provided with: an obtaining unit that obtains an image captured by an imaging apparatus in a first state from the imaging apparatus a state of which is switchable between the first state and a second state, that captures an image of an imaging target that is located at a first point in the first state, and that captures an image of the imaging target that is located at a second point, which is located at a forward side along a moving direction of the imaging target than the first point, in the second state; and a controlling unit that switches the imaging apparatus from the first state to the second state by controlling the imaging apparatus on the basis of the image obtained by the obtaining unit.

[0014]

One example aspect of a computer program for solving the technical problem allows a computer to perform the first or second example aspect of the imaging method described above.

[0015]

One example aspect of a recording medium for solving the technical problem is a recording medium on which the one example aspect of the computer program described above is recorded.

Advantageous Effects of Invention

[0016]

According to the example aspect of each of the imaging system, the imaging method, the control apparatus, the computer program and the recording medium described above, it is possible to capture an image of a moving imaging target properly.

Summary

[0016A]

In one aspect, the present disclosure refers to an imaging system comprising, a first imaging apparatus that captures an image of an imaging target that is located at a first point, a second imaging apparatus a focus position of which is set at a second point that is located at a forward side along a moving direction of the imaging target than the first point, and a control apparatus that controls the second imaging apparatus to capture an image of the imaging target that is located at the second point on the basis of the image captured by the first imaging apparatus, wherein the control apparatus (i) determines, on the basis of the image captured by the first imaging apparatus, a first position that is a position of the imaging target located at the first point in the image captured by the first imaging apparatus, (ii) estimates, on the basis of the first position, a second position that is a position of the imaging target in the image captured by the second imaging

apparatus under the assumption that the second imaging apparatus has captured the image of the imaging target that has moved from the first point to the second point, and (iii) controls, on the basis of the second position, the second imaging apparatus to capture the image of the imaging target that is located at the second point.

[0016B]

In another aspect, the present disclosure refers to an imaging method comprising, obtaining an image captured by a first imaging apparatus that captures an image of an imaging target that is located at a first point, and controlling, on the basis of the obtained image, a second imaging apparatus a focus position of which is set at a second point to capture an image of the imaging target located at the second point that is located at a forward side along a moving direction of the imaging target than the first point, wherein the controlling (i) determines, on the basis of the image captured by the first imaging apparatus, a first position that is a position of the imaging target located at the first point in the image captured by the first imaging apparatus, (ii) estimates, on the basis of the first position, a second position that is a position of the imaging target in the image captured by the second imaging apparatus under the assumption that the second imaging apparatus has captured the image of the imaging target that has moved from the first point to the second point, and (iii) controls, on the basis of the second position, the second imaging apparatus to capture the image of the imaging target that is located at the second point.

Brief Description of Drawings

[0017]

[FIG. 1] FIG. 1 is a block diagram that illustrates an entire configuration of an iris authentication system in the present example embodiment.

[FIG. 2] FIG. 2 is a conceptional diagram that illustrates a positional relationship between a wide camera and an iris camera and an authentication target person.

[FIG. 3] FIG. 3 is a block diagram that illustrates a hardware configuration of an iris authentication apparatus in the present example embodiment.

[FIG. 4] FIG. 4 is a block diagram that illustrates a functional block implemented in a CPU of the iris authentication apparatus in the present example embodiment.

[FIG. 5] FIG. 5 is a flow chart that illustrates a flow of an operation of the iris authentication system (namely, an iris authentication operation) in the present example embodiment.

[FIG. 6] FIG. 6 is a planar view that illustrates one example of a wide image.

Claims

1. An imaging system comprising:

a first imaging apparatus that captures an image of an imaging target that is located at a first point;

a second imaging apparatus a focus position of which is set at a second point that is located at a forward side along a moving direction of the imaging target than the first point; and

a control apparatus that controls the second imaging apparatus to capture an image of the imaging target that is located at the second point on the basis of the image captured by the first imaging apparatus, wherein

the control apparatus (i) determines, on the basis of the image captured by the first imaging apparatus, a first position that is a position of the imaging target located at the first point in the image captured by the first imaging apparatus, (ii) estimates, on the basis of the first position, a second position that is a position of the imaging target in the image captured by the second imaging apparatus under the assumption that the second imaging apparatus has captured the image of the imaging target that has moved from the first point to the second point, and (iii) controls, on the basis of the second position, the second imaging apparatus to capture the image of the imaging target that is located at the second point.

2. The imaging system according to claim 1 further comprising:

a first detection apparatus that detects whether or not the imaging target is located at the first point; and

a second detection apparatus that detects whether or not the imaging target is located at the second point.

3. The imaging system according to claim 2, wherein

the first imaging apparatus captures the image of the imaging target that is located at the first point when the first detection apparatus detects that the imaging target is located at the first point,

the second imaging apparatus captures the image of the imaging target that is located at the second point when the second detection apparatus detects that the imaging target is located at the second point.

4. The imaging system according to claim 1, wherein

the second imaging apparatus keeps capturing the image at a desired imaging rate during a period when the imaging target passes through the second point.

5. The imaging system according to claim 1 or 4 further comprising a first detection apparatus that detects whether or not the imaging target is located at the first point,

the first imaging apparatus capturing the image of the imaging target that is located at the first point when the first detection apparatus detects that the imaging target is located at the first point.

6. The imaging system according to claim 1, wherein

in order to estimate the second position on the basis of the first position, the control apparatus (i) estimates, on the basis of the first position, a third position that is a position of the imaging target in the image captured by the first imaging apparatus under the assumption that the first imaging apparatus has captured the image of the imaging target that has moved from the first point to the second point, and (ii) estimates, on the basis of the third position, the second position that is the position of the imaging target in the image captured by the second imaging apparatus under the assumption that the second imaging apparatus has captured the image of the imaging target that has moved from the first point to the second point.

7. The imaging system according to any one of claims 1 to 6 comprising a plurality of second imaging apparatuses,

the control apparatus determining, from the image captured by the first imaging apparatus, a position of the imaging target in the image and, selects, on the basis of the determined position, one second imaging apparatus that captures the image of the imaging target that is located at the second point.

8. An imaging method comprising:

obtaining an image captured by a first imaging apparatus that captures an image of an imaging target that is located at a first point; and

controlling, on the basis of the obtained image, a second imaging apparatus a focus position of which is set at a second point to capture an image of the imaging target located at the second point that is located at a forward side along a moving direction of the imaging target than

the first point, wherein

the controlling (i) determines, on the basis of the image captured by the first imaging apparatus, a first position that is a position of the imaging target located at the first point in the image captured by the first imaging apparatus, (ii) estimates, on the basis of the first position, a second position that is a position of the imaging target in the image captured by the second imaging apparatus under the assumption that the second imaging apparatus has captured the image of the imaging target that has moved from the first point to the second point, and (iii) controls, on the basis of the second position, the second imaging apparatus to capture the image of the imaging target that is located at the second point.

9. A recording medium on which a computer program that allows a computer to execute the imaging method according to claim 8 is recorded.