CLAIMS

[Claim 1] A detection system comprising a mobile terminal carried by a person and a detection device which detects a position of the person,

wherein the mobile terminal has

a terminal-side stationary state detection unit to detect a terminal-side time expressing a duration time of a stationary state of the mobile terminal with using a motion sensor, and

a transmission control unit to transmit the terminal-side time and identification information which identifies the mobile terminal, and

wherein the detection device comprises

a reception control unit to receive the terminal-side time and the identification information,

a position detection unit to detect a person position from an image by image analysis of the image photographed by a photographing device,

a device-side stationary state detection unit to detect a device-side time indicating a duration time of a stationary state of the person existing in the image by image analysis, and to compare the device-side time with the terminal-side time, and

an associating unit to decide whether or not to associate the person position with the received identification information in accordance with a comparison result of the terminal-side time and the device-side time.

[Claim 2] The detection system according to claim 1,

wherein the terminal-side time is a time length fixed as a regulation value,

wherein the device-side time is a time from stationary state start to reception of the terminal-side time, and

wherein when the duration time of the stationary state of the mobile terminal

reaches the regulation value, the transmission control unit transmits the identification information and the terminal-side time.

[Claim 3] A mobile terminal carried by a person, comprising:

a terminal-side stationary state detection unit to detect a terminal-side time expressing a duration time of a stationary state of the mobile terminal with using a motion sensor; and

a transmission control unit to transmit the terminal-side time and identification information which identifies the mobile terminal,

wherein the transmission control unit determines a transmission destination device to which the identification information and the terminal-side time should be transmitted, from among a plurality of detection devices which detect a person position by image analysis and which associate the person position with the identification information identifying the mobile terminal, on a basis of characteristics of electric waves transmitted by each of the plurality of detection devices, and transmits the identification information and the terminal-side time to the determined transmission destination device.

[Claim 4] The mobile terminal according to claim 3,

wherein the transmission control unit requests the transmission destination device to transmit ultrasonic waves, and upon reception of the ultrasonic waves, transmits the identification information and the terminal-side time to the transmission destination device.

[Claim 5] The mobile terminal according to claim 3 or 4,

wherein after transmitting the identification information and the terminal-side time, when the transmission control unit receives from the transmission destination device a failure notice notifying failure of associating the person position with the

identification information, the transmission control unit determines another transmission destination device to which the identification information and the device-side time should be transmitted, from among the plurality of detection devices.

[Claim 6] The mobile terminal according to claim 4 or 5, further comprising

a movement detection unit to transmit the identification information and a delete instruction which instructs deletion of information indicating associated relation of the identification information and the person position with each other, when a movement continuation state of a predetermined period of time of the mobile terminal is detected with the motion sensor.

[Claim 7] A detection device comprising:

a reception control unit to receive identification information which identifies a mobile terminal carried by a person, and a terminal-side time expressing a duration time of a stationary state of the mobile terminal and detected by the mobile terminal with using a motion sensor, from the mobile terminal;

a position detection unit to detect a person position from an image by image analysis of the image photographed by a photographing device;

a device-side stationary state detection unit to detect a device-side time indicating a duration time of a stationary state of the person existing in the image by image analysis, and to compare the device-side time with the terminal-side time; and

an associating unit to decide whether or not to associate the person position with the received identification information in accordance with a comparison result of the terminal-side time and the device-side time.

[Claim 8] The detection device according to claim 7,

wherein when it is determined that the person position will not be associated with the received identification information, the associating unit transmits a failure

notice notifying a failure of associating the person position with the identification information.

[Claim 9] The detection device according to claim 7 or 8, further comprising an ultrasonic wave transmission device,

wherein when the reception control unit receives from the mobile terminal a transmission request requesting ultrasonic wave transmission, the reception control unit causes the ultrasonic wave transmission device to transmit ultrasonic waves.

[Claim 10] The detection device according to any one of claims 7 to 9,

wherein upon reception of the identification information and a delete instruction which instructs deletion of information indicating associated relation of the identification information and the person position with each other, the associating unit deletes the associated relation of the identification information and the person position with each other.

[Claim 11] A transmission program which causes a mobile terminal being a computer carried by a person, to execute:

a terminal-side stationary state detection process of detecting a terminal-side time expressing a duration time of a stationary state of the mobile terminal with using a motion sensor, and

a transmission control process of transmitting the terminal-side time and identification information which identifies the mobile termina.,

wherein the transmission control process comprises determining a transmission destination device to which the identification information and the terminal-side time should be transmitted, from among a plurality of detection devices which detect a person position by image analysis and which associate the person position with the identification information identifying the mobile terminal, on a basis of characteristics

of electric waves transmitted by each of the plurality of detection devices, and transmitting the identification information and the terminal-side time to the determined transmission destination device.

[Claim 12] A detection program which causes a computer to execute:

a reception control process of receiving identification information which identifies a mobile terminal carried by a person, and a terminal-side time expressing a duration time of a stationary state of the mobile terminal and detected by the mobile terminal with using a motion sensor, from the mobile terminal;

a position detection process of detecting a person position from an image by image analysis of the image photographed by a photographing device;

a device-side stationary state detection process of detecting a device-side time indicating a duration time of a stationary state of the person existing in the image by image analysis, and comparing the device-side time with the terminal-side time; and

an associating process of deciding whether or not to associate the person position with the received identification information in accordance with a comparison result of the terminal-side time and the device-side time.