DESCRIPTION

Title of Invention: APPARATUS MANAGEMENT SYSTEM

Technical Field

The present disclosure relates to a temporary operation method when an abnormality of an apparatus occurs.

Background Art

PTL 1 discloses that temporary operation is performed by remote control when an air conditioner stops due to an abnormality. As a result, even though a repair worker does not go to the site of the apparatus indicating the abnormality, the temporary operation is performed, and comfort of a user is ensured.

Summary of Invention

Technical Problem

When temporary operation is continued for a long period without repair when an abnormality occurs in an apparatus, the apparatus may be damaged.

Solution to Problem

~~An~~According to a first aspect, there is provided an apparatus management system ~~according to a first aspect~~that determines whether temporary operation is possible or not when an abnormality of an apparatus occurs, and performs the temporary operation when possible. The apparatus management system includes a storage unit, an acquisition unit, and an operation content determination unit. The storage unit stores information on repair of the apparatus in association with the abnormality occurring in the apparatus. The acquisition unit acquires the information on the repair of the apparatus and writes the information in the storage unit. The operation content determination unit determines operation content of the temporary operation. The information on the repair of the apparatus includes information on a repair request for the abnormality of the apparatus. The operation content determination unit determines the operation content of the temporary operation in accordance with whether the repair request is present or not.

With the apparatus management system according to the first aspect, since the operation content of the temporary operation is determined in accordance with whether the repair request is present or not, it is possible to reduce the risk of performing the temporary operation to the extent that the apparatus is damaged.

~~An~~In an embodiment of the above apparatus management system ~~according to a second aspect is the system according to the first aspect, in which~~, when the repair request is present, the operation content determination unit determines to perform the temporary

operation. When the repair request is present, the period of the temporary operation is roughly determined. Thus, there is a little risk of damaging the apparatus even when the temporary operation is performed.

~~An~~In an embodiment of the above apparatus management system ~~according to a third aspect is the system according to the first aspect or the second aspect, in which~~, when the repair request is not present, the operation content determination unit determines to perform the temporary operation for a shorter period than a period when the repair request is present in a case where the temporary operation is performed, or determines not to perform the temporary operation.

~~An~~In an embodiment of the above apparatus management system ~~according to a fourth aspect is the system according to the first aspect, in which~~, the operation content determination unit determines to perform high-capacity operation in which the apparatus provides a high capacity when the repair request is present, and determines to perform low-capacity operation in which the apparatus provides a capacity lower than the capacity of the high-capacity operation when the repair request is not present.

~~An~~In an embodiment of the above apparatus management system ~~according to a fifth aspect is the system according to any one of the first aspect to the fourth aspect, in which~~, the operation content determination unit determines the operation content of the temporary operation in accordance with a time until a scheduled repair date and time.

~~An~~In an embodiment of the above apparatus management system ~~according to a sixth aspect is the system according to any one of the first aspect to the fifth aspect, in which~~, the operation content determination unit determines the operation content of the temporary operation in accordance with a season.

~~An~~In an embodiment of the above apparatus management system ~~according to a seventh aspect is the system according to any one of the first aspect to the sixth aspect, in which~~, the information on the repair of the apparatus includes operation data of the apparatus. The operation content determination unit determines the operation content of the temporary operation in accordance with the operation data of the apparatus.

~~An~~In an embodiment of the above apparatus management system ~~according to an eighth aspect is the system according to any one of the first aspect to the seventh aspect, in which~~, the apparatus is an air conditioner. The air conditioner has an indoor unit and an outdoor unit. The outdoor unit includes a compressor. The operation content of the temporary operation includes one or a combination of at least two selected from the group consisting of an operation frequency of the compressor, a number of the compressors to be operated, a number of the outdoor units to be operated, a set temperature of the indoor unit, an air volume of the indoor unit, an air direction of the indoor unit, and a period of the temporary operation.

An embodiment of the above apparatus management system ~~according to a ninth~~

~~aspect is the system according to any one of the first aspect to the eighth aspect, the system~~ further ~~including~~includes an output unit that outputs abnormality information on the abnormality occurring in the apparatus. The output unit outputs the abnormality information corresponding to a performance status of the temporary operation and/or a repair request status.

An embodiment of the above apparatus management system ~~according to a tenth aspect is the system according to any one of the first aspect to the ninth aspect, the system~~ further ~~including~~includes an execution unit that executes the temporary operation based on the determined content of the temporary operation.

An embodiment of the above apparatus management system ~~according to an eleventh aspect is the system according to the first aspect, the system~~ further ~~including~~includes a control unit that controls the apparatus. When the abnormality of the apparatus occurs, the control unit stops operation of the apparatus and performs a first notification to a user of the apparatus. When the temporary operation is started after the operation of the apparatus is stopped and before the apparatus is repaired, the control unit further requests the user to perform a start operation different from a start operation when normal operation of the apparatus is started.

With the apparatus management system according to the ~~eleventh aspect~~above embodiment, when the temporary operation is started, since the user is requested to perform the start operation different from the start operation when the normal operation of the apparatus is started, the user is motivated to make the repair request.

~~An~~In an embodiment of the above apparatus management system ~~according to a twelfth aspect is the system according to the eleventh aspect, in which~~, the start operation is a button operation or a valve operation.

~~An~~In an embodiment of the above apparatus management system ~~according to a thirteenth aspect is the system according to the eleventh aspect or the twelfth aspect, in which~~, the control unit performs a second notification to the user of the apparatus after the temporary operation of the apparatus is started.

With the apparatus management system according to the ~~thirteenth aspect~~above embodiment, since the user is repeatedly notified, the user is motivated to make the repair request.

~~An~~In an embodiment of the above apparatus management system ~~according to a fourteenth aspect is the system according to any one of the eleventh aspect to the thirteenth aspect, in which~~, in the first notification or the second notification, the control unit requests the user to permit early repair, urges the user to permit the early repair, and informs a repairer of content responded by the user to the repair request.

~~An~~In an embodiment of the above apparatus management system ~~according to a fifteenth aspect is the system according to the fourteenth aspect, in which~~, the control unit

acquires a plurality of repair available dates and times for the apparatus from the repairer, presents the plurality of repair available dates and times at the first notification or the second notification, and allows the user to select a repair available date and time to determine a repair date and time.

With the apparatus management system according to the ~~fifteenth aspect~~above embodiment, since the plurality of repair available dates and times are presented, the user can relatively easily request repair.

An embodiment of the above apparatus management system ~~according to a sixteenth aspect is the system according to any one of the eleventh aspect to the fifteenth aspect, the system~~ further ~~including~~includes a display. In the first notification or the second notification, the control unit causes the display to display content of the notification.

~~An~~In an embodiment of the above apparatus management system ~~according to a seventeenth aspect is the system according to the sixteenth aspect, in which~~, at the first notification or at the second notification, the control unit causes the display to display a reason for determining that the apparatus is abnormal, together with the content of the notification.

With the apparatus management system according to the ~~seventeenth aspect~~above embodiment, since the user can know the reason for determining that the apparatus is abnormal, the user can easily understand necessity of the repair request.

~~An~~In an embodiment of the above apparatus management system ~~according to an eighteenth aspect is the system according to the seventeenth aspect, in which~~, the reason for determining that the apparatus is abnormal includes data of the apparatus.

Brief Description of Drawings

Fig. 1A is a schematic configuration diagram of an apparatus management system 1 according to first and third embodiments.

Fig. 1B is a diagram illustrating functions of a calculation unit 10 of the apparatus management system 1 according to the first embodiment.

Fig. 2 is a schematic configuration diagram of an air conditioner 20 that is an example of an apparatus 2 according to the first embodiment.

Fig. 3 is a flowchart illustrating an operation control method for the apparatus 2 in the apparatus management system 1 according to the first embodiment.

Fig. 4 illustrates a display screen of a display 30 that presents application for repair and temporary operation of an apparatus to a user in apparatus management systems 1 and 1a according to the first and second embodiments.

Fig. 5 is a schematic configuration diagram of the apparatus management system 1a according to the second embodiment.