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(54) PROMPTING METHOD AND APPARATUS FOR COOKER HOOD, DEVICE, STORAGE MEDIUM, AND COOKER HOOD

(57) The present invention provides a prompting method and apparatus for a cooker hood, a device, a storage medium, and a cooker hood. The prompting method includes: obtaining current monitoring data about the cooker hood; determining a current cooking mode based on the current monitoring data; determining a current greasy dirt adhesion amount of the filter cartridge based on the current cooking mode; adding the current greasy dirt adhesion amount and a historical greasy dirt adhesion amount to obtain a current accumulated greasy dirt adhesion amount; and triggering, when the current accumulated greasy dirt adhesion amount is greater than or equal to an accumulated greasy dirt adhesion amount threshold, prompt information about replacing the filter cartridge. When the present invention is adopted, current monitoring data about a cooker hood can be obtained in a cooking process, and a current cooking mode and a current greasy dirt adhesion amount of a filter cartridge of the cooker hood in a current cooking process are obtained based on the current monitoring data. Further, a current accumulated greasy dirt adhesion amount of the filter cartridge is obtained based on the current greasy dirt adhesion amount of the filter cartridge, to further determine in time, based on the current accumulated greasy dirt adhesion amount of filter cartridge, whether the filter cartridge needs to be replaced.

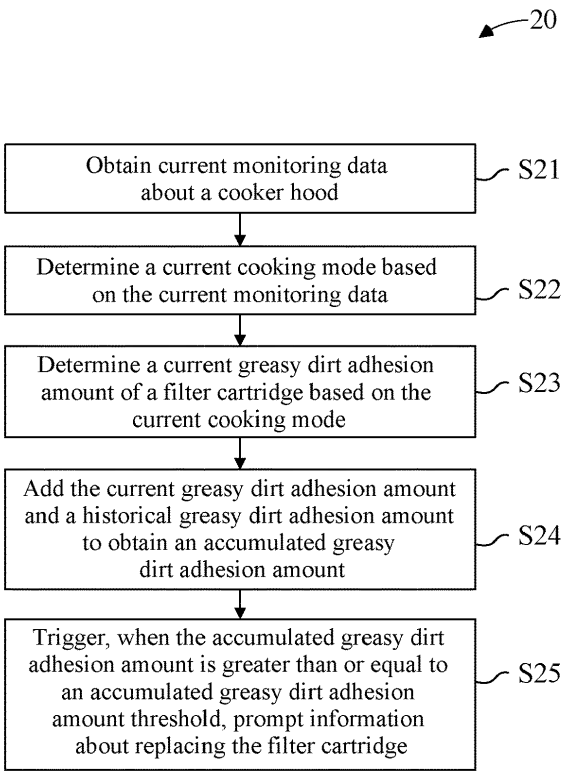

FIG. 2

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Description

TECHNICAL FIELD

[0001] The present invention relates to the field of household appliance technologies, and in particular, to a prompting method and apparatus for a cooker hood, a device, a storage medium, and a cooker hood.

BACKGROUND

[0002] A cooker hood is a household appliance for purifying the kitchen environment, can quickly discharge the waste resulting from burning on a cooktop and the fume generated in a cooking process to the outside, thereby reducing air pollution in a kitchen. However, in actual use, the filter cartridge of the cooker hood is likely to have a large amount of thick greasy dirt adhered thereto and needs to be replaced in time.

SUMMARY

[0003] An objective of the present invention is to provide a prompting method and apparatus for a cooker hood, a device, a storage medium, and a cooker hood.

[0004] Embodiments of the present invention provide a cooker hood including a filter cartridge. The embodiments of the present invention provide a prompting method for a cooker hood, including: obtaining current monitoring data about the cooker hood; determining a current cooking mode based on the current monitoring data; determining a current greasy dirt adhesion amount of the filter cartridge based on the current cooking mode; adding the current greasy dirt adhesion amount and a historical greasy dirt adhesion amount to obtain a current accumulated greasy dirt adhesion amount; and triggering, when the current accumulated greasy dirt adhesion amount is greater than or equal to an accumulated greasy dirt adhesion amount threshold, prompt information about replacing the filter cartridge.

[0005] Optionally, the current monitoring data includes a real-time value of a current fume concentration; the cooking mode includes a deep-frying mode, a pan-frying mode, a stir-frying mode, a stewing mode, and a boiling mode; and the determining a current cooking mode based on the current monitoring data includes: determining, when the real-time value of the current fume concentration is greater than or equal to a first fume concentration threshold, that the current cooking mode includes the deep-frying mode, the pan-frying mode, or the stir-frying mode; and determining, when the real-time value of the current fume concentration is less than the first fume concentration threshold, that the current cooking mode includes the stewing mode or the boiling mode.

[0006] Optionally, the current monitoring data includes a real-time value of a current humidity; and the determining a current cooking mode based on the current monitoring data includes: determining, when the real-time value of the current fume concentration is greater than or equal to the first fume concentration threshold, and the real-time value of the current humidity is less than or equal to a humidity threshold, that the current cooking mode includes the deep-frying mode, the pan-frying mode, or the stir-frying mode; and determining, when the real-time value of the current fume concentration is less than the first fume concentration threshold, and the real-time value of the current humidity is greater than the humidity threshold, that the current cooking mode includes the stewing mode or the boiling mode.

[0007] Optionally, the determining a current cooking mode based on the current monitoring data includes: determining, when the real-time value of the current humidity is continuously less than or equal to the humidity threshold, that the current cooking mode includes the deep-frying mode or the pan-frying mode; and determining, when the real-time value of the current humidity is continuously less than or equal to the humidity threshold and then is continuously greater than the humidity threshold, that the current cooking mode includes the stir-frying mode.

[0008] Optionally, the current monitoring data includes a real-time value of a current temperature; and the determining a current cooking mode based on the current monitoring data includes: determining, when the real-time value of the current fume concentration is greater than or equal to the first fume concentration threshold, and the real-time value of the current temperature is greater than or equal to a temperature threshold, that the current cooking mode includes the deep-frying mode, the pan-frying mode, or the stir-frying mode; and determining, when the real-time value of the current fume concentration is less than the first fume concentration threshold, and the real-time value of the current temperature is less than the temperature threshold, that the current cooking mode includes the stewing mode or the boiling mode.

[0009] Optionally, the determining a current cooking mode based on the current monitoring data includes: determining, when the real-time value of the current temperature is continuously greater than or equal to the temperature threshold, that the current cooking mode includes the deep-frying mode or the pan-frying mode; and determining, when the real-time value of the current temperature is continuously greater than or equal to the temperature threshold and then is continuously less than the temperature threshold, that the current cooking mode includes the stir-frying mode.

[0010] Optionally, the current monitoring data includes a real-time value of a current cooking time; and the determining a current cooking mode based on the current monitoring data includes: determining, when the real-time value of the current fume concentration is greater than or equal to the first fume concentration threshold, and the real-time value of the current cooking time is less than or equal to a time threshold, that the current cooking mode includes the deep-frying mode, the pan-frying

mode, or the stir-frying mode; and determining, when the real-time value of the current fume concentration is less than the first fume concentration threshold, and the real-time value of the current cooking time is greater than the time threshold, that the current cooking mode includes the stewing mode or the boiling mode.

[0011] Optionally, the determining a current cooking mode based on the current monitoring data includes: determining, when the real-time value of the current fume concentration is continuously greater than or equal to the first fume concentration threshold, that the current cooking mode includes the deep-frying mode or the pan-frying mode; and determining, when the real-time value of the current fume concentration is continuously greater than or equal to the first fume concentration threshold and then is continuously less than the first fume concentration threshold, that the current cooking mode includes the stir-frying mode.

[0012] Optionally, the determining a current cooking mode based on the current monitoring data includes: determining, when the real-time value of the current fume concentration is greater than or equal to the first fume concentration threshold and is less than a second fume concentration threshold, that the current cooking mode includes the pan-frying mode; and determining, when the real-time value of the current fume concentration is greater than or equal to the second fume concentration threshold, that the current cooking mode includes the deep-frying mode.

[0013] Optionally, the determining a current cooking mode based on the current monitoring data includes: determining, when the real-time value of the current fume concentration is continuously less than the first fume concentration threshold, that the current cooking mode includes the boiling mode; and determining, when the real-time value of the current fume concentration is continuously greater than or equal to the first fume concentration threshold and then is continuously less than the first fume concentration threshold, that the current cooking mode includes the stewing mode.

[0014] Optionally, the current monitoring data includes a real-time value of a current cooking time; and the determining a current greasy dirt adhesion amount of the filter cartridge based on the current cooking mode includes: obtaining reference greasy dirt adhesion amounts corresponding to different cooking modes in a unit cooking time; and determining, based on the reference greasy dirt adhesion amounts, a greasy dirt adhesion amount corresponding to the current cooking mode within the real-time value of the current cooking time, and using the greasy dirt adhesion amount as the current greasy dirt adhesion amount.

[0015] Optionally, the current fume concentration includes a current volatile organic compound (VOC) concentration.

[0016] The embodiments of the present invention further provide a prompting apparatus for a cooker hood. The prompting apparatus includes: an obtaining module, configured to obtain current monitoring data about the cooker hood; and a processing module, configured to determine a current cooking mode based on the current monitoring data; determine a current greasy dirt adhesion amount of the filter cartridge based on the current cooking mode; add the current greasy dirt adhesion amount and a historical greasy dirt adhesion amount to obtain a current accumulated greasy dirt adhesion amount; and trigger, when the current accumulated greasy dirt adhesion amount is greater than or equal to an accumulated greasy dirt adhesion amount threshold, prompt information about replacing the filter cartridge.

[0017] The embodiments of the present invention further provide a storage medium. The storage medium stores a computer program. The computer program, when executed, implements the prompting method for a cooker hood provided in the embodiments of the present invention.

[0018] The embodiments of the present invention further provide an electronic device. The electronic device includes: a processor; a memory, storing a computer program executable on the processor, where the computer program, when executed by the processor, implements the prompting method for a cooker hood provided in the embodiments of the present invention.

[0019] The embodiments of the present invention further provide a cooker hood. The cooker hood includes a filter cartridge and a control unit. The control unit is adapted to perform the prompting method for a cooker hood provided in the embodiments of the present invention.

[0020] Optionally, the current monitoring data includes a real-time value of a current fume concentration, and the current fume concentration includes a current volatile organic compound (VOC) concentration; and the cooker hood includes a gas sensor for monitoring a real-time value of the current VOC concentration.

[0021] Optionally, the current monitoring data includes at least one of a real-time value of a current humidity, a real-time value of a current temperature, or a real-time value of a current cooking time; the cooker hood includes at least one of a humidity sensor, a temperature sensor, and a timer; the humidity sensor is configured to monitor the real-time value of the current humidity; the temperature sensor is configured to monitor the real-time value of the current temperature; and the timer is configured to monitor the real-time value of the current cooking time.

[0022] Compared with the related art, the technical solutions of the embodiments of the present invention have beneficial effects.

[0023] For example, current monitoring data about a cooker hood can be obtained in a cooking process, and a current cooking mode and a current greasy dirt adhesion amount of a filter cartridge of the cooker hood in a current cooking process are obtained based on the current monitoring data. Further, a current accumulated greasy dirt adhesion amount of the filter cartridge is obtained based on the current greasy dirt adhesion amount of the filter cartridge, to further determine in time, based

on the current accumulated greasy dirt adhesion amount of filter cartridge, whether the filter cartridge needs to be replaced.

[0024] In another example, the current cooking mode may be jointly determined with reference to at least one of a current fume concentration, a current humidity, a current temperature, or a current cooking time, to make the determining of the cooking mode more accurate, so that the greasy dirt adhesion amount of the filter cartridge in the current cooking mode is more accurate, and further the triggered prompt information about replacing the filter cartridge is more accurate.

[0025] In another example, whether the current cooking mode includes a stir-frying mode, a deep-frying mode, or a pan-frying mode may also be determined by determining whether a real-time value of a current humidity is continuously less than or equal to a humidity threshold, to make the determining of the cooking mode more accurate.

[0026] In another example, whether the current cooking mode includes a stir-frying mode, a deep-frying mode, or a pan-frying mode may also be determined by determining whether a real-time value of a current temperature is continuously greater than or equal to a temperature threshold, to make the determining of the cooking mode more accurate.

[0027] In another example, whether the current cooking mode includes a stir-frying mode, a deep-frying mode, or a pan-frying mode may also be determined by determining whether a real-time value of a current fume concentration is continuously greater than or equal to a first fume concentration threshold, to make the determining of the cooking mode more accurate.

[0028] In another example, whether the current cooking mode includes a deep-frying mode or a pan-frying mode may also be determined by determining whether a real-time value of a current fume concentration is greater than or equal to a second fume concentration threshold, to make the determining of the cooking mode more accurate.

[0029] In another example, whether the current cooking mode includes a boiling mode or a stewing mode may also be determined by determining whether a real-time value of a current fume concentration is continuously greater than or equal to a first fume concentration threshold, to make the determining of the cooking mode more accurate.

[0030] Other features of the present invention are presented in the claims, the accompanying drawings, and the descriptions of the accompanying drawings. The features and feature combinations described in the foregoing descriptions and the features and feature combinations described in the following descriptions of the accompanying drawings and/or briefly shown in the accompanying drawings not only can be respectively presented in a combination manner as described, but also can be presented in another combination or alone, without departing from the scope of the present invention. Embodiments that are not described in the present invention or specifically shown in the accompanying drawings, but can be conceived of from the specifically described embodiments and derived from combinations of features should be deemed as being included and disclosed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0031]

FIG. 1 is a schematic structural diagram of a cooker hood according to an embodiment of the present invention;

FIG. 2 is a schematic flowchart of a prompting method for a cooker hood according to an embodiment of the present invention; and

FIG. 3 is a principle block diagram of a prompting apparatus for a cooker hood according to an embodiment of the present invention.

DETAILED DESCRIPTION

[0032] In the related art, the filter cartridge of the cooker hood is likely to have a large amount of greasy dirt adhered thereto, but cannot be replaced in time.

[0033] Different from the related art, the present invention provides a prompting method and apparatus for a cooker hood, a device, a storage medium, and a cooker hood. Embodiments of the present invention provide a cooker hood including a filter cartridge. The embodiments of the present invention provide a prompting method for a cooker hood, including: obtaining current monitoring data about the cooker hood; determining a current cooking mode based on the current monitoring data; determining a current greasy dirt adhesion amount of the filter cartridge based on the current cooking mode; adding the current greasy dirt adhesion amount and a historical greasy dirt adhesion amount to obtain a current accumulated greasy dirt adhesion amount; and triggering, when the current accumulated greasy dirt adhesion amount is greater than or equal to an accumulated greasy dirt adhesion amount threshold, prompt information about replacing the filter cartridge.

[0034] Compared with the related art, the technical solutions of the embodiments of the present invention have beneficial effects. For example, current monitoring data about a cooker hood can be obtained in a cooking process, and a current cooking mode and a current greasy dirt adhesion amount of a filter cartridge of the cooker hood in a current cooking process are obtained based on the current monitoring data. Further, a current accumulated greasy dirt adhesion amount of the filter cartridge is obtained based on the current greasy dirt adhesion amount of the filter cartridge, to further determine in time, based on the current accumulated greasy dirt adhesion amount of filter cartridge, whether the filter cartridge needs to be replaced.

[0035] To make the objectives, features, and beneficial

effects of the present invention more comprehensible, the specific implementations of the present invention are described in detail with reference to the accompanying drawings. It may be understood that specific implementations described below are only used to explain the present invention, but not to limit the present invention. In addition, for ease of description, the accompanying drawings only show parts relevant to the present invention rather than the entire structure. In addition, descriptions of the components, features, effects, and the like in the related art can be omitted.

[0036] FIG. 1 is a schematic structural diagram of a cooker hood according to an embodiment of the present invention.

[0037] Referring to FIG. 1, a cooker hood 10 provided in this embodiment of the present invention includes a filter cartridge 11 and a sensor 12. In a specific implementation, the filter cartridge 11 is configured to filter greasy dirt. The sensor 12 is configured to acquire monitoring data of a cooking process related to the cooker hood 10.

[0038] In some embodiments, the monitoring data acquired by the sensor 12 may include a real-time value of a fume concentration. Specifically, the fume concentration may include a VOC concentration. Correspondingly, the sensor 12 may include a gas sensor, configured to monitor a real-time value of the VOC concentration.

[0039] In some embodiments, a VOC concentration of an environment in which the cooker hood 10 is located is relatively large. In this case, a fume concentration in a cooking process cannot be truly reflected if only a gas sensor is used to acquire a real-time value of the VOC concentration. In this case, the sensor 12 may not only include a gas sensor, but also include a PM2.5 sensor. The PM2.5 sensor is configured to acquire a real-time value of a concentration of greasy dirt particles with diameters less than or equal to 2.5 μm. In this way, a real-time value of a real fume concentration related to a cooking process can be reflected more accurately by combining the gas sensor and the PM2.5 sensor.

[0040] In some embodiments, the monitoring data acquired by the sensor 12 may include at least one of a real-time value of a humidity, a real-time value of a temperature, or a real-time value of a cooking time. Correspondingly, the sensor 12 may include at least one of a humidity sensor, a temperature sensor, or a timer. The humidity sensor is configured to monitor the real-time value of the humidity. The temperature sensor is configured to monitor the real-time value of the temperature. The timer is configured to monitor the real-time value of the cooking time.

[0041] FIG. 2 is a schematic flowchart of a prompting method for a cooker hood according to an embodiment of the present invention.

[0042] Referring to FIG. 2, a prompting method 20 for a cooker hood provided in the embodiments of the present invention may include the following steps:

S21: Obtain current monitoring data about a cooker hood 10.

S22: Determine a current cooking mode based on the current monitoring data.

S23: Determine a current greasy dirt adhesion amount of a filter cartridge 11 based on the current cooking mode.

S24: Add the current greasy dirt adhesion amount and a historical greasy dirt adhesion amount to obtain a current accumulated greasy dirt adhesion amount.

S25: Trigger, when the current accumulated greasy dirt adhesion amount is greater than or equal to an accumulated greasy dirt adhesion amount threshold, prompt information about replacing the filter cartridge 11.

[0043] Specifically, the cooker hood 10 may be turned on in a cooking process, and a sensor 12 is started to acquire current monitoring data related to a current cooking process, to determine a current cooking mode based on the current monitoring data.

[0044] In some embodiments, the cooking mode may include a deep-frying mode, a pan-frying mode, a stir-frying mode, a stewing mode, and a boiling mode.

[0045] In a specific implementation, the current monitoring data may include a real-time value of a current fume concentration. In some embodiments, the current fume concentration may include a current VOC concentration.

[0046] In some embodiments, the current fume concentration may further include a current VOC concentration and a current concentration of greasy dirt particles with diameters less than or equal to 2.5 μm.

[0047] Specifically, a real-time value of a current VOC concentration may be acquired by using a gas sensor, and a real-time value of a concentration of greasy dirt particles with diameters less than or equal to 2.5 μm may be acquired by using a PM2.5 sensor.

[0048] In some embodiments, different degrees of fume concentrations may be generated in different cooking modes. Therefore, a current cooking mode may be determined based on a real-time value of a fume concentration.

[0049] Generally, fume concentrations generated in cooking processes in all the three modes, namely, a deep-frying mode, a pan-frying mode, and a stir-frying mode, are relatively close and are relatively large. Moreover, fume concentrations generated in cooking processes in both the two modes, namely, a stewing mode and a boiling mode, are also relatively close and are relatively small. Therefore, whether the current cooking mode includes a deep-frying mode, a pan-frying mode, or stir-frying mode or includes a stewing mode or a boiling mode may be determined based on a fume concentration threshold.

[0050] In a specific implementation, the determining a current cooking mode based on the current monitoring

data in step S22 may include:

S221: Determine whether a real-time value of a current fume concentration is greater than or equal to a first fume concentration threshold; determine, when the real-time value of the current fume concentration is greater than or equal to the first fume concentration threshold, that the current cooking mode includes a deep-frying mode, a pan-frying mode, or a stir-frying mode; and determine, when the real-time value of the current fume concentration is less than the first fume concentration threshold, that the current cooking mode includes a stewing mode or a boiling mode.

[0051] In some embodiments, the first fume concentration threshold may be obtained based on an empirical value. In some embodiments, the first fume concentration threshold may also be obtained based on an experimental value.

[0052] For example, for any cooking mode in the deep-frying mode, the pan-frying mode, the stir-frying mode, the stewing mode, and the boiling mode, fume concentrations generated in a plurality of cooking processes performed in a single cooking mode may be monitored respectively, and a first fume concentration threshold suitable for distinguishing the deep-frying mode, the pan-frying mode, or the stir-frying mode, and the stewing mode or boiling mode can be obtained based on the fume concentrations monitored a plurality of times.

[0053] In some embodiments, for the deep-frying mode and the pan-frying mode, a fume concentration generated in a cooking process is continuously relatively large. Specifically, for the deep-frying mode and the pan-frying mode, a fume concentration generated in a cooking process is continuously greater than or equal to a first fume concentration threshold.

[0054] However, for the stir-frying mode, there is some water in a later stage of a cooking process, (for example, during stir-frying of greens, the greens may exude water in a later stage as being stir-fried, or during stir-frying of greens, a proper amount of water is added in a later stage), and when there is water, a fume concentration generated in the cooking process decreases. Specifically, for the stir-frying mode, a fume concentration generated in a cooking process is first continuously greater than or equal to a first fume concentration threshold, and then, is continuously less than the first fume concentration threshold.

[0055] In a specific implementation, the determining a current cooking mode based on the current monitoring data in step S22 may further include:

S222: Determine whether the real-time value of the current fume concentration is continuously greater than or equal to the first fume concentration threshold; determine, when the real-time value of the current fume concentration is continuously greater than or equal to the first fume concentration threshold, that the current cooking mode includes the deep-frying mode and the pan-frying mode; and determine, when the real-time value of the current fume concentration is continuously greater than or equal to the first fume concentration threshold and then is continuously less than the first fume concentration threshold, that the current cooking mode includes the stir-frying mode.

[0056] In some embodiments, for the stir-frying mode, a time during which the fume concentration generated in a cooking process is continuously greater than or equal to the first fume concentration threshold is relatively long, and a time during which the fume concentration generated in the cooking process is continuously less than the first fume concentration threshold is relatively short.

[0057] In some embodiments, the current monitoring data may further include a real-time value of a current humidity.

[0058] Specifically, the real-time value of the current humidity may be acquired by using a humidity sensor.

[0059] In a specific implementation, the current cooking mode may also be determined with reference to the current fume concentration and the current humidity.

[0060] In some embodiments, humidities generated in cooking processes in all the three modes, namely, the deep-frying mode, the pan-frying mode, and the stir-frying mode, are relatively small. Moreover, humidities generated in cooking processes in both the two modes, namely, the stewing mode and the boiling mode, are relatively large. Therefore, whether the current cooking mode includes a deep-frying mode, a pan-frying mode, or stir-frying mode or includes a stewing mode or a boiling mode may be determined with reference to a humidity threshold.

[0061] In a specific implementation, the determining a current cooking mode based on the current monitoring data in step S22 may further include:

S223: Determine whether the real-time value of the current fume concentration is greater than or equal to a first fume concentration threshold, and determine whether a real-time value of a current humidity is less than or equal to a humidity threshold; determine, when the real-time value of the current fume concentration is greater than or equal to the first fume concentration threshold, and the real-time value of the current humidity is less than or equal to the humidity threshold, that the current cooking mode includes the deep-frying mode, the pan-frying mode, or the stir-frying mode; and determine, when the real-time value of the current fume concentration is less than the first fume concentration threshold, and the real-time value of the current humidity is greater than the humidity threshold, that the current cooking mode includes the stewing mode or the boiling mode.

[0062] In some embodiments, for the deep-frying mode and the pan-frying mode, a humidity generated in a cooking process is continuously relatively large. Specifically, for the deep-frying mode and the pan-frying mode, a humidity generated in a cooking process is continuously less than or equal to a humidity threshold.

[0063] However, for the stir-frying mode, there is some water in a later stage of a cooking process, (for example, during stir-frying of greens, the greens may exude water

in a later stage as being stir-fried, or during stir-frying of greens, a proper amount of water is added in a later stage), and when there is water, a humidity increases. Specifically, for the stir-frying mode, a humidity generated in a cooking process is first continuously less than or equal to a humidity threshold, and then, is continuously greater than the humidity threshold.

[0064] In a specific implementation, the determining a current cooking mode based on the current monitoring data in step S22 may further include:

S224: Determine whether the real-time value of the current humidity is continuously less than or equal to the humidity threshold; determine, when the real-time value of the current humidity is continuously less than or equal to the humidity threshold, that the current cooking mode includes the deep-frying mode or the pan-frying mode; and determining, when the real-time value of the current humidity is continuously less than or equal to the humidity threshold and then is continuously greater than the humidity threshold, that the current cooking mode includes the stir-frying mode.

[0065] In some embodiments, for the stir-frying mode, a time during which the humidity generated in a cooking process is continuously less than or equal to the humidity threshold is relatively long, and a time during which the humidity generated in a cooking process is continuously greater than the humidity threshold is relatively short.

[0066] In some embodiments, the current monitoring data may further include a real-time value of a current temperature. Specifically, the real-time value of the current temperature may be acquired by using a temperature sensor.

[0067] In a specific implementation, the current cooking mode may also be determined with reference to the current fume concentration and the current temperature.

[0068] In some embodiments, temperatures in cooking processes in all the three modes, namely, the deep-frying mode, the pan-frying mode, and the stir-frying mode, are relatively high. Moreover, temperatures in cooking processes in both the two modes, namely, the stewing mode and the boiling mode, are relatively low. Therefore, whether the current cooking mode includes a deep-frying mode, a pan-frying mode, or stir-frying mode or includes a stewing mode or a boiling mode may be determined with reference to a temperature threshold.

[0069] In a specific implementation, the determining a current cooking mode based on the current monitoring data in step S22 may further include:

S225: Determine whether the real-time value of the current fume concentration is greater than or equal to a first fume concentration threshold, and determine whether a real-time value of a current temperature is greater than or equal to a temperature threshold; determine, when the real-time value of the current fume concentration is greater than or equal to the first fume concentration threshold, and the real-time value of the current temperature is greater than or equal to the temperature threshold, that the current cooking mode includes the deep-frying mode, the pan-frying mode, or the stir-frying mode; and determine, when the real-time value of the current fume concentration is less than the first fume concentration threshold, and the real-time value of the current temperature is less than the temperature threshold, that the current cooking mode includes the stewing mode or the boiling mode.

[0070] In some embodiments, for the deep-frying mode and the pan-frying mode, a temperature in a cooking process is continuously relatively high. Specifically, for the deep-frying mode and the pan-frying mode, a temperature in a cooking process is continuously greater than or equal to a temperature threshold.

[0071] However, for the stir-frying mode, there is some water in a later stage of a cooking process, (for example, during stir-frying of greens, the greens may exude water in a later stage as being stir-fried, or during stir-frying of greens, a proper amount of water is added in a later stage), and when there is water, a temperature decreases. Specifically, for the stir-frying mode, a temperature in a cooking process is first continuously greater than or equal to a temperature threshold, and then, is continuously less than the temperature threshold.

[0072] In a specific implementation, the determining a current cooking mode based on the current monitoring data in step S22 may further include:

S226: Determine whether the real-time value of the current temperature is continuously greater than or equal to the temperature threshold; determine, when the real-time value of the current temperature is continuously greater than or equal to the temperature threshold, that the current cooking mode includes the deep-frying mode or the pan-frying mode; and determining, when the real-time value of the current temperature is continuously greater than or equal to the temperature threshold and then is continuously less than the temperature threshold, that the current cooking mode includes the stir-frying mode.

[0073] In some embodiments, for the stir-frying mode, a time during which the temperature in a cooking process is continuously greater than or equal to the temperature threshold is relatively long, and a time during which the temperature in a cooking process is continuously less than the temperature threshold is relatively short.

[0074] In some embodiments, the current monitoring data may further include a real-time value of a current cooking time. Specifically, the real-time value of the current cooking time may be acquired by using a timer.

[0075] In a specific implementation, the current cooking mode may also be determined with reference to the current fume concentration and the current cooking time.

[0076] In some embodiments, cooking times of cooking processes in all the three modes, namely, the deep-frying mode, the pan-frying mode, and the stir-frying mode, are relatively short. Moreover, cooking times of cooking processes in both the two modes, namely, the stewing mode and the boiling mode, are relatively long. Therefore, whether the current cooking mode includes a deep-frying mode, a pan-frying mode, or stir-frying mode

or includes a stewing mode or a boiling mode may be determined with reference to a cooking time threshold.

[0077] In a specific implementation, the determining a current cooking mode based on the current monitoring data in step S22 may further include:

S227: Determine whether the real-time value of the current fume concentration is greater than or equal to a first fume concentration threshold, and determine whether a real-time value of a current cooking time is less than or equal to a time threshold; determine, when the real-time value of the current fume concentration is greater than or equal to the first fume concentration threshold, and the real-time value of the current cooking time is less than or equal to the time threshold, that the current cooking mode includes the deep-frying mode, the pan-frying mode, or the stir-frying mode; and determine, when the real-time value of the current fume concentration is less than the first fume concentration threshold, and the real-time value of the current cooking time is greater than the time threshold, that the current cooking mode includes the stewing mode or the boiling mode.

[0078] In some embodiments, a fume concentration generated in a cooking process in the deep-frying mode is greater than a fume concentration generated in a cooking process in the pan-frying mode. Therefore, whether the current cooking mode includes a deep-frying mode or a pan-frying mode may also be determined with reference to another fume concentration threshold.

[0079] In a specific implementation, the determining a current cooking mode based on the current monitoring data in step S22 may further include:

S228: Determine whether the real-time value of the current fume concentration is greater than or equal to the first fume concentration threshold and less than a second fume concentration threshold; determine, when the real-time value of the current fume concentration is greater than or equal to the first fume concentration threshold and less than the second fume concentration threshold, that the current cooking mode includes the pan-frying mode; and determine, when the real-time value of the current fume concentration is greater than or equal to the second fume concentration threshold, that the current cooking mode includes the deep-frying mode.

[0080] In some embodiments, the second fume concentration threshold may be obtained based on an empirical value. In some embodiments, the second fume concentration threshold may also be obtained based on an experimental value.

[0081] For example, for any cooking mode in the deep-frying mode and the pan-frying mode, fume concentrations generated in a plurality of cooking processes performed in a single cooking mode may be monitored respectively, and a second fume concentration threshold suitable for distinguishing the deep-frying mode and the pan-frying mode can be obtained based on the fume concentrations monitored a plurality of times.

[0082] In some embodiments, for the boiling mode, a fume concentration generated in a cooking process is continuously relatively small. Specifically, for the boiling mode, a fume concentration generated in a cooking process is continuously less than a first fume concentration threshold.

[0083] However, for the stewing mode, stir-frying is first performed in an early stage of a cooking process, and stewing is performed after the stir-frying. Therefore, for the stewing mode, a fume concentration generated in an early stage of a cooking process is relatively large, and a fume concentration generated in a later stage of the cooking process is relatively small. Specifically, for the stewing mode, a fume concentration generated in a cooking process is first continuously greater than or equal to a first fume concentration threshold, and then, is continuously less than the first fume concentration threshold.

[0084] In a specific implementation, the determining a current cooking mode based on the current monitoring data in step S22 may further include:

S229: Determine whether the real-time value of the current fume concentration is continuously less than the first fume concentration threshold; determine, when the real-time value of the current fume concentration is continuously less than the first fume concentration threshold, that the current cooking mode includes the boiling mode; and determine, when the real-time value of the current fume concentration is continuously greater than or equal to the first fume concentration threshold and then is continuously less than the first fume concentration threshold, that the current cooking mode includes the stewing mode.

[0085] In some embodiments, for the stewing mode, a time during which the fume concentration generated in a cooking process is continuously greater than or equal to the first fume concentration threshold is relatively short, and a time during which the fume concentration generated in the cooking process is continuously less than the first fume concentration threshold is relatively long.

[0086] After the current cooking mode is determined based on the current monitoring data, a current greasy dirt adhesion amount of the filter cartridge 11 in the cooker hood 10 can be determined based on the current cooking mode.

[0087] In a specific implementation, the current monitoring data includes a real-time value of a current cooking time.

[0088] The determining a current greasy dirt adhesion amount of a filter cartridge 11 based on the current cooking mode in step S23 may include the following steps:

S231: Obtain reference greasy dirt adhesion amounts corresponding to different cooking modes in a unit cooking time.

S232: Determine, based on the reference greasy dirt adhesion amounts, a greasy dirt adhesion amount corresponding to the current cooking mode within the real-time value of the current cooking time, and use the greasy dirt adhesion amount as the current

greasy dirt adhesion amount.

[0089] In some embodiments, for any cooking mode in the deep-frying mode, the pan-frying mode, the stir-frying mode, the stewing mode, and the boiling mode, greasy dirt adhesion amounts generated in a unit cooking time in a plurality of cooking processes performed in a single cooking mode may be monitored respectively, and reference greasy dirt adhesion amounts corresponding to different cooking modes in a unit cooking time are obtained based on the greasy dirt adhesion amounts that are generated in a unit cooking time and that are monitored a plurality of times.

[0090] The current greasy dirt adhesion amount can be obtained based on the reference greasy dirt adhesion amounts corresponding to the different cooking modes in the unit cooking time and the real-time value of the current cooking time in the current cooking mode.

[0091] Specifically, the current greasy dirt adhesion amount can be obtained by multiplying the reference greasy dirt adhesion amount corresponding to the current cooking mode in the unit cooking time by the real-time value of the current cooking time.

[0092] Generally, the greasy dirt attached to the filter cartridge 11 of the cooker hood 10 is accumulated as a quantity of times of cooking increases. Therefore, after the end of the current cooking, the amount of the greasy dirt (that is, the current greasy dirt adhesion amount) attached to the filter cartridge 11 in the current cooking process can be added to a historical greasy dirt adhesion amount.

[0093] Specifically, step S24 may be performed to add the current greasy dirt adhesion amount and a historical greasy dirt adhesion amount to obtain a current accumulated greasy dirt adhesion amount. The historical greasy dirt adhesion amount is a greasy dirt adhesion amount accumulated by the filter cartridge 11 of the cooker hood 10 used in the current cooking mode in previous cooking processes.

[0094] In a specific implementation, the greasy dirt adhesion amount of the filter cartridge 11 can be accumulated each time a cooking process is completed, to obtain the historical greasy dirt adhesion amount of the filter cartridge 11.

[0095] Generally, after a plurality of times of cooking, the filter cartridge 11 cannot effectively discharge fume due to a large amount of greasy dirt attached thereto, and consequently, affects a use effect and needs to be replaced in time.

[0096] In a specific implementation, whether the filter cartridge 11 needs to be replaced may be determined with reference to an accumulated greasy dirt adhesion amount threshold.

[0097] In some embodiments, an accumulated greasy dirt adhesion amount threshold of the filter cartridge 11 may be obtained based on an empirical value.

[0098] In some embodiments, an accumulated greasy dirt adhesion amount threshold of the filter cartridge 11 may be obtained based on an experimental value. For example, for the same filter cartridge 11, discharge amounts of fume thereof can be respectively acquired in all cooking processes. When a corresponding discharge amount is significantly reduced or does not meet a relevant discharge standard, an accumulated greasy dirt adhesion amount of the filter cartridge 11 is obtained, and the accumulated greasy dirt adhesion amount is used as an accumulated greasy dirt adhesion amount threshold of the filter cartridge 11.

[0099] In a specific implementation, whether the filter cartridge 11 needs to be replaced may be determined based on the accumulated greasy dirt adhesion amount threshold of the filter cartridge 11.

[0100] In a specific implementation, the triggering, when the current accumulated greasy dirt adhesion amount is greater than or equal to an accumulated greasy dirt adhesion amount threshold, prompt information about replacing the filter cartridge 11 in step S25 may include:

S251: Determine whether a current accumulated greasy dirt adhesion amount is greater than or equal to an accumulated greasy dirt adhesion amount threshold, and trigger, when the current accumulated greasy dirt adhesion amount is greater than or equal to the accumulated greasy dirt adhesion amount threshold, prompt information about replacing the filter cartridge 11.

[0101] In some embodiments, the prompt information may include voice prompt information or light prompt information.

[0102] In the foregoing technical solution provided in the embodiments of the present invention, whether the filter cartridge 11 needs to be replaced can be determined based on the current accumulated greasy dirt adhesion amount at any time in a cooking process, to timely obtain a prompt information indicating that the filter cartridge 11 needs to be replaced, to help replace the filter cartridge 11 in time.

[0103] In some embodiments, the cooker hood 10 provided in the embodiments of the present invention may control units, to perform the prompting method 20 for a cooker hood 10 provided in the embodiments of the present invention.

[0104] The embodiments of the present invention further provide a prompting apparatus for a cooker hood.

[0105] FIG. 3 is a principle block diagram of a prompting apparatus for a cooker hood according to an embodiment of the present invention.

[0106] Referring to FIG. 3, a prompting apparatus 30 for a cooker hood provided in the embodiments of the present invention may include an obtaining module 31 and a processing module 32 connected to the obtaining module 31.

[0107] Specifically, the obtaining module 31 is configured to obtain current monitoring data about the cooker hood 10. The processing module 32 is configured to determine a current cooking mode based on the current monitoring data; determine a current greasy dirt adhesion

amount of a filter cartridge 11 based on the current cooking mode; add the current greasy dirt adhesion amount and a historical greasy dirt adhesion amount to obtain a current accumulated greasy dirt adhesion amount; and trigger, when the current accumulated greasy dirt adhesion amount is greater than or equal to an accumulated greasy dirt adhesion amount threshold, prompt information about replacing the filter cartridge 11.

[0108] The prompting apparatus 30 for a cooker hood 10 provided in the embodiments of the present invention may be implemented based on the prompting method 20 for a cooker hood 10 provided in the embodiments of the present invention. For more details in an implementation process of the prompting apparatus 30, reference may be made to descriptions about the prompting method 20 in the embodiments of the present invention, and details are not described herein again.

[0109] The embodiments of the present invention further provide an electronic device.

[0110] Specifically, the electronic device may include a processor and a memory. The memory stores a computer program executable on the processor. The computer program, when executed by the processor, implements the prompting method 20 for a cooker hood 10 provided in the embodiments of the present invention.

[0111] The embodiments of the present invention further provide a storage medium.

[0112] Specifically, the storage medium stores a computer program. The computer program, when executed, implements the prompting method 20 for a cooker hood 10 provided in the embodiments of the present invention.

[0113] In some embodiments, the storage medium may include a computer-readable storage medium. For example, the storage medium may include a ROM, a RAM, a magnetic disk, an optical disc, or the like.

[0114] Although specific implementations are described above, the implementations are not intended to limit the scope disclosed in the present invention, even if only a single implementation is described relative to a specific feature. The feature examples provided in the present invention are intended to be illustrative rather than limiting, unless different expressions are made. During specific implementation, according to an actual requirement, in a technically feasible case, the technical features of one or more dependent claims may be combined with the technical features of the independent claims, and the technical features from the corresponding independent claims may be combined in any appropriate way instead of using just specific combinations listed in the claims.

[0115] Although the present invention is disclosed above, the present invention is not limited thereto. Any person skilled in the art can make various changes and modifications without departing from the spirit and the scope of the present invention. Therefore, the protection scope of the present invention should be subject to the scope defined by the claims.

Claims

1. A prompting method (20) for a cooker hood (10), the cooker hood (10) comprising a filter cartridge (11), **characterized by** comprising:

   obtaining current monitoring data about the cooker hood (10);
   determining a current cooking mode based on the current monitoring data;
   determining a current greasy dirt adhesion amount of the filter cartridge (11) based on the current cooking mode;
   adding the current greasy dirt adhesion amount and a historical greasy dirt adhesion amount to obtain a current accumulated greasy dirt adhesion amount; and
   triggering, when the current accumulated greasy dirt adhesion amount is greater than or equal to an accumulated greasy dirt adhesion amount threshold, prompt information about replacing the filter cartridge (11).

2. The prompting method (20) according to claim 1, **characterized in that** the current monitoring data comprises a real-time value of a current fume concentration; the cooking mode comprises a deep-frying mode, a pan-frying mode, a stir-frying mode, a stewing mode, and a boiling mode; and the determining a current cooking mode based on the current monitoring data comprises:

   determining, when the real-time value of the current fume concentration is greater than or equal to a first fume concentration threshold, that the current cooking mode comprises the deep-frying mode, the pan-frying mode, or the stir-frying mode; and
   determining, when the real-time value of the current fume concentration is less than the first fume concentration threshold, that the current cooking mode comprises the stewing mode or the boiling mode.

3. The prompting method (20) according to claim 2, **characterized in that** the current monitoring data comprises a real-time value of a current humidity; and the determining a current cooking mode based on the current monitoring data comprises:

   determining, when the real-time value of the current fume concentration is greater than or equal to the first fume concentration threshold, and the real-time value of the current humidity is less than or equal to a humidity threshold, that the current cooking mode comprises the deep-frying mode, the pan-frying mode, or the stir-frying mode; and

determining, when the real-time value of the current fume concentration is less than the first fume concentration threshold, and the real-time value of the current humidity is greater than the humidity threshold, that the current cooking mode comprises the stewing mode or the boiling mode.

4. The prompting method (20) according to claim 3, **characterized in that** the determining a current cooking mode based on the current monitoring data comprises:

determining, when the real-time value of the current humidity is continuously less than or equal to the humidity threshold, that the current cooking mode comprises the deep-frying mode or the pan-frying mode; and
determining, when the real-time value of the current humidity is continuously less than or equal to the humidity threshold and then is continuously greater than the humidity threshold, that the current cooking mode comprises the stir-frying mode.

5. The prompting method (20) according to claim 2, **characterized in that** the current monitoring data comprises a real-time value of a current temperature; and the determining a current cooking mode based on the current monitoring data comprises:

determining, when the real-time value of the current fume concentration is greater than or equal to the first fume concentration threshold, and the real-time value of the current temperature is greater than or equal to a temperature threshold, that the current cooking mode comprises the deep-frying mode, the pan-frying mode, or the stir-frying mode; and
determining, when the real-time value of the current fume concentration is less than the first fume concentration threshold, and the real-time value of the current temperature is less than the temperature threshold, that the current cooking mode comprises the stewing mode or the boiling mode.

6. The prompting method (20) according to claim 5, **characterized in that** the determining a current cooking mode based on the current monitoring data comprises:

determining, when the real-time value of the current temperature is continuously greater than or equal to the temperature threshold, that the current cooking mode comprises the deep-frying mode or the pan-frying mode; and
determining, when the real-time value of the current temperature is continuously greater than or equal to the temperature threshold and then is continuously less than the temperature threshold, that the current cooking mode comprises the stir-frying mode.

7. The prompting method (20) according to claim 2, **characterized in that** the current monitoring data comprises a real-time value of a current cooking time; and the determining a current cooking mode based on the current monitoring data comprises:

determining, when the real-time value of the current fume concentration is greater than or equal to the first fume concentration threshold, and the real-time value of the current cooking time is less than or equal to a time threshold, that the current cooking mode comprises the deep-frying mode, the pan-frying mode, or the stir-frying mode; and
determining, when the real-time value of the current fume concentration is less than the first fume concentration threshold, and the real-time value of the current cooking time is greater than the time threshold, that the current cooking mode comprises the stewing mode or the boiling mode.

8. The prompting method (20) according to any one of claims 2 to 7, **characterized in that** the determining a current cooking mode based on the current monitoring data comprises:

determining, when the real-time value of the current fume concentration is continuously greater than or equal to the first fume concentration threshold, that the current cooking mode comprises the deep-frying mode or the pan-frying mode; and
determining, when the real-time value of the current fume concentration is continuously greater than or equal to the first fume concentration threshold and then is continuously less than the first fume concentration threshold, that the current cooking mode comprises the stir-frying mode.

9. The prompting method (20) according to claim 8, **characterized in that** the determining a current cooking mode based on the current monitoring data comprises:

determining, when the real-time value of the current fume concentration is greater than or equal to the first fume concentration threshold and is less than a second fume concentration threshold, that the current cooking mode comprises the pan-frying mode; and
determining, when the real-time value of the cur-

rent fume concentration is greater than or equal to the second fume concentration threshold, that the current cooking mode comprises the deep-frying mode.

10. The prompting method (20) according to any one of claims 2 to 7, **characterized in that** the determining a current cooking mode based on the current monitoring data comprises:

determining, when the real-time value of the current fume concentration is continuously less than the first fume concentration threshold, that the current cooking mode comprises the boiling mode; and
determining, when the real-time value of the current fume concentration is continuously greater than or equal to the first fume concentration threshold and then is continuously less than the first fume concentration threshold, that the current cooking mode comprises the stewing mode.

11. The prompting method (20) according to claim 1, **characterized in that** the current monitoring data comprises a real-time value of a current cooking time; and the determining a current greasy dirt adhesion amount of the filter cartridge (11) based on the current cooking mode comprises:

obtaining reference greasy dirt adhesion amounts corresponding to different cooking modes in a unit cooking time; and
determining, based on the reference greasy dirt adhesion amounts, a greasy dirt adhesion amount corresponding to the current cooking mode within the real-time value of the current cooking time, and using the greasy dirt adhesion amount as the current greasy dirt adhesion amount.

12. The prompting method (20) according to claim 1, **characterized in that** the current fume concentration comprises a current volatile organic compound (VOC) concentration.

13. A prompting apparatus (30) for a cooker hood (10), the cooker hood (10) comprising a filter cartridge (11), **characterized by** comprising:

an obtaining module, configured to obtain current monitoring data about the cooker hood (10); and
a processing module, configured to determine a current cooking mode based on the current monitoring data; determine a current greasy dirt adhesion amount of the filter cartridge (11) based on the current cooking mode; add the current greasy dirt adhesion amount and a historical greasy dirt adhesion amount to obtain a current accumulated greasy dirt adhesion amount; and trigger, when the current accumulated greasy dirt adhesion amount is greater than or equal to an accumulated greasy dirt adhesion amount threshold, prompt information about replacing the filter cartridge (11).

14. A storage medium, storing a computer program, **characterized in that** the computer program, when executed, implements the steps of the prompting method (20) according to any one of claims 1 to 12.

15. An electronic device, **characterized by** comprising:

a processor; and
a memory, storing a computer program executable on the processor, wherein
the computer program, when executed by the processor, implements the prompting method (20) according to any one of claims 1 to 12.

16. A cooker hood (10), comprising a filter cartridge (11), **characterized by** comprising a control unit, adapted to implement the prompting method (20) according to any one of claims 1 to 12.

17. The cooker hood (10) according to claim 16, **characterized in that** the current monitoring data comprises a real-time value of a current fume concentration, and the current fume concentration comprises a current volatile organic compound (VOC) concentration; and the cooker hood (10) comprises a gas sensor for monitoring a real-time value of the current VOC concentration.

18. The cooker hood (10) according to claim 16 or 17, **characterized in that** the current monitoring data comprises at least one of a real-time value of a current humidity, a real-time value of a current temperature, or a real-time value of a current cooking time; the cooker hood (10) comprises at least one of a humidity sensor, a temperature sensor, and a timer; the humidity sensor is configured to monitor the real-time value of the current humidity; the temperature sensor is configured to monitor the real-time value of the current temperature; and the timer is configured to monitor the real-time value of the current cooking time.

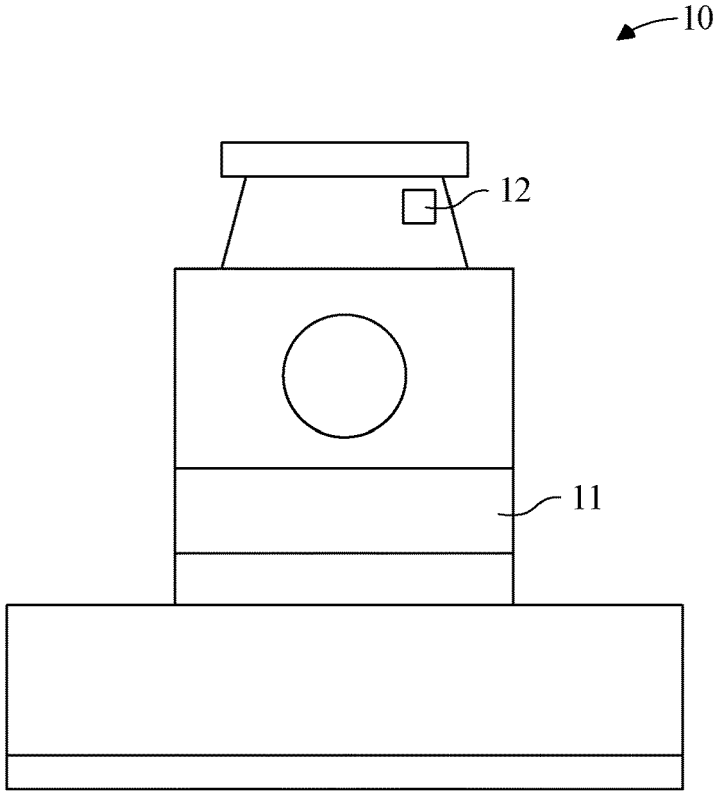

FIG. 1

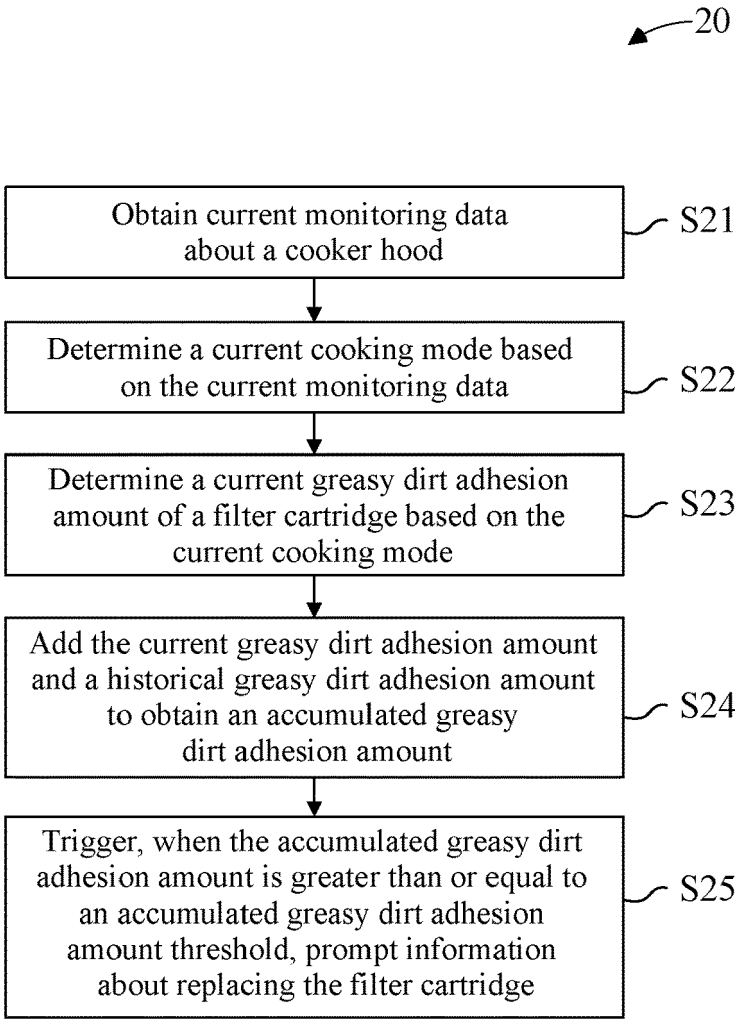
20
Obtain current monitoring data about a cooker hood
S21
Determine a current cooking mode based on the current monitoring data
S22
Determine a current greasy dirt adhesion amount of a filter cartridge based on the current cooking mode
S23
Add the current greasy dirt adhesion amount and a historical greasy dirt adhesion amount to obtain an accumulated greasy dirt adhesion amount
S24
Trigger, when the accumulated greasy dirt adhesion amount is greater than or equal to an accumulated greasy dirt adhesion amount threshold, prompt information about replacing the filter cartridge
S25

FIG. 2

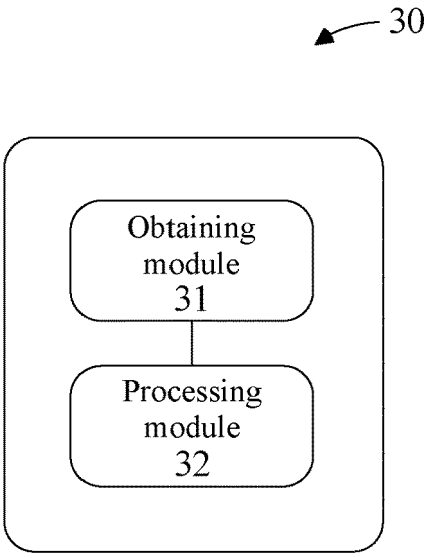

FIG. 3

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EUROPEAN SEARCH REPORT

Application Number
EP 22 18 3739

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	10 November 2022	Rodriguez, Alexander

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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