[DESCRIPTION]

INDOOR ENVIRONMENT CONTROL SYSTEM AND INDOOR ENVIRONMENT CONTROL METHOD

[Technical Field]

[0001]

The present invention relates to an indoor environment control system and an indoor environment control method.

[Background Art]

[0002]

Conventionally, techniques for improving comfort of indoor spaces have been proposed. For example, Patent Literature (PTL) 1 discloses an air-conditioning control technique that accurately calculates the number of people who enter a building from the outside for maintaining comfort and health of people inside the building.

[Citation List]

[Patent Literature]

[0003]

[PTL 1] Japanese Unexamined Patent Application Publication No. 2014-005993

[Summary of Invention]

[Technical Problem]

[0004]

Embodiments of the present invention provide an indoor environment control system that can provide information for and a means of controlling an environment in an indoor space.

[Solution to Problem]

[0005]

According to a first aspect of the present invention, there is provided an indoor environment control system, including: a storage that stores indoor environment profiles each for controlling one or more devices to be used for controlling an indoor environment in a building; an obtainer that obtains indoor environment information indicating at least one of the indoor environment in the building which has been sensed and the indoor environment in the building which is desired by a user, and one or more items of device information relating to the one or more devices; and an information processor that selectively provides one or more of the indoor environment profiles each as a target profile, based on the indoor environment information obtained, wherein the information processor determines whether the target profile can be reproduced by the one or more devices indicated in the one or more items of device information obtained, and provides the target profile when it is determined that the target profile can be reproduced by the one or more devices.

[0005a]

According to a second aspect of the present invention, there is provided an indoor environment control system, including: a storage that stores indoor environment profiles each for controlling one or more devices to be used for controlling an indoor environment in a building; an obtainer that obtains indoor environment information indicating at least one of the indoor environment in the building which has been sensed and the indoor environment in the building which is desired by a user; and an information processor that selectively provides one or more of the indoor environment profiles each as a target profile, based on the indoor environment information obtained, wherein the obtainer further obtains one or more items of device information relating to the one or more devices, and when the indoor environment profiles selected based on the indoor environment information obtained cannot be reproduced by the one or more devices indicated in the one or more items of device

information, the information processor provides one or more control algorithms for the one or more devices for approximating the indoor environment in the building to an indoor environment defined by the target profile.

[0005b]

According to a third aspect of the present invention, there is provided an indoor environment control system, including: a storage that stores indoor environment profiles each for controlling one or more devices to be used for controlling an indoor environment in a building; an obtainer that obtains indoor environment information indicating at least one of the indoor environment in the building which has been sensed and the indoor environment in the building which is desired by a user; and an information processor that selectively provides one or more of the indoor environment profiles each as a target profile, based on the indoor environment information obtained, wherein the obtainer further obtains one or more items of device information relating to the one or more devices, and when the indoor environment profiles selected based on the indoor environment information obtained cannot be reproduced by the one or more devices indicated in the one or more items of device information, the information processor presents a device required for reproducing the target profile.

[0006]

According to a fourth aspect of the present invention, there is provided an indoor environment control method executed by a computer, the indoor environment control method including: storing indoor environment profiles each for controlling one or more devices to be used for controlling an indoor environment in a building; obtaining indoor environment information indicating at least one of the indoor environment in the building which has been sensed and the indoor environment in the building which is desired by a user, and one or more items of device information relating to the one or more devices; selectively providing one or more of the indoor environment profiles as one or more target profiles, based on the indoor environment information obtained; and determining whether the one

or more target profiles can be reproduced by the one or more devices indicated in the one or more items of device information obtained, wherein in the selectively providing of the one or more target profiles, the one or more target profiles are provided when it is determined that the one or more target profiles can be reproduced by the one or more devices.

[0006a]

According to a fifth aspect of the present invention, there is provided an indoor environment control method executed by a computer, the indoor environment control method including: storing indoor environment profiles each for controlling one or more devices to be used for controlling an indoor environment in a building; obtaining indoor environment information indicating at least one of the indoor environment in the building which has been sensed and the indoor environment in the building which is desired by a user, and one or more items of device information relating to the one or more devices; selectively providing one or more of the indoor environment profiles as one or more target profiles, based on the indoor environment information obtained; and providing one or more control algorithms for the one or more devices for approximating the indoor environment in the building to an indoor environment defined by the one or more target profiles, when the indoor environment profiles selected based on the indoor environment information obtained cannot be reproduced by the one or more devices indicated in the one or more items of device information.

[0006b]

According to a sixth aspect of the present invention, there is provided an indoor environment control method executed by a computer, the indoor environment control method including: storing indoor environment profiles each for controlling one or more devices to be used for controlling an indoor environment in a building; obtaining indoor environment information indicating at least one of the indoor environment in the building which has been sensed and the indoor environment in the building which is desired by a user, and one or more items of device information relating to the one or more devices; selectively providing one or more of the indoor environment

profiles as one or more target profiles, based on the indoor environment information obtained; and presenting a device required for reproducing the one or more target profiles when the indoor environment profiles selected based on the indoor environment information obtained cannot be reproduced by the one or more devices indicated in the one or more items of device information.

[0007]

According to a seventh aspect of the present invention, there is provided a program for causing a computer to execute the above aspects of the indoor environment control method.

[Advantageous Effects of Invention]

[0008]

An indoor environment control system according to embodiments of the present invention can provide information for and a means of controlling an environment in an indoor space.

[Brief Description of Drawings]

[0009]

[FIG. 1]

FIG. 1 is a block diagram illustrating a functional configuration of an indoor environment control system according to an embodiment.

[FIG. 2]

FIG. 2 is a diagram illustrating an example of an indoor environment profile.

[FIG. 3]

FIG. 3 is a flowchart illustrating Operation example 1 of

CLAIMS

1. An indoor environment control system, comprising:

a storage that stores indoor environment profiles each for controlling one or more devices to be used for controlling an indoor environment in a building;

an obtainer that obtains indoor environment information indicating at least one of the indoor environment in the building which has been sensed and the indoor environment in the building which is desired by a user, and one or more items of device information relating to the one or more devices; and

an information processor that selectively provides one or more of the indoor environment profiles each as a target profile, based on the indoor environment information obtained, wherein

the information processor determines whether the target profile can be reproduced by the one or more devices indicated in the one or more items of device information obtained, and provides the target profile when it is determined that the target profile can be reproduced by the one or more devices.

2. The indoor environment control system according to claim 1, wherein

the obtainer further obtains outdoor environment information on an outside of the building, and

the information processor selectively provides the one or more of the indoor environment profiles each as the target profile, based on the indoor environment information obtained and the outdoor environment information obtained.

3. An indoor environment control system, comprising:

a storage that stores indoor environment profiles each for controlling one or more devices to be used for controlling an indoor environment in a building;

an obtainer that obtains indoor environment information indicating at least one of the indoor environment in the building which has been sensed and the indoor environment in the building which is desired by a user; and

an information processor that selectively provides one or more of the indoor environment profiles each as a target profile, based on the indoor environment information obtained, wherein

the obtainer further obtains one or more items of device information relating to the one or more devices, and

when the indoor environment profiles selected based on the indoor environment information obtained cannot be reproduced by the one or more devices indicated in the one or more items of device information, the information processor provides one or more control algorithms for the one or more devices for approximating the indoor environment in the building to an indoor environment defined by the target profile.

4. An indoor environment control system, comprising:

a storage that stores indoor environment profiles each for controlling one or more devices to be used for controlling an indoor environment in a building;

an obtainer that obtains indoor environment information indicating at least one of the indoor environment in the building which has been sensed and the indoor environment in the building which is desired by a user; and

an information processor that selectively provides one or more of the indoor environment profiles each as a target profile, based on the indoor environment information obtained, wherein

the obtainer further obtains one or more items of device information relating to the one or more devices, and

when the indoor environment profiles selected based on the indoor environment information obtained cannot be reproduced by the one or more devices indicated in the one or more items of device information, the information processor presents a device required for reproducing the target profile.

5. An indoor environment control system according to claim 1, wherein

the information processor customizes, based on one or more items of use history information on the one or more devices included in the one or more items of device information, the indoor

environment profiles selected based on the indoor environment information, and provides the indoor environment profiles customized each as the target profile.

6. The indoor environment control system according to any one of claims 1 to 5, wherein

the information processor presents the user with (i) information indicating an indoor environment before the indoor environment is controlled using the target profile provided and (ii) information indicating an indoor environment after the indoor environment is controlled using the target profile provided.

7. The indoor environment control system according to any one of claims 1 to 6, wherein

the obtainer further obtains outdoor environment information on an outside of the building, and

the information processor presents the user with (i) information indicating an indoor environment after the indoor environment is controlled using the target profile provided and (ii) information indicating an outdoor environment indicated in the outdoor environment information.

8. The indoor environment control system according to any one of claims 1 to 7, wherein

the obtainer further obtains sensed information indicating an indoor environment in the building which is sensed while or after the indoor environment is controlled using the target profile provided, and

the information processor determines whether the one or more devices need maintenance, based on the sensed information.

9. The indoor environment control system according to claim 8, wherein

when it is determined that the one or more devices need maintenance, the information processor notifies the user that maintenance is necessary.

10. The indoor environment control system according to claim 8, wherein

when it is determined that the one or more devices need maintenance, the information processor places an order for a component to be used for maintenance.

11. The indoor environment control system according to claim 8, wherein

when it is determined that the one or more devices need maintenance, the information processor notifies a maintenance provider that maintenance is necessary.

12. The indoor environment control system according to any one of claims 1 to 11, wherein

the building is a home.

13. The indoor environment control system according to claim 12, wherein

the home is provided with a control device that controls the one or more devices, and

the control device includes the obtainer and the information processor.

14. The indoor environment control system according to claim 12 or 13, wherein

the home includes spaces, and

the indoor environment is controlled for each of the spaces.

15. The indoor environment control system according to any one of claims 12 to 14, wherein

each of the indoor environment profiles stored in the storage is (i) an indoor environment profile to be used in a building other than a home, (ii) an indoor environment profile obtained by the obtainer from an external device, and (iii) regularly updated.

16. An indoor environment control method executed by a computer, the indoor environment control method comprising:

storing indoor environment profiles each for controlling one or more devices to be used for controlling an indoor environment in a building;

obtaining indoor environment information indicating at least one of the indoor environment in the building which has been sensed and the indoor environment in the building which is desired by a user, and one or more items of device information relating to the one or more devices;

selectively providing one or more of the indoor environment profiles as one or more target profiles, based on the indoor environment information obtained; and

determining whether the one or more target profiles can be reproduced by the one or more devices indicated in the one or more items of device information obtained, wherein

in the selectively providing of the one or more target profiles, the one or more target profiles are provided when it is determined that the one or more target profiles can be reproduced by the one or more devices.

17. An indoor environment control method executed by a computer, the indoor environment control method comprising:

storing indoor environment profiles each for controlling one or more devices to be used for controlling an indoor environment in a building;

obtaining indoor environment information indicating at least one of the indoor environment in the building which has been sensed and the indoor environment in the building which is desired by a user, and one or more items of device information relating to the one or more devices;

selectively providing one or more of the indoor environment profiles as one or more target profiles, based on the indoor environment information obtained; and

providing one or more control algorithms for the one or more devices for approximating the indoor environment in the building to an indoor environment defined by the one or more target profiles, when the indoor environment profiles selected based on the indoor environment information obtained cannot be reproduced by the one or more devices indicated in the one or more items of device information.

18. An indoor environment control method executed by a computer, the indoor environment control method comprising:

storing indoor environment profiles each for controlling one or more

devices to be used for controlling an indoor environment in a building;

obtaining indoor environment information indicating at least one of the indoor environment in the building which has been sensed and the indoor environment in the building which is desired by a user, and one or more items of device information relating to the one or more devices;

selectively providing one or more of the indoor environment profiles as one or more target profiles, based on the indoor environment information obtained; and

presenting a device required for reproducing the one or more target profiles when the indoor environment profiles selected based on the indoor environment information obtained cannot be reproduced by the one or more devices indicated in the one or more items of device information.

19. A program for causing a computer to execute the indoor environment control method according to any one of claims 16 to 18.