[0005]
In this case, a conventional built structure management system according to PTL 1 controls an air conditioner that is an air conditioning device to adjust the temperature and humidity of air in the indoor space to predetermined temperature and predetermined humidity. However, this built structure management system often controls the air conditioner after the temperature and the humidity of air in the indoor space have greatly changed. Accordingly, a comfortable indoor environment may not be provided.
[0006]
Embodiments of the present disclosure provide an air quality control system, an air quality control method, and a program that provide a more comfortable indoor environment than the environment that a conventional technology provides.

[Solution to Problem]
[0007]
An air quality control system according to an aspect of the present disclosure includes: an air conditioner that adjusts temperature and humidity of air in a first indoor space in a building; a first ventilator that supplies outdoor air to the first indoor space and discharges the air in the first indoor space to outside of the first indoor space; a first air cleaner that cleans the outdoor air by removing a pollutant contained in the outdoor air when the first ventilator supplies the outdoor air to the first indoor space; an indoor sensor that detects an environment of the first indoor space; ~~and~~ a control device ~~that controls the air conditioner and the first ventilator and causes the air conditioner and the first ventilator to cooperate with each other, based on the environment of the first indoor space that is a result of detection by the indoor sensor~~; a second ventilator that discharges air in a second indoor space in the building to outside of the second indoor space, the second indoor space being different from the first indoor space; a second air cleaner that at least deodorizes or disinfects the air in the second indoor space; and a second occupancy sensor that detects a user present in the second indoor space, wherein the control device controls the air conditioner and the first ventilator and causes the air conditioner and the first ventilator to cooperate with each other to adjust quality of the air in the first indoor space, based on the environment of the first indoor space that is a result of detection by the indoor sensor, the control device decreases output of the second air cleaner and an air discharge quantity of the second ventilator to adjust quality of the air in the second indoor space by causing the second ventilator and the second air cleaner to cooperate with each other when the control device obtains, from the second occupancy sensor, a result of detection indicating that a user is present in the second indoor space, the control device further controls the second ventilator and the second air cleaner when the quality of the air in the first indoor space is to be adjusted, and the control device further controls the first ventilator and the first air cleaner when the quality of the air in the second indoor space is to be adjusted.
[0008]
An air quality control method according to an aspect of the present disclosure includes: adjusting, by an air conditioner, temperature and humidity of air in a first indoor space in a building; supplying, by a first ventilator, outdoor air to the first indoor space and discharging the air in the first indoor space to outside of the first indoor space; cleaning the outdoor air by

removing a pollutant contained in the outdoor air to be supplied to the first indoor space; detecting an environment of the first indoor space; ~~and controlling the air conditioner and the first ventilator and causing the air conditioner and the first ventilator to cooperate with each other, based on the environment of the first indoor space that is a result of detecting the environment of the first indoor space~~providing a control device; discharging, by a second ventilator, air in a second indoor space in the building to outside of the second indoor space, the second indoor space being different from the first indoor space; at least deodorizing or disinfecting, by a second air cleaner, the air in the second indoor space; and detecting, by a second occupancy sensor, a user present in the second indoor space, wherein the controlling device controls the air conditioner and the first ventilator and causes the air conditioner and the first ventilator to cooperate with each other to adjust quality of the air in the first indoor space, based on the environment of the first indoor space that is a result of detection by the indoor sensor, the control device decreases output of the second air cleaner and an air discharge quantity of the second ventilator to adjust quality of the air in the second indoor space by causing the second ventilator and the second air cleaner to cooperate with each other when the control device obtains, from the second occupancy sensor, a result of detection indicating that a user is present in the second indoor space, the control device further controls the second ventilator and the second air cleaner when the quality of the air in the first indoor space is to be adjusted, and the control device further controls the first ventilator and the first air cleaner when the quality of the air in the second indoor space is to be adjusted.

[0009]

A program according to an aspect of the present disclosure is a program for causing a computer to execute the air quality control method.

[Advantageous Effects of Invention]

[0010]

The air quality control system and others according to the embodiments of the present disclosure can provide a more comfortable indoor environment than the environment that a conventional technology provides.

[Brief Description of Drawings]

[0011]

[FIG. 1]

FIG. 1 is a block diagram illustrating an air quality control system according to an embodiment.

[FIG. 2]

FIG. 2 illustrates control commands in the air quality control system according to the embodiment.

[FIG. 3]

FIG. 3 illustrates information indicating an environment of a first indoor space, which is displayed on an operation terminal of the air quality control system according to the embodiment.

[FIG. 4]

FIG. 4 is a flowchart illustrating operation of a first ventilator and an air conditioner according to a concentration of a pollutant contained in air in the first indoor space.

[FIG. 5]

FIG. 5 is a flowchart illustrating operation of the first

~~[CLAIMS]~~CLAIMS

~~[Claim 1]~~

1. An air quality control system comprising:

an air conditioner that adjusts temperature and humidity of air in a first indoor space in a building;

a first ventilator that supplies outdoor air to the first indoor space and discharges the air in the first indoor space to outside of the first indoor space;

a first air cleaner that cleans the outdoor air by removing a pollutant contained in the outdoor air when the first ventilator supplies the outdoor air to the first indoor space;

an indoor sensor that detects an environment of the first indoor space; ~~and~~

a control device~~ that controls the air conditioner and the first ventilator and causes the air conditioner and the first ventilator to cooperate with each other, based on the environment of the first indoor space that is a result of detection by the indoor sensor~~;

a second ventilator that discharges air in a second indoor space in the building to outside of the second indoor space, the second indoor space being different from the first indoor space;

a second air cleaner that at least deodorizes or disinfects the air in the second indoor space; and

a second occupancy sensor that detects a user present in the second indoor space,

wherein the control device controls the air conditioner and the first ventilator and causes the air conditioner and the first ventilator to cooperate with each other to adjust quality of the air in the first indoor space, based on the environment of the first indoor space that is a result of detection by the indoor sensor,

the control device decreases output of the second air cleaner and an air discharge quantity of the second ventilator to adjust quality of the air in the second indoor space by causing the second ventilator and the second air cleaner to cooperate with each other when the control device obtains, from the second

occupancy sensor, a result of detection indicating that a user is present in the second indoor space,

the control device further controls the second ventilator and the second air cleaner when the quality of the air in the first indoor space is to be adjusted, and

the control device further controls the first ventilator and the first air cleaner when the quality of the air in the second indoor space is to be adjusted.

~~[Claim 2]~~

2. The air quality control system according to claim 1,

wherein the indoor sensor includes an air quality sensor that detects a concentration of the pollutant contained in the air in the first indoor space, and

when a result of detection by the air quality sensor indicates that the concentration of the pollutant contained in the air in the first indoor space is higher than or equal to a predetermined concentration, the control device increases an air supply quantity and an air discharge quantity of the first ventilator and increases output of the air conditioner.

~~[Claim 3]~~

3. The air quality control system according to claim 1 or 2,

wherein the indoor sensor includes a first occupancy sensor that detects a user present in the first indoor space, and

when the control device obtains, from the first occupancy sensor, a result of detection indicating that a user is present in the first indoor space, the control device increases an air supply quantity and an air discharge quantity of the first ventilator and increases output of the air conditioner.

~~[Claim 4]~~

~~The air quality control system according to any one of claims 1 to 3, comprising:~~

~~a second ventilator that discharges air in a second indoor~~

~~space in the building to outside of the second indoor space, the second indoor space being different from the first indoor space;~~

~~a second air cleaner that at least deodorizes or disinfects the air in the second indoor space; and~~

~~a second occupancy sensor that detects a user present in the second indoor space,~~

~~wherein the control device decreases at least output of the second air cleaner when the control device obtains, from the second occupancy sensor, a result of detection indicating that a user is present in the second indoor space.~~

~~[Claim 5]~~

4. The air quality control system according to ~~claim 4~~any one of the preceding claims,

wherein when the control device increases an air discharge quantity of the second ventilator, the control device increases an air supply quantity and an air discharge quantity of the first ventilator and increases output of the air conditioner.

~~[Claim 6]~~

5. The air quality control system according to ~~claim 4 or 5~~ any one of the preceding claims,

wherein the control device controls the second ventilator to cause humidity in the second indoor space to be in a range from 0% to 60%, both inclusive.

~~[Claim 7]~~

6. The air quality control system according to any one of ~~claims 1 to 6~~the preceding claims,

wherein the pollutant is at least one of CO_2 and particulate matter (PM).

~~[Claim 8]~~

7. The air quality control system according to any one of ~~claims 1 to 7~~ the preceding claims, comprising:

an operation terminal wirelessly communicable with the control device,

wherein the operation terminal includes a display that displays at least information indicating an environment of the first indoor space.

~~[Claim 9]~~

8. The air quality control system according to claim ~~8~~7,

wherein the operation terminal:

includes a storage that stores one or more control commands for causing the control device to perform control and adjusting the environment of the first indoor space;

selects a control command according to a user from among the one or more control commands by identifying the user; and

transmits the control command selected to the control device.

~~[Claim 10]~~

9. The air quality control system according to any one of ~~claims 1 to 9~~ the preceding claims,

wherein the first ventilator is a heat-exchange ventilator.

~~[Claim 11]~~

~~The air quality control system according to any one of claims 1 to 10,~~

~~wherein the building is located in a region in which temperature and humidity are high.~~

~~[Claim 12]~~

10. An air quality control method comprising:

adjusting, by an air conditioner, temperature and humidity of air in a first indoor space in a building;

supplying, by a first ventilator, outdoor air to the first indoor space and discharging the air in the first indoor space to

outside of the first indoor space;

cleaning the outdoor air by removing a pollutant contained in the outdoor air to be supplied to the first indoor space;

detecting an environment of the first indoor space; ~~and~~

providing a control device~~controlling the air conditioner and the first ventilator and causing the air conditioner and the first ventilator to cooperate with each other, based on the environment of the first indoor space that is a result of detecting the environment of the first indoor space~~;

discharging, by a second ventilator, air in a second indoor space in the building to outside of the second indoor space, the second indoor space being different from the first indoor space;

at least deodorizing or disinfecting, by a second air cleaner, the air in the second indoor space; and

detecting, by a second occupancy sensor, a user present in the second indoor space,

wherein the controlling device controls the air conditioner and the first ventilator and causes the air conditioner and the first ventilator to cooperate with each other to adjust quality of the air in the first indoor space, based on the environment of the first indoor space that is a result of detection by the indoor sensor,

the control device decreases output of the second air cleaner and an air discharge quantity of the second ventilator to adjust quality of the air in the second indoor space by causing the second ventilator and the second air cleaner to cooperate with each other when the control device obtains, from the second occupancy sensor, a result of detection indicating that a user is present in the second indoor space,

the control device further controls the second ventilator and the second air cleaner when the quality of the air in the first indoor space is to be adjusted, and

the control device further controls the first ventilator and the first air cleaner when the quality of the air in the second indoor space is to be adjusted.

~~[Claim 13]~~

11. A program for causing a computer to execute the air quality control method according to claim ~~12~~10.