WHAT IS CLAIMED IS:

1. An elevator passenger detection system equipped with a camera installed in a car to capture a predetermined range including an inside of the car, the system comprising:

an edge extraction unit extracting, as an edge indicative of a characteristic of a person, a mountain-shaped edge which includes a combination of a direction and an intensity of luminance gradient in two or more directions and in which a luminance value changes in a mountain-shaped pattern, the combination being obtained from each pixel of the captured image of the camera;

a motion detection unit detecting motion of the captured image, based on an edge change obtained by comparing edges extracted by the edge extraction unit between images continuously obtained from the captured image; and

a person detection unit detecting the motion as a person, based on information on the motion detected by the motion detection unit.

2. The elevator passenger detection system of claim 1, wherein the motion detection unit detects the motion from the captured image, based on the luminance difference between the images and the edge change between the images.

3. The elevator passenger detection system of claim 2, wherein the motion detection unit sets a threshold value of the luminance difference lower than a standard value in an area where a number of edges in the captured image is larger than a criterion for determining shadows, and sets the threshold value of the luminance difference higher than the standard value in an area where the number of edges in the captured image is less than the criterion.

4. The elevator passenger detection system of claim 2, wherein the motion detection unit uses the luminance difference in an area

including a large number of edges in the captured image, and uses the edge difference in an area including a small number of edges in the captured image.

5. The elevator passenger detection system of claim 1, wherein the person detection unit detects the motion as a person, based on at least one of a motion pixel distribution, a motion size, and a motion detection count which are obtained as the information on the motion.

6. The elevator passenger detection system of claim 5, wherein the person detection unit detects the motion as a person, based on the information on the motion and the information on the edge.

7. The elevator passenger detection system of claim 6, wherein the person detection unit lowers a determination criterion on the motion pixel distribution or the motion size, in the area including a large number of edges in the captured image.

8. The elevator passenger detection system of claim 6, wherein the person detection unit lowers a determination criterion on the motion detection count, in the area including a large number of edges in the captured image.

9. The elevator passenger detection system of claim 1, further comprising:

a control unit, when the person is detected in a detection area preset in the captured image, executing a responsive process associated with the detection area.

10. The elevator passenger detection system of claim 9, wherein the detection area is set near a door in the car, and

the control unit controls door open and close operations to prevent

the person from being caught by the door during the operation of opening the door of the car.