further comprising:

a door open/close controller controlling an operation of opening or closing the door, based on the detection result of the detection processing unit.

12. The elevator passenger detection system of claim 1 or 2, further comprising:

a notification unit attracting attention of a passenger in the car, based on the detection result of the detection processing unit.