

DESCRIPTION

CEILING FAN

5 TECHNICAL FIELD

[0001]

The present invention relates to a ceiling fan using a DC motor.

BACKGROUND ART

10 [0002]

Conventionally, in a case where a plurality of ceiling fans each using this type of DC motor is installed in a place where action of blades can be seen at once, a user feels uncomfortable when there is a difference in the action of the blades of the plurality of ceiling fans. For such a reason, there is known a
15 ceiling fan controlled so that a rotation speed of blades of a plurality of ceiling fans is kept constant (see, for example, PTL 1).

[0003]

Hereinafter, the ceiling fan is described with reference to FIG. 4.

[0004]

20 As shown in FIG. 4, a main part of ceiling fan body 101 includes DC motor 103, controller 104, blade 105. Controller 104 controls DC motor 103 so that blade 105 acts at a constant rotation speed. Further, lighting 102 for illuminating a room is installed below blade 105 provided at a lower part of ceiling fan body 101.

25 [0005]

In such a conventional ceiling fan using the DC motor, the ceiling fan cannot be operated with a predetermined capacity that the DC motor should

have, depending on an installation state.

[0006]

For example, operation of a ceiling fan which is installed close to a ceiling (distance L_l) is compared with operation of another ceiling fan, having
5 the same specifications and operated at the same speed, which is installed away from the ceiling to some extent (distance L_h).

[0007]

As described in FIG. 5(a), when the ceiling fan is operated at the same rotation speed, a capacity changes depending on a distance to a ceiling surface.

10 In other words, when the ceiling fan is operated at the same rotation speed, power consumption is smaller in a case where the distance to the ceiling surface is larger (a longer case, L_h) as compared with a case where the distance to the ceiling surface is smaller (a shorter case, L_l). In short, a workload decreases.

15 [0008]

Further, a rated capacity of the ceiling fan is determined by power consumption due to constraints, such as an increase in temperature of a component. As a result, a rotation speed at the rated capacity, that is, a rated rotation speed, is determined based on power consumption in a state in which
20 the power consumption is high, that is, in a state in which the ceiling fan is installed at a predetermined distance relatively close to the ceiling.

[0009]

For example, in a case of FIG. 5(a), power consumption of 44 W is maximum power consumption. Also, an operation rotation speed in a case
25 where the ceiling fan is installed at predetermined distance L_l and operated at power consumption of 44 W is a rated rotation speed.

[0010]

When the rated rotation speed is determined in this way, in a case where the ceiling fan is operated in an installation state away from the ceiling (distance L_h), the power consumption becomes 32 W as shown in FIG. 5(a). Accordingly, a margin is generated in constraint conditions, such as the
5 increase in temperature of the component. Further, an output air volume becomes small relative to a rated value (an output in distance L_l).

[0011]

It should be noted that FIG. 5(b) shows a wind speed and an air volume in a case where the conventional ceiling fan installed in the
10 installation state away from the ceiling (distance L_h) is operated at power consumption of 44 W which is the same as the power consumption of the ceiling fan installed at predetermined distance L_l close to the ceiling shown in FIG. 5(a). Both the wind speed and the air volume largely exceed the wind speed and the air volume of the operation at the power consumption of 44 W of
15 the ceiling fan installed at predetermined distance L_l close to the ceiling.

Citation List

Patent Literature

[0012]

PTL 1: Japanese Patent No. 4649934

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SUMMARY

[0013]

In this way, there is a problem in that the conventional ceiling fan cannot be operated with a capacity that the ceiling fan should have, depending
25 on the installation state, in particular, the installation distance from the ceiling.

[0014]

In view of the above, the present disclosure provides a ceiling fan capable of operating with a predetermined capacity irrespective of an installation distance from a ceiling.

[0015]

5 In an aspect, the ceiling fan is provided with a blade, a DC motor for rotating the blade, and a controller for controlling the DC motor. Further, the controller is provided with a rotation speed detector for detecting a rotation speed of the DC motor, a current detector for detecting a current value energized to the DC motor, and a target rotation speed setting unit for setting
10 a target rotation speed of the DC motor. The controller is further provided with a rotation speed controller for controlling the DC motor so that the rotation speed detected by the rotation speed detector becomes the target rotation speed, and a target rotation speed correction unit for performing modification of the target rotation speed so that the current value detected by
15 the current detector falls within a predetermined range.

[0016]

With this configuration, the ceiling fan can be operated with a predetermined capacity irrespective of an installation distance from a ceiling.

20 BRIEF DESCRIPTION OF DRAWINGS

[0017]

FIG. 1 is a configuration diagram showing a ceiling fan according to an exemplary embodiment of the present invention.

FIG. 2 is a block circuit diagram of the ceiling fan according to the
25 exemplary embodiment of the present invention.

FIG. 3 is explanatory diagram showing action patterns of the ceiling fan according to the exemplary embodiment of the present invention.

FIG. 4 is a configuration diagram showing a conventional ceiling fan.

FIG. 5 is diagram comparing capacities in the conventional ceiling fan.

DESCRIPTION OF EMBODIMENT

5 [0018]

Hereinafter, an exemplary embodiment of the present invention is described with reference to the drawings. It should be noted that the following exemplary embodiment is one embodied example of the present invention and does not limit a technical scope of the present invention.

10 Further, the same reference marks are assigned to the same parts throughout the drawings, and description of the parts is omitted. Further, detailed description of respective parts that are not directly related to the present invention is omitted in the respective drawings.

[0019]

15 (EXEMPLARY EMBODIMENT)

As shown in FIG. 1, ceiling fan body 1 according to the present exemplary embodiment is provided with blade 4, DC motor 2 for rotating blade 4, and controller 3 for controlling DC motor 2. Also, remote controller 5 capable of performing wireless communication can be utilized to set an operation state of ceiling fan body 1.

[0020]

Remote controller 5 has an air volume setting button which allows a user to regulate an air volume from ceiling fan body 1, that is, a rotation speed of blade 4. In the present exemplary embodiment, ceiling fan body 1 can be set to three types of air volumes, i.e. “high”, “middle”, and “low”. Remote controller 5 includes buttons corresponding to the respective air volumes. The “high” indicates a maximum air volume blown by ceiling fan body 1, and

the “low” indicates a minimum air volume blown by ceiling fan body 1. The “middle” indicates a middle air volume between “high” and “low”. Also, the maximum air volume can be regarded as an air volume which can be blown at a rated rotation speed set for ceiling fan body 1.

5 [0021]

As shown in FIG. 2, controller 3 is a microcomputer, and controller 3 is controllably connected to DC motor 2. Controller 3 is provided with rotation speed detector 6, current detector 7, target rotation speed correction unit 8, rotation speed controller 9, signal determination unit 10, air volume setting
10 unit 11, target rotation speed setting unit 12, and memory 13.

[0022]

Rotation speed detector 6 counts rotation detection signal (FG) and detects a rotation speed of DC motor 2. Rotation detection signal (FG) is a signal from a Hall sensor provided inside DC motor 2 and serving as a position
15 detection element.

[0023]

Current detector 7 detects a current value energized to DC motor 2.

[0024]

Signal determination unit 10 receives a signal from remote controller 5
20 and analyzes a content of the signal. Types of the signals include “power ON”, “power OFF”, “high” setting, “middle” setting, “low” setting, and the like.

[0025]

Based on a result analyzed by signal determination unit 10, air volume setting unit 11 sets an air volume to be generated from blade 4 connected to
25 DC motor 2 as a set air volume. This set air volume corresponds to, for example, aforementioned “high” indicating the air volume. The set air volume which has been set is, for example, stored in memory 13.

[0026]

Target rotation speed setting unit 12 determines a target rotation speed corresponding to the set air volume set by air volume setting unit 11. Here, the target rotation speed corresponding to the set air volume is a rotation speed required for blade 4 to blow air having the set air volume. The target rotation speed is determined, for example, as follows. The set air volume and the rotation speed of blade 4 required to blow (achieve) the air having the set air volume are previously related to each other and stored in memory 13 as an air volume rotation speed table. Target rotation speed setting unit 12 obtains the set air volume set by air volume setting unit 11, and obtains the rotation speed of blade 4 corresponding to the obtained set air volume from the air volume rotation speed table stored in memory 13. With this configuration, the target rotation speed is determined. The determined target rotation speed is, for example, stored in memory 13.

[0027]

Rotation speed controller 9 compares the target rotation speed set by target rotation speed setting unit 12 with the rotation speed detected by rotation speed detector 6 when driving of ceiling fan body 1 is started. Then, an output instruction to raise the rotation speed is given to DC motor 2 until the rotation speed reaches the target rotation speed. Further, an output instruction to raise or lower the rotation speed is also given for the target rotation speed corrected by target rotation speed correction unit 8. Details of the output instruction are described below.

[0028]

Target rotation speed correction unit 8 compares the current value detected by current detector 7 with a predetermined current value which has been set, thereby correcting the target rotation speed. Correction of the

target rotation speed is performed as follows. The set air volume, a minimum current value corresponding to the set air volume, and a maximum current value corresponding to the set air volume are previously associated with each other, and are stored in memory 13 as an air volume current table. Target
5 rotation speed correction unit 8 obtains the set air volume set by air volume setting unit 11, and obtains the minimum current value and the maximum current value corresponding to the obtained set air volume from the air volume current table. The obtained minimum current value is set to a lower limit of a predetermined range, and the obtained maximum current value is set to an
10 upper limit of the predetermined range. With this configuration, the predetermined range of the current value (a current value range) is determined.

[0029]

Then, target rotation speed correction unit 8 determines whether the
15 current value obtained from current detector 7 falls within the current value range. If the current value falls within the current value range, the target rotation speed is not corrected. On the other hand, if the current value obtained from current detector 7 is larger than the current value range, the target rotation speed is made smaller than a present value at a predetermined
20 rate. Further, if the current value obtained from current detector 7 is smaller than the current value range, the target rotation speed is made larger than a present value at a predetermined rate. With this configuration, the target rotation speed is corrected. The corrected target rotation speed is, for example, stored in memory 13.

25 [0030]

Operation of ceiling fan body 1 with this configuration in the present exemplary embodiment is described below.

[0031]

When a user operates remote controller 5 and starts the operation, signal determination unit 10 analyzes a signal from the remote controller. An analyzed result is stored in memory 13.

5 [0032]

Air volume setting unit 11 receives the analyzed result through memory 13. In a case of “power ON”, controller 3 starts operation of ceiling fan body 1. Also, controller 3 transmits, to air volume setting unit 11 via memory 13, a target set air volume previously set for use at starting of operation (hereinafter, described as an initial target set air volume) as a set air volume. Further, even in a case where the analyzed signal is “high”, “middle”, or “low”, the similarly analyzed result is transmitted to air volume setting unit 11 via memory 13.

[0033]

15 Here, description is given assuming that “power ON” is received and “high”, which is the initial target set air volume, is the set air volume.

[0034]

When air volume setting unit 11 receives “power ON” from signal determination unit 10 via memory 13, air volume setting unit 11 transmits setting of air volume “high” as the set air volume to target rotation speed setting unit 12 via memory 13.

[0035]

Target rotation speed setting unit 12 receives the set air volume “high” from air volume setting unit 11, and then determines target rotation speed corresponding to “high”. Here, the target rotation speed is, for example, “100 rpm” based on the air volume rotation speed table.

[0036]

Rotation speed controller 9 controls the rotation speed of the DC motor to increase so that the rotation speed of DC motor 2 detected by rotation speed detector 6 becomes this target rotation speed of “100 rpm”.

[0037]

5 Rotation speed controller 9 determines, at predetermined time intervals, whether the rotation speed from rotation speed detector 6 has arrived at the target rotation speed. When the rotation speed of DC motor 2 reaches “100 rpm”, rotation speed controller 9 transmits an arrival signal indicating the arrival to target rotation speed correction unit 8.

10 [0038]

Upon reception of the arrival signal, target rotation speed correction unit 8 performs target rotation speed correction processing to be described below.

[0039]

15 Subsequently, respective action patterns in the target rotation speed correction processing are described with reference to FIG. 3.

[0040]

Action pattern P1 shown in FIG. 3(a) indicates a case where the current value of DC motor 2 falls within a set current value range upon
20 reception of the arrival signal (point X in (a)). In other words, target rotation speed correction unit 8 determines whether the current value obtained from current detector 7 falls within the current value range. Since the current value falls within the current value range, target rotation speed correction unit 8 does not correct the target rotation speed. In other words, target rotation
25 speed correction unit 8 maintains this state as it is and continues the operation without modifying the target rotation speed.

[0041]

In this example, the set air volume to be required is “high”, that is, the highest capacity of ceiling fan body 1. Also, in action pattern P1, the current flows through DC motor 2 within the current value range corresponding to “high”. In other words, ceiling fan body 1 can exhibit a predetermined capacity without wasting remaining power.

[0042]

Next, action pattern P2 shown in FIG. 3(b) is described. Action pattern P2 indicates a case where the current value of DC motor 2 falls below the set current value range upon reception of the arrival signal (point X in (b)). In other words, target rotation speed correction unit 8 determines whether the current value obtained from current detector 7 falls within the current value range. Target rotation speed correction unit 8 determines that the current value is smaller than the current value range, that is, the minimum current value. In this case, target rotation speed correction unit 8 modifies the target rotation speed to be larger than the present value at the predetermined rate. As mentioned above, this modification is transmitted to rotation speed controller 9 via memory 13. Rotation speed controller 9 increases the rotation speed of DC motor 2 based on the modified target rotation speed.

[0043]

Target rotation speed correction unit 8 increases the target rotation speed at every fixed time, e.g., every eight seconds, by a fixed rotation speed until the current value of DC motor 2 detected by current detector 7 reaches the set current value range. In action pattern P2 shown in FIG. 3(b), target rotation speed correction unit 8 continuously increases the target rotation speed three times at point X1, point X2, and point X3. At point X4, target rotation speed correction unit 8 determines whether the current value obtained from current detector 7 falls within the current value range, and

determines that the current value falls within the current value range.

Also, target rotation speed correction unit 8 does not correct the target rotation speed. In other words, target rotation speed correction unit 8 maintains this state as it is and continues the operation without modifying the target rotation speed at point X4.

[0044]

In this example, the set air volume to be required is “high”, that is, the highest capacity of ceiling fan body 1. Also, in action pattern P2, the current does not flow through DC motor 2 within the current value range corresponding to “high”. In other words, ceiling fan body 1 wastes the remaining power at point X. Accordingly, ceiling fan body 1 can exhibit the predetermined capacity, i.e., the maximum capacity, at point X4 due to the aforementioned correction of the target rotation speed.

[0045]

Next, action pattern P3 shown in FIG. 3(c) is described. Action pattern P3 indicates a case where the rotation speed of DC motor 2 exceeds the set current value range before reaching the target rotation speed.

[0046]

Even before receiving the arrival signal, target rotation speed correction unit 8 regularly determines whether the current value obtained from current detector 7 exceeds an upper limit of the set current value range, i.e., the maximum current value. In action pattern P3, target rotation speed correction unit 8 determines (detects) that the current value exceeds the maximum current value at point Y where the rotation speed does not reach the target rotation speed.

[0047]

In this case, target rotation speed correction unit 8 decreases the target

rotation speed by a fixed rotation speed so that the current value of DC motor 2 detected by current detector 7 is lowered within the set current value range.

[0048]

After that, target rotation speed correction unit 8 decreases the target rotation speed at every fixed time, e.g., every eight seconds, at the fixed rotation speed until the current value of DC motor 2 detected by current detector 7 reaches the set current value range.

[0049]

In action pattern P3 shown in FIG. 3(c), target rotation speed correction unit 8 continuously decreases the target rotation speed twice at point Y1 and point Y2. At point Y3, target rotation speed correction unit 8 determines whether the current value obtained from current detector 7 falls within the current value range, and determines that the current value falls within the current value range. Also, target rotation speed correction unit 8 does not correct the target rotation speed. In other words, target rotation speed correction unit 8 maintains this state as it is and continues the operation without modifying the target rotation speed at point Y3.

[0050]

For example, this state can occur in a case where ceiling fan body 1 is installed at a distance shorter than an estimated minimum installation distance from the ceiling. In this case, it can be considered that DC motor 2 is overloaded and damaged. Operation of DC motor 2 in the overloaded state can be prevented by the control shown in (c).

[0051]

The above is processing in a case where the set air volume is “high”. Similar processing is performed even in the case of “middle” or “low”. Needless to say, both a maximum current value and a minimum current value

of in a current value range of “middle” are smaller than the maximum current value and the minimum current value in the current value range of “high”, and both a maximum current value and a minimum current value in a current value range of “low” are smaller than the maximum current value and the
5 minimum current value in the current value range of “middle”.

[0052]

Further, switching from “high” to “middle” or “low” can be also dealt with in the aforementioned processing.

[0053]

10 As described above, ceiling fan body 1 can operate the power consumption of DC motor 2, which is a product of energized current and energized voltage, in the set range by performing the target rotation speed correction processing. In other words, ceiling fan body 1 is operated at the set power consumption. Accordingly, ceiling fan body 1 can have an effect of
15 operating with a predetermined capacity irrespective of an installation state from the ceiling.

[0054]

It should be noted that the set air volume used for performing correction of the target rotation speed by the current value may be limited to
20 the maximum air volume. In a case where a user selects “low” or “middle” by using remote controller 5, the correction of the target rotation speed by the current value is not performed, and DC motor 2 is controlled at the fixed rotation speed. On the other hand, only in a case where “high” serving as the maximum air volume is set, the correction of the target rotation speed by the
25 current value is performed, and DC motor 2 is controlled so that the current value of DC motor 2 falls within the set current value range.

[0055]

By controlling in this way, when the set air volume is other than the maximum air volume, the ceiling fan body is operated at the fixed rotation speed. Only in a case where the maximum air volume is set, it is possible to perform correction of the target rotation speed by the current value. In other words, in a case where the set air volume is other than the maximum air volume, as with the conventional ceiling fan, the ceiling fan is operated without giving uncomfortable feeling caused by a difference in the rotation speed of the plurality of set ceiling fans. Only in a case where the maximum air volume “high” is selected, the ceiling fan can have an effect of operating with the predetermined capacity by giving priority to the capacity rather than sense of use.

[0056]

As described above, the ceiling fan according to the exemplary embodiment of the present invention is provided with the blade, the DC motor for rotating the blade, the controller for controlling the DC motor.

Further, the controller is provided with the rotation speed detector for detecting rotation speed of the DC motor, the current detector for detecting a current value energized to the DC motor, and the target rotation speed setting unit for setting a target rotation speed of the DC motor. The controller is further provided with the rotation speed controller for controlling the DC motor so that the rotation speed detected by the rotation speed detector becomes the target rotation speed and the target rotation speed correction unit for performing modification of the target rotation speed so that the current value detected by the current detector falls within the predetermined range.

[0057]

With this configuration, the target rotation speed correction unit corrects the target rotation speed so that the current value energized to the DC

motor falls within the set current value range. The DC motor controller controls the DC motor so that the rotation speed of the DC motor detected by the rotation speed detector becomes the target rotation speed corrected by the target rotation speed correction unit. In other words, the DC motor is controlled so that the current value energized to the DC motor falls within the set current value range. Accordingly, the ceiling fan can have an effect of operating with the predetermined capacity irrespective of the installation state from the ceiling.

[0058]

Further, the controller is provided with the air volume setting unit for receiving the setting of the air volume from a user. The target rotation speed setting unit determines the target rotation speed corresponding to the set air volume set by the air volume setting unit. In a case where the air volume set by the air volume setting unit is set to be the maximum air volume, the target rotation speed correction unit may be configured to perform correction of the target rotation speed.

[0059]

With this configuration, when the set air volume is other than the maximum air volume, the ceiling fan is operated at the fixed rotation speed.

Only in a case where the maximum air volume is set, correction of the target rotation speed by the current value of the DC motor is performed. In other words, in a case where the set air volume is other than the maximum air volume, as with the conventional ceiling fan, the ceiling fan does not give uncomfortable feeling caused by a difference in the rotation speed of the plurality of set ceiling fans. Also, in a case where the maximum air volume requiring the capacity is set, the ceiling fan can have an effect of operating with the predetermined capacity.

[0060]

Further, the rotation speed controller determines arrival of the rotation speed detected by the rotation speed detector at the target rotation speed. In a case where the rotation speed arrives at the target rotation speed, the rotation speed controller transmits arrival information indicating the arrival. The target rotation speed correction unit may be configured to start the processing for modifying the target rotation speed after receiving the arrival information.

[0061]

With this configuration, correction of the target rotation speed is prevented in rotation speed increasing processing during the power ON, and control of the target rotation speed is facilitated.

[0062]

Further, the air volume current table serving as a reference for modifying the target rotation speed may associate the set air volume, the minimum current value corresponding to the set air volume, and the maximum current value corresponding to the set air volume with each other.

[0063]

Since the current value for correcting the target rotation speed is provided as the range from the minimum value to the maximum value, rotation of the DC motor can be smoothly kept as compared with the case where the current value is determined by one point.

INDUSTRIAL APPLICABILITY

[0064]

A ceiling fan according to the present invention is useful as a ceiling fan capable of operating with a predetermined capacity irrespective of an

installation state from a ceiling.

REFERENCE MARKS IN THE DRAWINGS

[0065]

- | | |
|----|--|
| 5 | 1, 101: ceiling fan body |
| | 2, 103: DC motor |
| | 3, 104: controller |
| | 4, 105: blade |
| | 5: remote controller |
| 10 | 6: rotation speed detector |
| | 7: current detector |
| | 8: target rotation speed correction unit |
| | 9: rotation speed controller |
| | 10: signal determination unit |
| 15 | 11: air volume setting unit |
| | 12: target rotation speed setting unit |
| | 13: memory |
| | 102: lighting |

CLAIMS

1. A ceiling fan comprising:
 - a blade;
 - 5 a DC motor for rotating the blade;
 - and a controller for controlling the DC motor, wherein
 - the controller includes
 - a rotation speed detector for detecting a rotation speed of the DC
 - motor,
 - 10 a current detector for detecting a current value energized to the
 - DC motor,
 - a target rotation speed setting unit for setting target rotation
 - speed of the DC motor,
 - a rotation speed controller for controlling the DC motor so that
 - 15 the rotation speed detected by the rotation speed detector becomes the target
 - rotation speed, and
 - a target rotation speed correction unit for performing modification
 - of the target rotation speed so that the current value detected by the current
 - detector falls within a predetermined range.
- 20 2. The ceiling fan according to claim 1, further comprising an air
- volume setting unit for receiving setting of an air volume from a user, wherein
 - the target rotation speed setting unit determines a target rotation speed
 - corresponding to the set air volume set by the air volume setting unit, and
 - 25 the target rotation speed correction unit performs correction of the
 - target rotation speed in a case where the air volume set by the air volume
 - setting unit is setting of a maximum air volume.

3. The ceiling fan according to any one of claims 1 and 2, wherein
the rotation speed controller
determines whether the rotation speed detected by the rotation
5 speed detector has arrived at the target rotation speed, and
in a case where the rotation speed arrives at the target rotation
speed, transmits arrival information indicating the arrival, and
the target rotation speed correction unit starts processing for modifying
the target rotation speed after receiving the arrival information.
10
4. The ceiling fan according to any one of claims 1 and 2, wherein the
target rotation speed correction unit
compares the current value from the current detector with an
upper limit value of the predetermined range set beforehand, and
15 starts the processing for modifying the target rotation speed in a
case where the current value from the current detector exceeds the upper limit
value.
5. The ceiling fan according to claim 2, wherein
20 the controller includes an air volume rotation speed table for storing the
set air volume and a rotation speed corresponding to the set air volume in
association with each other, and
the target rotation speed setting unit determines the target rotation
speed based on the set air volume set by the air volume setting unit and the
25 air volume rotation speed table.
6. The ceiling fan according to claim 3, wherein

the controller includes an air volume rotation speed table for storing the set air volume and the rotation speed corresponding to the set air volume in association with each other, and

the target rotation speed setting unit determines the target rotation speed based on the set air volume set by the air volume setting unit and the air volume rotation speed table.

7. The ceiling fan according to claim 4, wherein

the controller includes an air volume rotation speed table for storing the set air volume and the rotation speed corresponding to the set air volume in association with each other, and

the target rotation speed setting unit determines the target rotation speed based on the set air volume set by the air volume setting unit and the air volume rotation speed table.

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8. The ceiling fan according to claim 2, wherein

the controller includes an air volume current table for storing the set air volume and a current value corresponding to the set air volume in association with each other, and

the target rotation speed correction unit determines a range of the current value serving as a reference for correcting the target rotation speed based on the set air volume set by the air volume setting unit and the air volume current table.

25 9. The ceiling fan according to claim 3, wherein

the controller includes an air volume current table for storing the set air volume and the current value corresponding to the set air volume in

association with each other, and

the target rotation speed correction unit determines a range of the current value serving as a reference for correcting the target rotation speed based on the set air volume set by the air volume setting unit and the air volume current table.

10. The ceiling fan according to claim 4, wherein

the controller includes an air volume current table for storing the set air volume and the current value corresponding to the set air volume in association with each other, and

the target rotation speed correction unit determines a range of the current value serving as a reference for correcting the target rotation speed based on the set air volume set by the air volume setting unit and the air volume current table.

11. The ceiling fan according to claim 8, wherein

the air volume current table stores the set air volume, a minimum current value corresponding to the set air volume, and a maximum current value corresponding to the set air volume in association with each other.

12. The ceiling fan according to claim 9, wherein

the air volume current table stores the set air volume, a minimum current value corresponding to the set air volume, and a maximum current value corresponding to the set air volume in association with each other.

13. The ceiling fan according to claim 10, wherein

the air volume current table stores the set air volume, a minimum

current value corresponding to the set air volume, and a maximum current value corresponding to the set air volume in association with each other.