Claims:

1. A gate apparatus comprising:

an image capturing unit that is provided on a side of a passage, and captures an image of a person entering the passage with an image capturing direction oblique with respect to a traveling direction in which ~~a~~the person passes through the passage;

a half mirror that is provided in front of the image capturing unit in the image capturing direction of the image capturing unit; ~~and~~

a transmitting unit that transmits the image captured by the image capturing unit to an authentication apparatus;

a housing provided on the side of the passage;

a detection unit that is provided on the housing, and detects an entry of the person into the passage; and

a light emitting unit that is positioned on at least a part of a periphery of the half mirror, and emits light at a timing based on a detection result of the detection unit such that the light is irradiated to a face of the person, wherein

the image capturing unit operates at the timing based on the detection result of the detection unit.

2. The gate apparatus according to claim 1, wherein

the detection unit comprises a plurality of human sensors that determines a position where the person exists in the traveling direction in the passage,

the light emitting unit determines the position where the person exists in the passage based on detection results of the human sensors, and emits light at the timing in accordance with a photographing timing of the image capturing unit when the person exists at a position suitable for an image capturing position by the image capturing unit.

3. The gate apparatus according to claim 1, wherein

the light emitting unit emits light when a size of the face of the person to be authenticated or a distance between eyes satisfies a predetermined criterion.

~~2. The gate apparatus according to claim 1, further comprising:~~

~~a housing provided on the side of the passage; and~~

~~a detection unit that is provided on the housing, and detects an entry of a person into the passage, wherein~~

~~the image capturing unit operates at a timing based on a detection result of the detection unit.~~

~~3. The gate apparatus according to claim 2, further comprising~~

~~a light emitting unit that is positioned on at least a part of a periphery of the half mirror, and emits light at the timing based on the detection result of the detection unit.~~

4. The gate apparatus according to claim 2 or 3, wherein

the image capturing unit is installed on an upper portion of the housing.

5. The gate apparatus according to claim 4, further comprising

a second housing that accommodates the image capturing unit and has the half mirror on ~~one~~a front surface of the image capturing unit.

6. The gate apparatus according to claim 5, wherein

the housing has a side surface on the passage, a part of the side surface having a protruding portion on ~~of~~ the housing ~~protruding~~which protrudes toward the passage side, and

an end portion on a passage side in the second housing is positioned at the protruding portion on the housing.

7. The gate apparatus according to claim 6, wherein

the protruding portion of the housing incorporates a rotation shaft of a flapper.

8. The gate apparatus according to claim 6 or 7, further comprising

a display unit that is provided in back of the half mirror.

9. The gate apparatus according to claim 8, wherein

a transmittance of the half mirror is 20% or more.

10. The gate apparatus according to any one of claims 1 to 9, wherein

a film of the half mirror is not formed in front of a lens of the image capturing unit.

11. A control method of a gate apparatus including:

an image capturing unit that is provided on a side of a passage, captures an image of a person entering and passing through the passage with an image capturing direction oblique with respect to a traveling direction in which ~~a~~the person passes through the passage; and

a half mirror that is provided in front of the image capturing unit in the image capturing direction of the image capturing unit, the control method comprising: by the gate apparatus,

causing the image capturing unit to capture ~~an~~the image of ~~a~~the person passing through the passage; and

transmitting the image captured by the image capturing unit to an authentication apparatus; wherein

the gate apparatus further includes:

a housing provided on the side of the passage;

a detection unit provided on the housing; and

a light emitting unit positioned on at least a part of a periphery of the half mirror, and

the control method further includes, by the gate apparatus,

detecting an entry of the person into the passage by using the detection unit;

causing the light emitting unit to emit light at a timing based on a detection result such that the light is irradiated to a face of the person; and

causing the image capturing unit to operate at the timing based on the detection result of the entry of the person.

12. The control method according to claim 11, wherein

the detection unit comprises a plurality of human sensors that determines a position where the person exists in the traveling direction in the passage,

the control method further includes, by the gate apparatus,

determining the position where the person exists in the passage based on detection results of the human sensors;

causing the light emitting unit to emit light at the timing in accordance with a photographing timing of the image capturing unit when the person exists at a position suitable for an image capturing position by the image capturing unit.

13. The control method according to claim 11, further including, by the gate apparatus,

causing the light emitting unit to emit light when a size of the face of the person to be

authenticated or a distance between eyes satisfies a predetermined criterion.

~~12. The control method according to claim 11, further comprising: by the gate apparatus further including a housing provided on a side of the passage,~~

~~detecting an entry of a person into the passage by using a detection unit provided on the housing; and~~

~~causing the image capturing unit to operate at a timing based on a detection result of an entry of the person.~~

~~13. The control method according to claim 12, further comprising, by the gate apparatus, causing a light emitting unit positioned on at least a part of a periphery of the half mirror to emit light at the timing based on the detection result.~~

14. The control method according to claim 12 or 13, wherein

the image capturing unit is installed on an upper portion of the housing.

15. The control method according to claim 14, wherein

the gate apparatus further includes a second housing accommodating the image capturing unit and having the half mirror on ~~one~~a front surface of the image capturing unit.

16. The control method according to claim 15, wherein

the housing has a side surface on the passage, a part of the side surface having a protruding portion on ~~of~~ the housing ~~protruding~~which protrudes toward the passage side, and

an end portion on a passage side in the second housing is positioned at the protruding portion on the housing.

17. The control method according to claim 16, wherein

the protruding portion of the housing incorporates a rotation shaft of a flapper.

18. The control method according to claim 16 or 17, wherein

the gate apparatus further includes a display unit provided in back of the half mirror.

19. The control method according to claim 18, wherein

a transmittance of the half mirror is 20% or more.

20. The control method according to any one of claims 11 to 19, wherein

a film of the half mirror is not formed in front of a lens of the image capturing unit.

21. A computer readable storage medium storing a program for causing a computer ~~that implements~~to implement a gate apparatus, the gate apparatus including:

an image capturing unit that is provided on a side of a passage, and captures an image of a person entering and passing through the passage with an image capturing direction oblique with respect to a traveling direction in which ~~a~~the person passes through the passage; and

a half mirror provided in front of the image capturing unit in the image capturing direction of the image capturing unit, wherein the program causes the computer to execute:

a procedure of causing the image capturing unit to capture ~~an~~the image of ~~a~~the person passing through the passage; and

a procedure of transmitting the image captured by the image capturing unit to an authentication apparatus; wherein

the gate apparatus further includes:

a housing provided on the side of the passage;

a detection unit that is provided on the housing, and detects an entry of the person into the passage; and

a light emitting unit positioned on at least a part of a periphery of the half mirror, and

the program further causes the computer to execute:

a procedure of detecting an entry of the person into the passage by using the detection unit;

a procedure of causing the light emitting unit to emit light at a timing based on a detection result of the detection unit such that the light is irradiated to a face of the person; and

a procedure of causing the image capturing unit to operate at the timing based on the detection result of the detection unit.

22. The computer readable storage medium storing the program according to claim 21, wherein

the detection unit comprises a plurality of human sensors that determines a position where the person exists in the traveling direction in the passage,

the program further causes the computer to execute:

a procedure of determining the position where the person exists in the passage based on

detection results of the human sensors;

a procedure of causing the light emitting unit to emit light at the timing in accordance with a photographing timing of the image capturing unit when the person exists at a position suitable for an image capturing position by the image capturing unit.

23. The computer readable storage medium storing the program according to claim 21, further causing the computer to execute

a procedure of causing the light emitting unit to emit light when a size of the face of the person to be authenticated or a distance between eyes satisfies a predetermined criterion.

~~22. The computer readable storage medium storing the program according to claim 21, wherein the gate apparatus further includes:~~

~~a housing provided on the side of the passage; and~~

~~a detection unit that is provided on the housing, and detects an entry of a person into the passage, the program causing a computer to execute:~~

~~a procedure of detecting an entry of a person into the passage by using the detection unit; and~~

~~a procedure of causing the image capturing unit to operate at a timing based on a detection result of the detection unit.~~

~~23. The computer readable storage medium storing the program according to claim 22, wherein~~

~~the gate apparatus further includes a light emitting unit positioned on at least a part of a periphery of the half mirror, the program causing a computer to execute~~

~~a procedure of causing the light emitting unit to emit light at the timing based on the detection result of the detection unit.~~

24. The computer readable storage medium storing the program according to claim 22 or 23, wherein

the image capturing unit is installed on an upper portion of the housing.

25. The computer readable storage medium storing the program according to claim 24, wherein

the gate apparatus further includes a second housing accommodating the image capturing unit and having the half mirror on ~~one~~a front surface of the image capturing unit.

26. The computer readable storage medium storing the program according to claim 25, wherein

the housing has a side surface on the passage, a part of the side surface having a protruding portion on ~~of~~ the housing ~~on a side of the passage protruding~~which protrudes toward the passage side, and

an end portion on a passage side in the second housing is positioned at the protruding portion on the housing.

27. The computer readable storage medium storing the program according to claim 26, wherein

the protruding portion of the housing incorporates a rotation shaft of a flapper.

28. The computer readable storage medium storing the program according to claim 26 or 27, wherein

the gate apparatus further includes a display unit provided in back of the half mirror.

29. The computer readable storage medium storing the program according to claim 28, wherein

a transmittance of the half mirror is 20% or more.

30. The computer readable storage medium storing the program according to any one of claims 21 to 29, wherein

a film of the half mirror is not formed in front of a lens of the image capturing unit.