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(54) **ELECTRONIC APPARATUS AND METHOD FOR CONTROLLING ELECTRONIC APPARATUS**

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(57) **ABSTRACT**

Provided is an electronic apparatus including a body for providing a process room where clothes are placed, a heater for supplying at least one of hot air and steam into the process room, at least one camera for photographing an inside of the process room, a display, a processor, and a memory, wherein the memory stores instructions to be executed by the processor to control the camera to generate a first clothing image by photographing first clothing introduced into the process room, obtain information about the first clothing by using the first clothing image, obtain information about second clothing matching the first clothing by using the information about the first clothing, control the display to display the obtained information about the second clothing, and obtain and display information about second clothing different from the displayed second clothing in response to a user input for changing a second clothing recommendation condition. When the information about the second clothing is estimated, the electronic apparatus may use a rule-based or artificial intelligence (AI) algorithm. When the information about the second clothing is estimated using the AI algorithm, the electronic apparatus may use a machine learning, neural network, or deep learning algorithm.

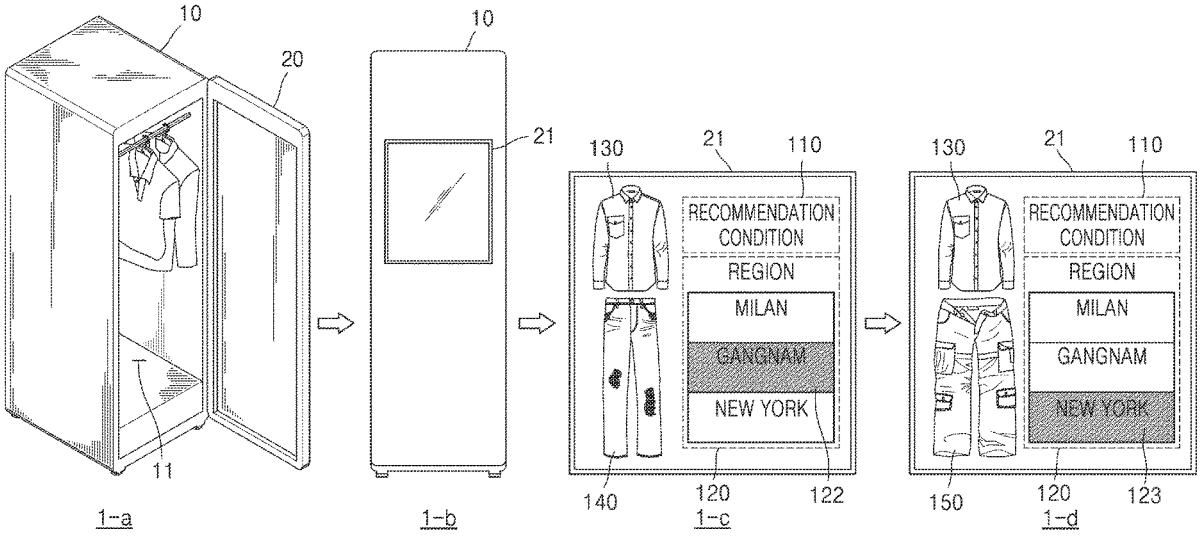


FIG. 1

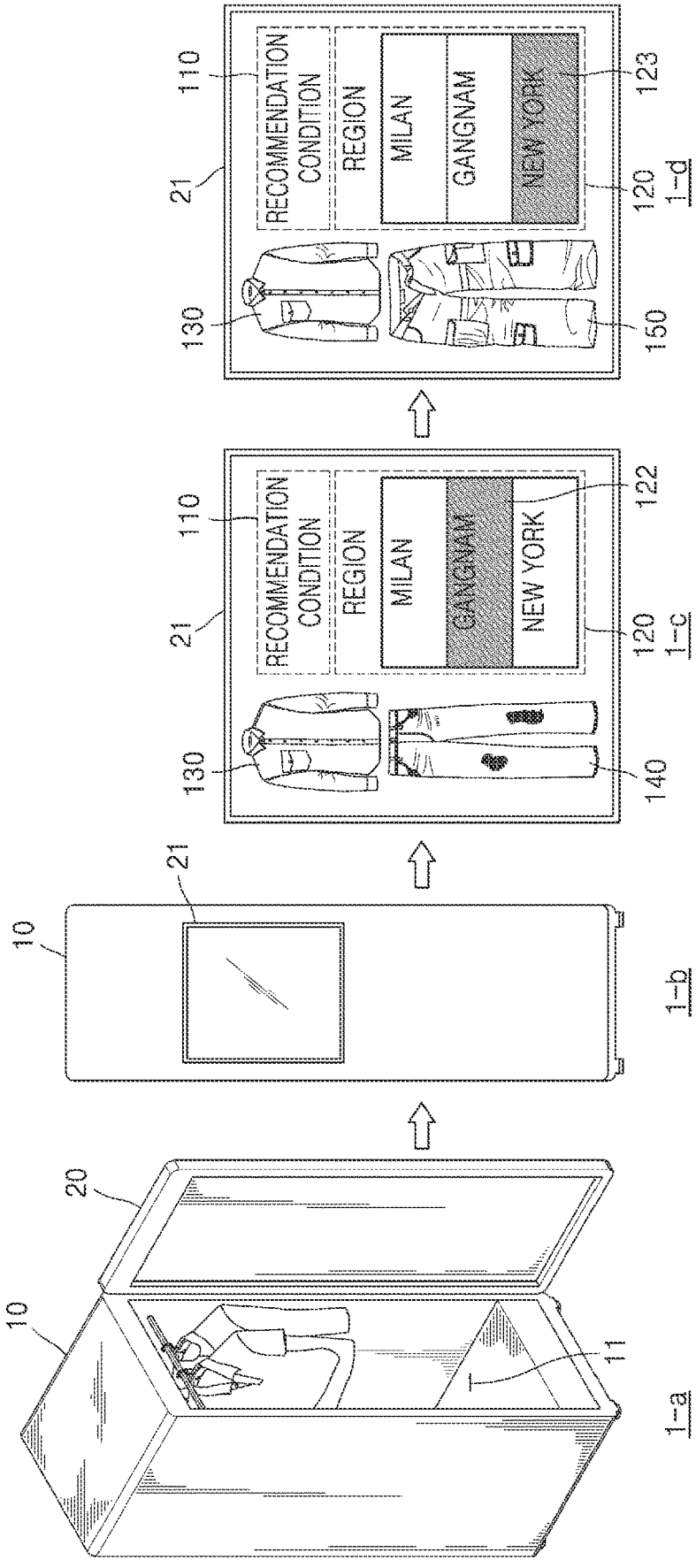
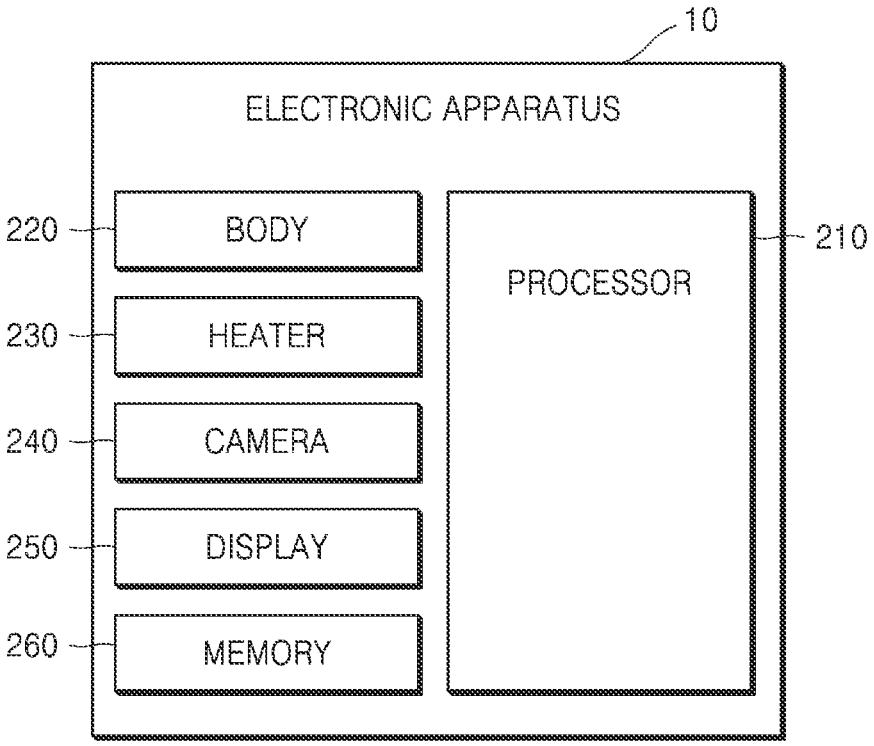
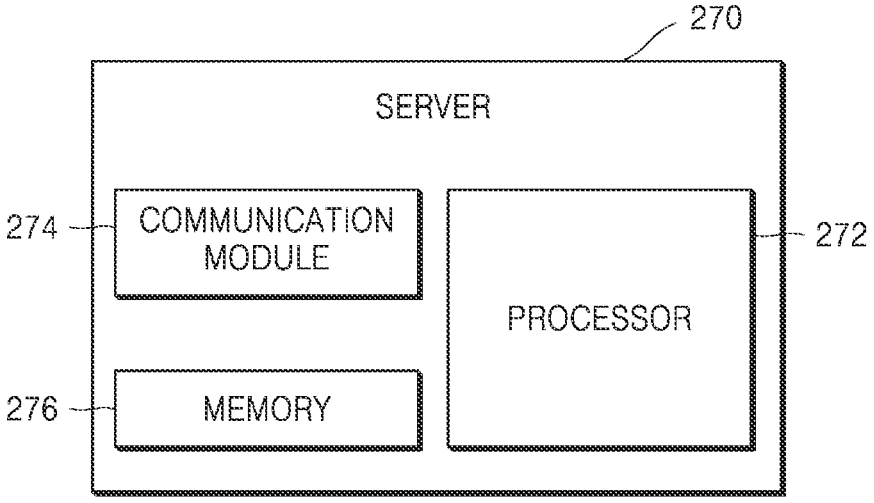

1-a
1-b
1-c
1-d
10
11
20
21
110
120
122
123
130
140
150
RECOMMENDATION CONDITION
REGION
MILAN
GANGNAM
NEW YORK

FIG. 2


10
ELECTRONIC APPARATUS
220
BODY
230
HEATER
240
CAMERA
250
DISPLAY
260
MEMORY
PROCESSOR
210

2-a


270
SERVER
274
COMMUNICATION MODULE
276
MEMORY
PROCESSOR
272

2-b

FIG. 3

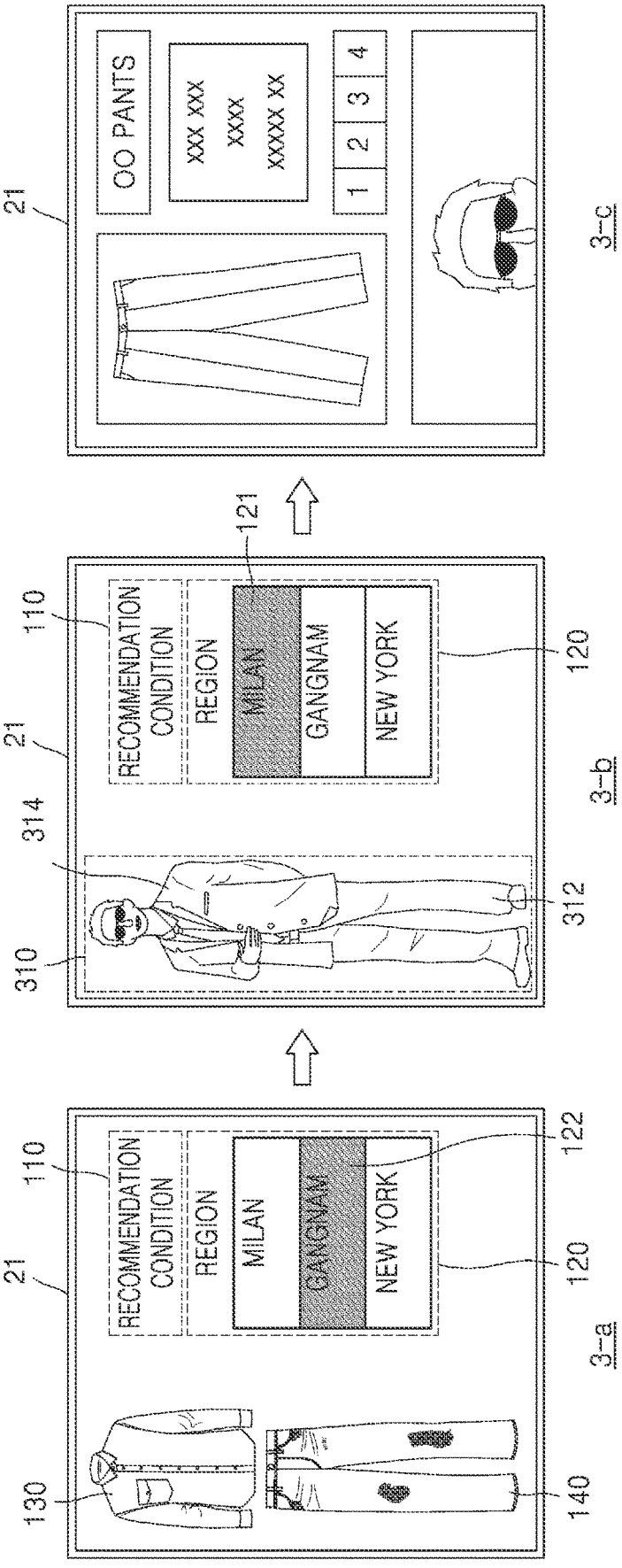

21
OO PANTS
XXX XXX
XXXX
XXXXX XX
1
2
3
4
3-c
121
110
RECOMMENDATION CONDITION
REGION
MILAN
GANGNAM
NEW YORK
120
21
314
310
312
3-b
110
RECOMMENDATION CONDITION
REGION
MILAN
GANGNAM
NEW YORK
122
120
21
130
140
3-a

FIG. 4

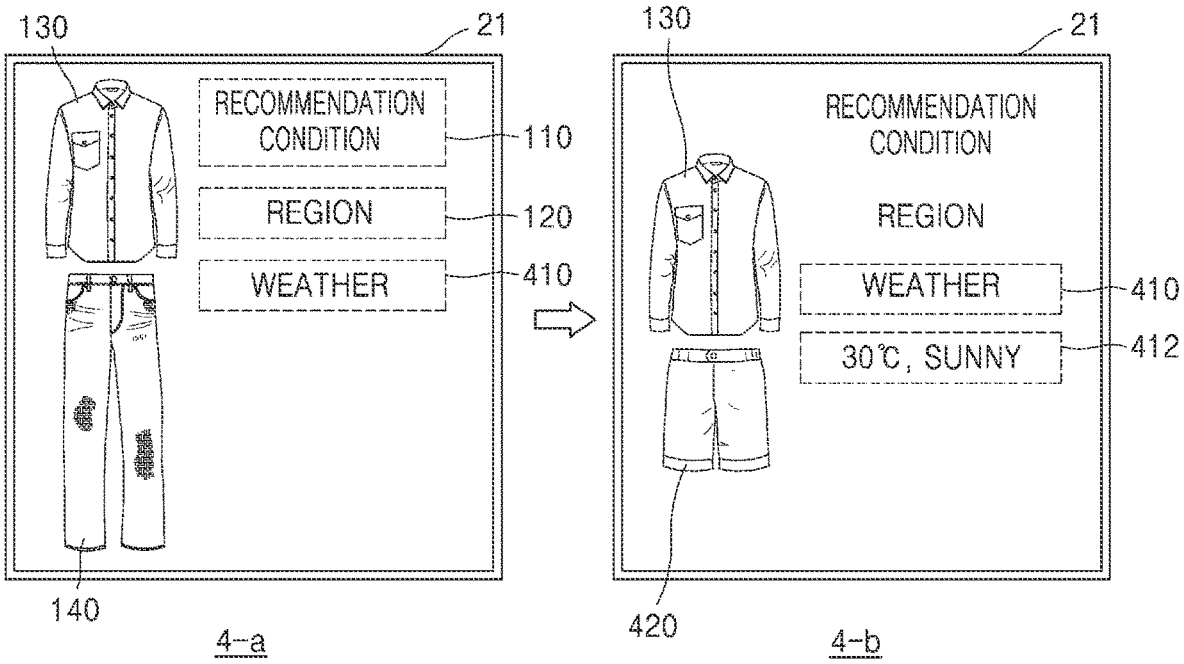

130
21
RECOMMENDATION CONDITION
110
REGION
120
WEATHER
410
140
4-a
130
21
RECOMMENDATION CONDITION
REGION
WEATHER
410
30℃, SUNNY
412
420
4-b

FIG. 5

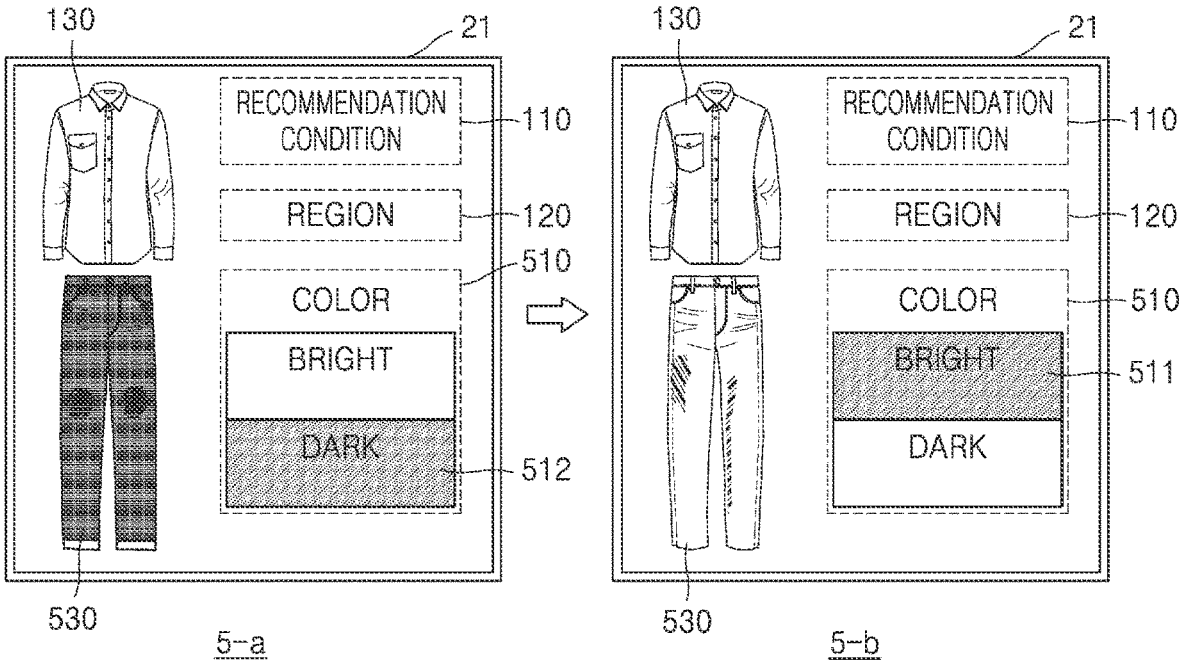

130
21
RECOMMENDATION CONDITION
110
REGION
120
510
COLOR
BRIGHT
DARK
512
530
5-a
130
21
RECOMMENDATION CONDITION
110
REGION
120
COLOR
510
BRIGHT
511
DARK
530
5-b

FIG. 6

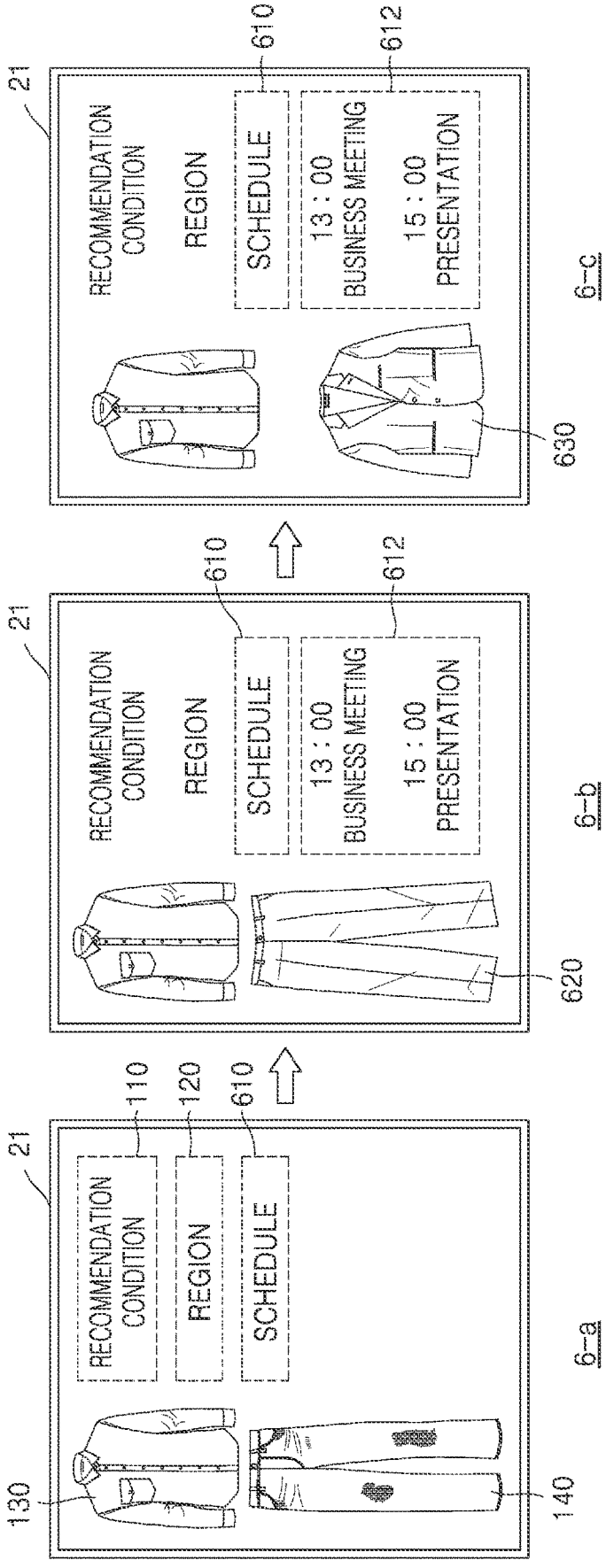

21
RECOMMENDATION CONDITION
REGION
SCHEDULE
110
120
610
130
140
6-a
21
RECOMMENDATION CONDITION
REGION
SCHEDULE
610
612
13 : 00 BUSINESS MEETING
15 : 00 PRESENTATION
620
6-b
21
RECOMMENDATION CONDITION
REGION
SCHEDULE
610
612
13 : 00 BUSINESS MEETING
15 : 00 PRESENTATION
630
6-c

FIG. 7

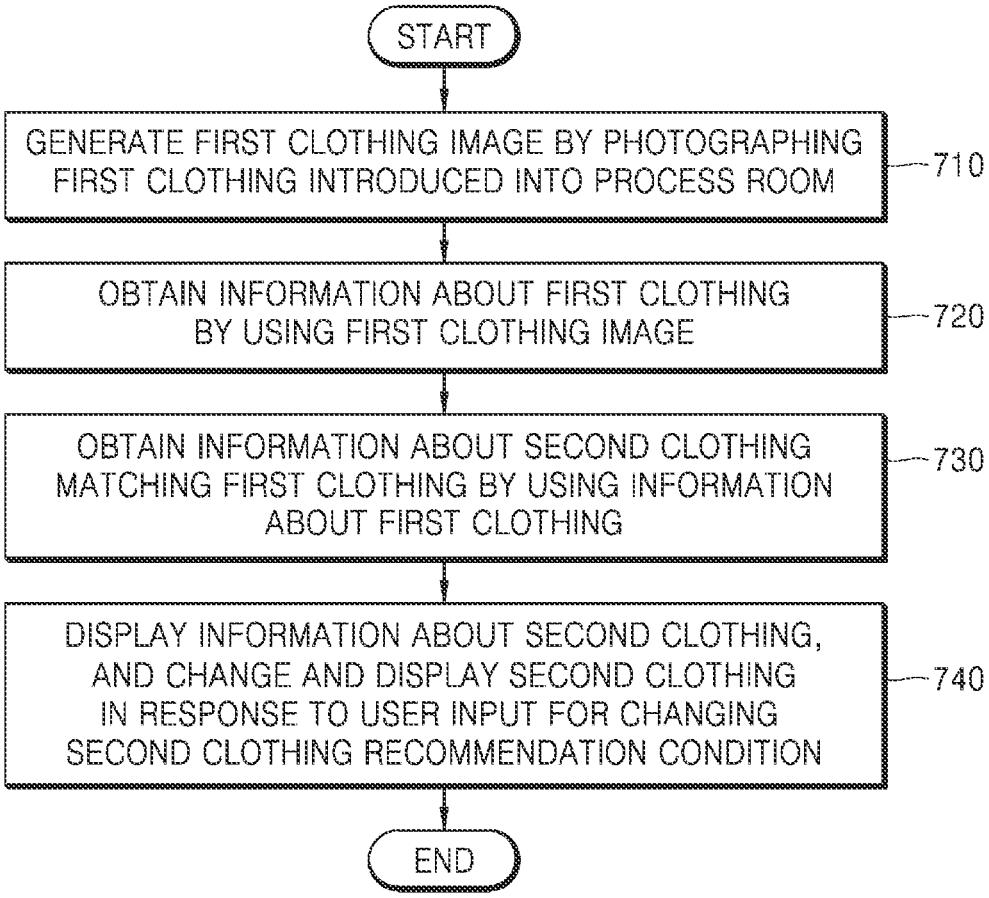

START
GENERATE FIRST CLOTHING IMAGE BY PHOTOGRAPHING FIRST CLOTHING INTRODUCED INTO PROCESS ROOM
710
OBTAIN INFORMATION ABOUT FIRST CLOTHING BY USING FIRST CLOTHING IMAGE
720
OBTAIN INFORMATION ABOUT SECOND CLOTHING MATCHING FIRST CLOTHING BY USING INFORMATION ABOUT FIRST CLOTHING
730
DISPLAY INFORMATION ABOUT SECOND CLOTHING, AND CHANGE AND DISPLAY SECOND CLOTHING IN RESPONSE TO USER INPUT FOR CHANGING SECOND CLOTHING RECOMMENDATION CONDITION
740
END

FIG. 8

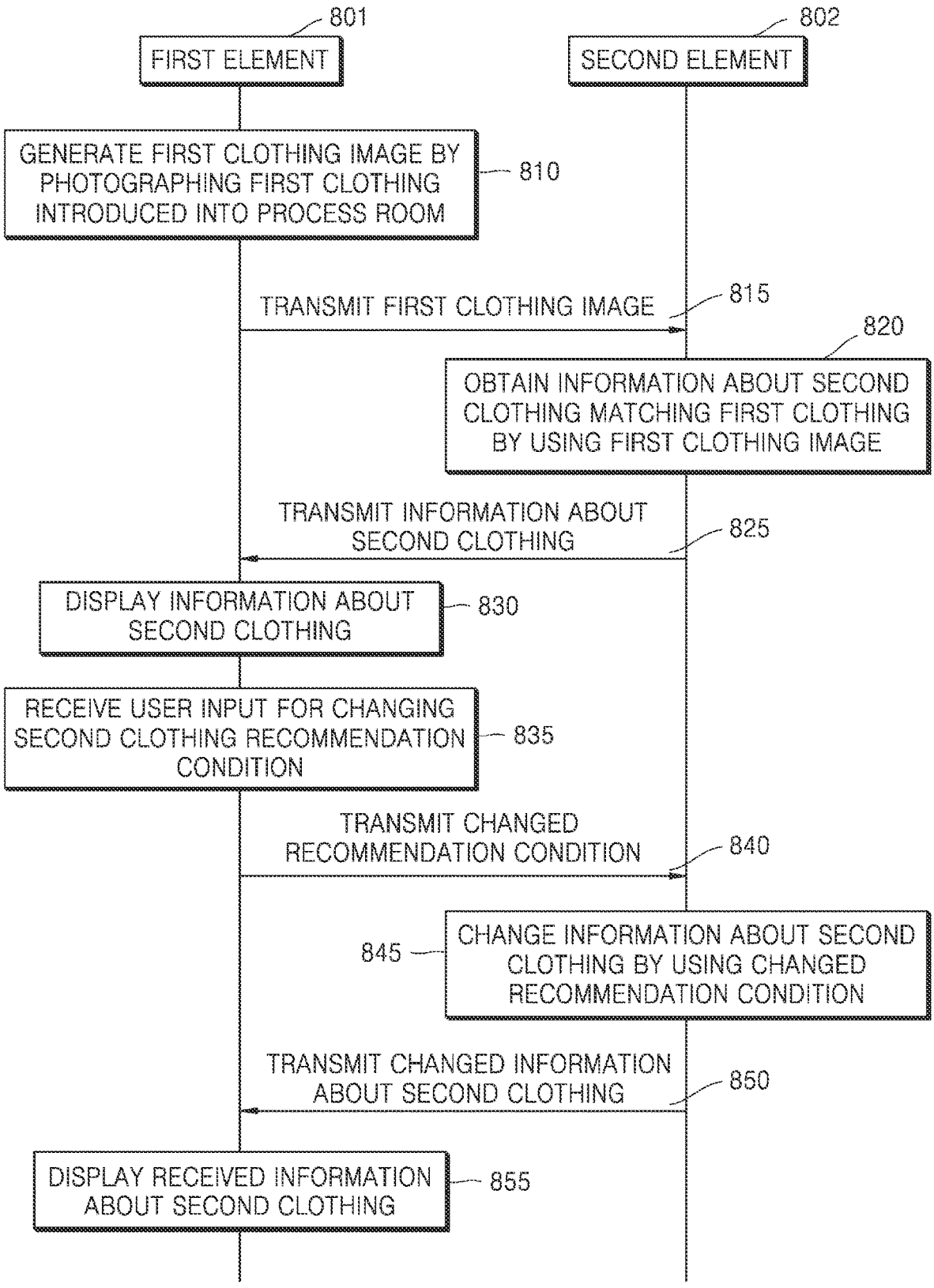

801
FIRST ELEMENT
802
SECOND ELEMENT
GENERATE FIRST CLOTHING IMAGE BY PHOTOGRAPHING FIRST CLOTHING INTRODUCED INTO PROCESS ROOM
810
TRANSMIT FIRST CLOTHING IMAGE
815
820
OBTAIN INFORMATION ABOUT SECOND CLOTHING MATCHING FIRST CLOTHING BY USING FIRST CLOTHING IMAGE
TRANSMIT INFORMATION ABOUT SECOND CLOTHING
825
DISPLAY INFORMATION ABOUT SECOND CLOTHING
830
RECEIVE USER INPUT FOR CHANGING SECOND CLOTHING RECOMMENDATION CONDITION
835
TRANSMIT CHANGED RECOMMENDATION CONDITION
840
845
CHANGE INFORMATION ABOUT SECOND CLOTHING BY USING CHANGED RECOMMENDATION CONDITION
TRANSMIT CHANGED INFORMATION ABOUT SECOND CLOTHING
850
DISPLAY RECEIVED INFORMATION ABOUT SECOND CLOTHING
855

FIG. 9

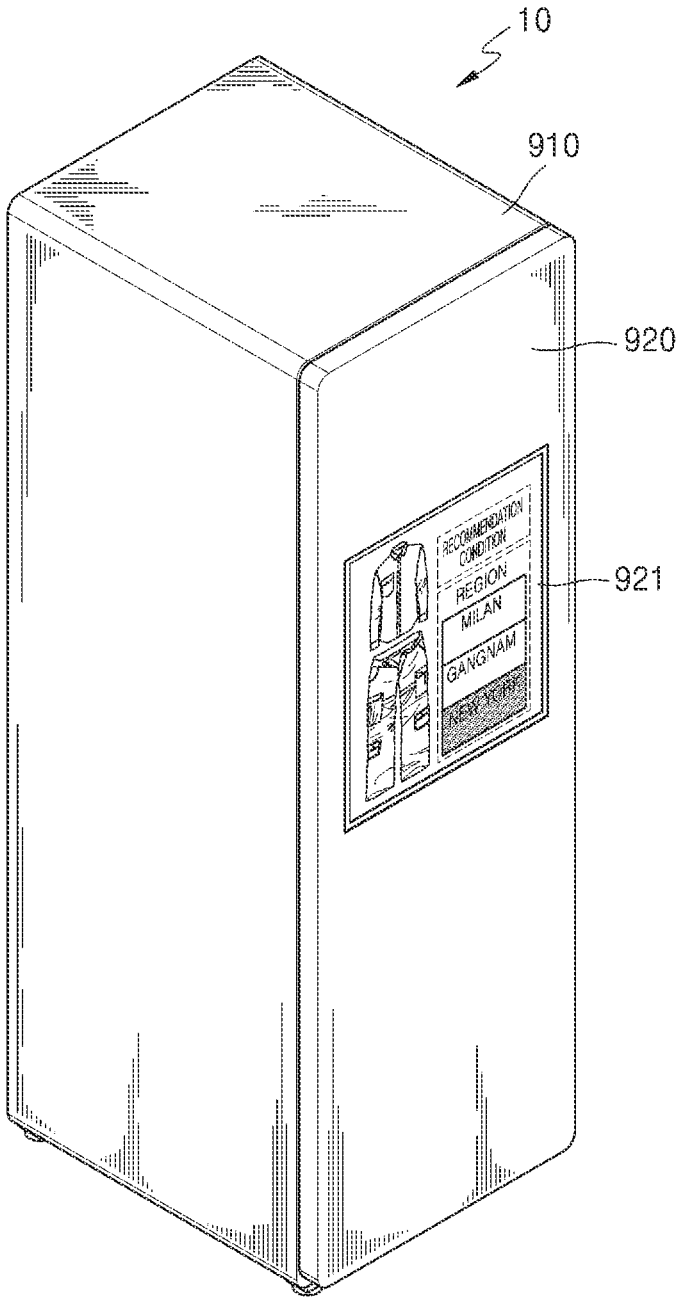

10
910
920
RECOMMENDATION CONDITION
REGION
MILAN
GANGNAM
921

FIG. 10

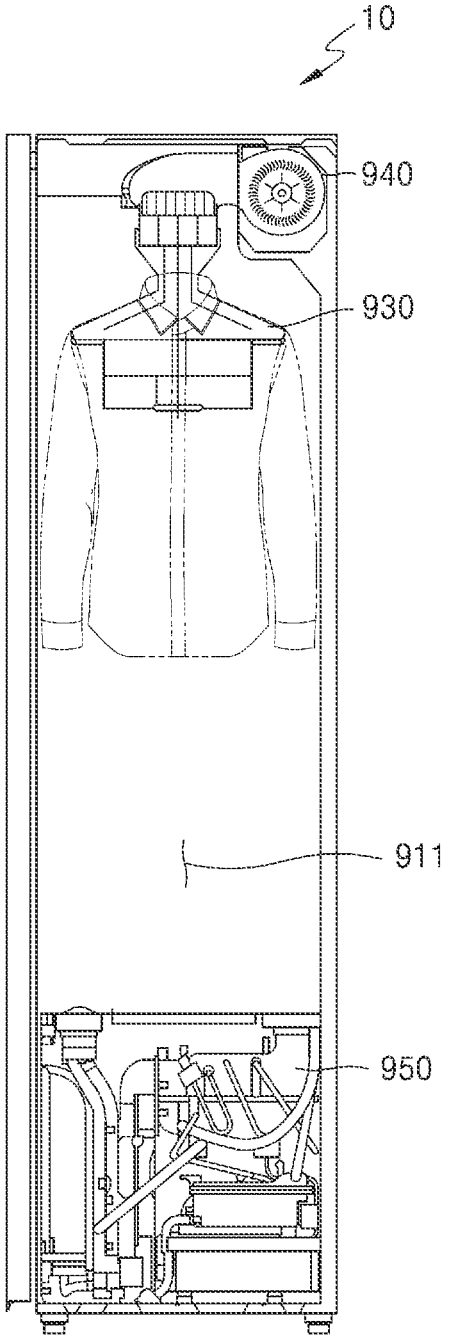


FIG. 11

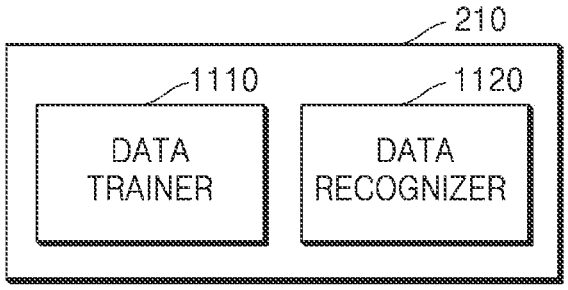
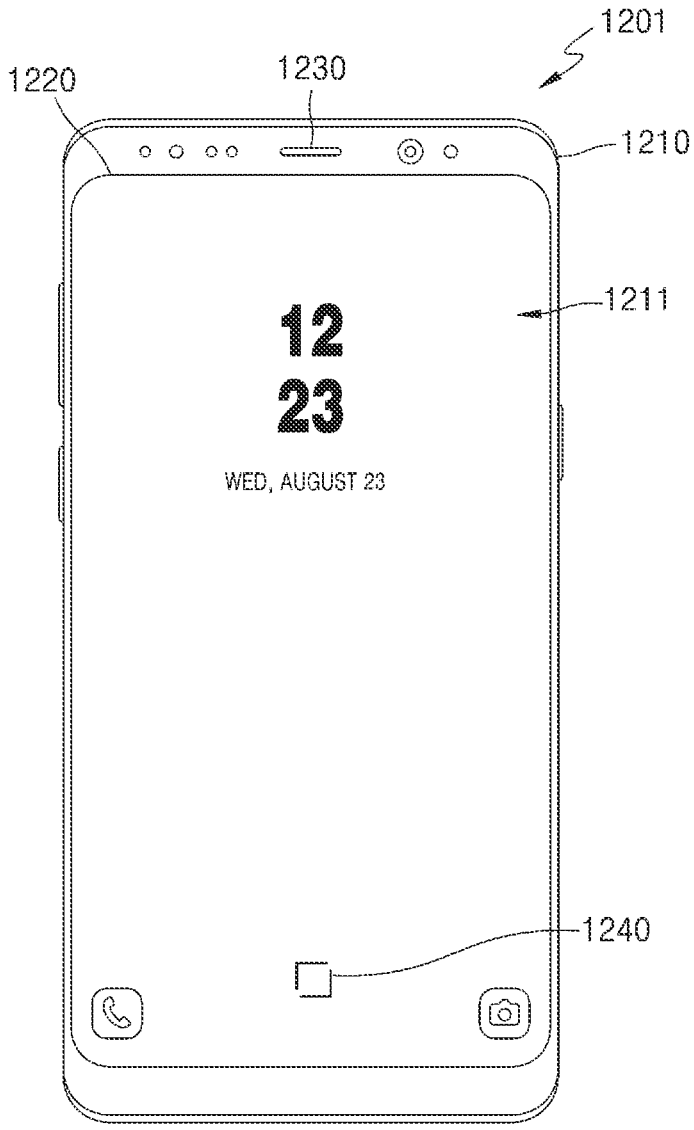


FIG. 12



ELECTRONIC APPARATUS AND METHOD FOR CONTROLLING ELECTRONIC APPARATUS

TECHNICAL FIELD

[0001] The disclosure relates to an electronic apparatus for recommending clothing, and a method of controlling the electronic apparatus to recommend clothing.

[0002] The disclosure also relates to an artificial intelligence (AI) system using a machine learning algorithm (e.g., a deep learning algorithm), and applications thereof.

BACKGROUND ART

[0003] Electronic apparatuses for taking care of clothes are currently used to eliminate dust or odors from clothes and reduce wrinkles of the clothes.

[0004] Such an electronic apparatus includes a body including a process room where clothes are placed and taken care of, and a door for opening or closing the process room. The body may include an air blower for supplying air or hot air to the clothes, and a steam generator for supplying steam to the clothes.

[0005] Therefore, the electronic apparatus may perform a function of eliminating dust or odors from the clothes by supplying air or hot air generated by the air blower to the clothes and a function of smoothing wrinkles of the clothes by supplying steam generated by the steam generator.

[0006] Currently, artificial intelligence (AI) systems capable of implementing human-level intelligence have been used in various fields. AI systems refer to systems in which a machine autonomously learns, makes determinations, and becomes smarter unlike existing rule-based smart systems. Because a recognition rate is increased and user preferences are more accurately understood in proportion to the number of iterations of the AI systems, the existing rule-based smart systems have been gradually replaced by deep-learning-based AI systems.

[0007] AI technology includes machine learning (e.g., deep learning), and element technologies using the machine learning.

[0008] The machine learning is an algorithm technology for autonomously classifying/learning features of input data, and the element technologies are technologies for mimicking functions, e.g., recognition and determination, of human brains by using the machine learning algorithm such as deep learning, and include technical fields such as linguistic understanding, visual understanding, inference/prediction, knowledge representation, operation control, etc.

[0009] Various fields using AI technology are as described below. The linguistic understanding is a technology for recognizing and applying/processing human languages/characters, and includes natural language processing, machine translation, dialog systems, queries and responses, speech recognition/synthesis, etc. The visual understanding is a technology for recognizing and processing objects like human vision, and includes object recognition, object tracking, image search, human recognition, scene understanding, space understanding, image enhancement, etc. The inference/prediction is a technology for determining information and logically performing inference and prediction, and includes knowledge/probability-based inference, optimization prediction, preference-based planning, recommendation, etc. The knowledge representation is a technology for automating human experience information into knowledge data, and includes knowledge construction (e.g., data generation/classification), knowledge management (data utilization), etc. The operation control is a technology for controlling autonomous driving of vehicles or motion of robots, and includes motion control (e.g., navigation, collision avoidance, and driving control), manipulation control (e.g., action control), etc.

DESCRIPTION OF EMBODIMENTS

Technical Problem

[0010] Provided is a method of recommending clothing suitable to wear with clothing taken care of by using an electronic apparatus.

[0011] In addition, provided is a method of recommending clothing suitable to wear with clothing taken care of by using an electronic apparatus by reflecting a clothing regional trend.

Solution to Problem

[0012] According to an embodiment, an electronic apparatus includes a body for providing a process room where clothes are placed, a heater for supplying at least one of hot air and steam into the process room, at least one camera for photographing an inside of the process room, a display, a processor, and a memory, wherein the memory stores instructions to be executed by the processor to control the camera to generate a first clothing image by photographing first clothing introduced into the process room, obtain information about the first clothing by using the first clothing image, obtain information about second clothing matching the first clothing by using the information about the first clothing, control the display to display the obtained information about the second clothing, and obtain and display information about second clothing different from the displayed second clothing in response to a user input for changing a second clothing recommendation condition.

[0013] The information about the first clothing and the information about the second clothing may include at least one of a representative image of clothing, a type of clothing, a brand of clothing, or a color of clothing.

[0014] The instructions may be executed by the processor to identify the second clothing matching the first clothing by using a clothing trend database stored in the electronic apparatus, and obtain information about the identified second clothing.

[0015] The clothing trend database may be generated using at least one of clothing images or clothing data included in online fashion magazines, clothing images or clothing data included in social media, and images obtained using closed-circuit televisions (CCTVs) located in various regions.

[0016] The instructions may be executed by the processor to obtain the second clothing recommendation condition by clustering data stored in the clothing trend database.

[0017] The electronic apparatus may further include a communication module, and the instructions may be executed by the processor to control the communication module to obtain weather information, and change and display the second clothing in response to a user input for applying the weather information as the second clothing recommendation condition.

[0018] The electronic apparatus may further include a communication module, and the instructions may be executed by the processor to control the communication module to obtain schedule information of a user, and change and display the second clothing in response to a user input for applying the schedule information as the second clothing recommendation condition.

[0019] The instructions may be executed by the processor to obtain the information about the second clothing matching the first clothing by using clothing images previously captured and stored using the camera.

[0020] The instructions may be executed by the processor to display an image including clothing equal or similar to the first clothing, and an image including the second clothing.

[0021] According to another embodiment, a server includes a communication module, a processor, and a memory, wherein the memory stores instructions to be executed by the processor to obtain information about first clothing through the communication module from an external apparatus, obtain information about second clothing matching the first clothing by applying the information about the first clothing to a clothing trend database, and control the communication module to transmit the information about the second clothing to the external apparatus.

[0022] According to another embodiment, a method of controlling an electronic apparatus includes generating a first clothing image by photographing first clothing, obtaining information about the first clothing by using the first clothing image, obtaining information about second clothing matching the first clothing by using the information about the first clothing, displaying the information about the second clothing, and obtaining and displaying information about second clothing different from the displayed second clothing in response to a user input for changing a second clothing recommendation condition.

[0023] The method may further include identifying the second clothing matching the first clothing by using a clothing trend database stored in the electronic apparatus, and obtaining information about the identified second clothing.

[0024] The clothing trend database may be generated using at least one of clothing images or clothing data included in online fashion magazines, clothing images or clothing data included in social media, and images obtained using closed-circuit televisions (CCTVs) located in various regions.

[0025] The method may further include obtaining the second clothing recommendation condition by clustering data stored in the clothing trend database.

[0026] The method may further include obtaining weather information, and changing and displaying the second clothing in response to a user input for applying the weather information as the second clothing recommendation condition.

[0027] The method may further include obtaining schedule information of a user, and changing and displaying the second clothing in response to a user input for applying the schedule information as the second clothing recommendation condition.

[0028] The method may further include obtaining the information about the second clothing matching the first clothing by using clothing images previously captured and stored using a camera included in the electronic apparatus.

[0029] The method may further include displaying an image including clothing equal or similar to the first clothing, and an image including the second clothing.

[0030] According to another embodiment, a method of controlling a server includes obtaining information about first clothing from an external apparatus, obtaining information about second clothing matching the first clothing by applying the information about the first clothing to a clothing trend database, and transmitting the information about the second clothing to the external apparatus.

[0031] According to another embodiment, an electronic apparatus includes a camera, a display, at least one processor for executing one or more instructions, and at least one memory for storing the one or more instructions, wherein the at least one processor executes the one or more instructions to control the camera to generate a first clothing image by photographing first clothing, estimate information about second clothing matching the first clothing by applying the first clothing image to a trained model, control the display to display the information about the second clothing, and obtain and display information about second clothing different from the displayed second clothing in response to a user input for changing a second clothing recommendation condition, and wherein the trained model may be a model trained using, as training data, clothing images and information about regions where the clothing images are captured.

Advantageous Effects of Disclosure

[0032] An electronic apparatus according to an embodiment of the disclosure may recommend a user for clothing suitable to wear with clothing taken care of by using the electronic apparatus.

[0033] The electronic apparatus according to an embodiment of the disclosure may recommend a user for clothing suitable to wear with clothing taken care of by using the electronic apparatus by reflecting a clothing regional trend.

BRIEF DESCRIPTION OF DRAWINGS

[0034] FIG. **1** is a diagram for describing a situation of recommending clothing by using an electronic apparatus according to an embodiment.

[0035] FIG. **2** is a block diagram of an electronic apparatus according to an embodiment.

[0036] FIG. **3** is a diagram for describing another situation of recommending clothing by using an electronic apparatus according to an embodiment.

[0037] FIG. **4** is a diagram for describing a situation of using weather information to recommend clothing by using an electronic apparatus according to an embodiment.

[0038] FIG. **5** is a diagram for describing a situation of using color information to recommend clothing by using an electronic apparatus according to an embodiment.

[0039] FIG. **6** is a diagram for describing a situation of using a personal schedule of a user to recommend clothing by using an electronic apparatus according to an embodiment.

[0040] FIG. **7** is a flowchart for describing a situation where an electronic apparatus according to an embodiment recommends clothing.

[0041] FIG. **8** is a flowchart for describing a situation where an electronic apparatus according to an embodiment recommends clothing by using a server.

[0042] FIG. **9** is a perspective view of an electronic apparatus according to an embodiment.

[0043] FIG. **10** is a side cross-sectional view of an electronic apparatus according to an embodiment.

[0044] FIG. **11** is a block diagram of a processor according to an embodiment.

[0045] FIG. **12** is a schematic diagram of another electronic apparatus according to an embodiment.

MODE OF DISCLOSURE

[0046] Hereinafter, various embodiments of the disclosure will be described in detail with reference to the attached drawings. The disclosure may, however, be embodied in many different forms and should not be construed as being limited to specific embodiments set forth herein; rather, these embodiments covers various modifications, equivalents and/or alternatives thereof. In the drawings, like reference numerals denote like elements.

[0047] As used herein, the expression "have", "may have", "include", "may include", "comprise", or "may comprise" indicates the presence of a feature (e.g., a numerical value, a function, an operation, or an element such as a component) and does not exclude the presence of an additional feature.

[0048] The expression "A or B", "at least one of A or/and B", or "one or more of A or/and B" may include all possible combinations of the listed items. For example, "A or B", "at least one of A and B", or "at least one of A or B" may refer to all cases in which (1) at least one A is included, (2) at least one B is included, and (3) at least one A and at least one B are both included.

[0049] The expressions such as "first", "second", "1st", and "2nd" used herein may refer to various different elements irrespective of the order and/or priority thereof, and are merely used to distinguish one element from another without limiting the elements. For example, "a first user device" and "a second user device" may indicate different user devices irrespective of the order or priority thereof. Specifically, a first element may be referred to as a second element and, similarly, a second element may be referred to as a first element without departing from the scope of the disclosure.

[0050] As used herein, the term "module", "unit", or "part" denotes an entity for performing at least one function or operation, and may be implemented as hardware, software, or a combination of hardware and software. A plurality of "modules", "units", or "parts" may be integrated into at least one module or chip and be implemented by at least one processor, except for a case where they need to be implemented as individual specific hardware components.

[0051] It will be understood that, when an element (e.g., a first element) is referred to as being "(operatively or communicatively) coupled with/to" or "connected to" another element (e.g., a second element), the element can be coupled or connected to the other element directly or through another element (e.g., a third element). On the contrary, it will be understood that, when an element (e.g., a first element) is referred to as being "directly coupled to" or "directly connected to" another element (e.g., a second element), another element (e.g., a third element) is not present therebetween.

[0052] Terms used herein are merely used to describe specific embodiments of the disclosure, and are not intended to limit the scope of other embodiments of the disclosure. Singular forms are intended to include plural forms as well, unless the context clearly indicates otherwise. All terms (including technical and scientific terms) used herein have the same meaning as generally understood by one of ordinary skill in the art. Terms as defined in a commonly used dictionary should be construed as having the same meaning as in an associated technical context, and unless clearly defined herein, the terms are not ideally or excessively construed as having formal meaning. In some cases, even terms defined in this specification cannot be construed to exclude embodiments of the disclosure.

[0053] FIG. **1** is a diagram for describing a situation of recommending clothing by using an electronic apparatus **10** according to an embodiment.

[0054] Referring to FIG. **1**, the electronic apparatus **10** may include a clothing care system for eliminating dust or odors from clothes and reducing wrinkles of the clothes. However, the electronic apparatus **10** is not limited thereto. For example, the electronic apparatus **10** may be implemented as an apparatus including a memory and a processor. For example, the electronic apparatus **10** may be implemented as various apparatuses such as a mobile phone, a smartphone, a tablet personal computer (PC), a digital camera, a camcorder, a laptop computer, a tablet PC, a desktop computer, an e-book reader, a digital broadcast receiver, a personal digital assistant (PDA), a portable multimedia player (PMP), an MP3 player, and a wearable device.

[0055] According to an embodiment, the electronic apparatus **10** may provide a required service to a user by using an application (or an application program) stored therein (e.g., a gallery application or a web browser application).

[0056] According to an embodiment, the electronic apparatus **10** may have established communication with another electronic apparatus (e.g., a mobile phone, a smartphone, or a tablet PC) by using communication modules included in the electronic apparatus **10** and the other electronic apparatus. The electronic apparatus **10** may establish communication with the other electronic apparatus directly or via a third apparatus (e.g., a gateway or a home server).

[0057] According to an embodiment, the electronic apparatus **10** may establish a communication network by using a wired or wireless communication method. The electronic apparatus **10** may include a wireless communication module (e.g., a cellular communication module, a short-range wireless communication module, or a global navigation satellite system (GNSS) communication module) or a wired communication module (e.g., a local area network (LAN) communication module or a power line communication module), and communicate with the other electronic apparatus by using an appropriate communication module through a first network (e.g., a short-range wireless communication network such as Bluetooth, WiFi direct, or Infrared Data Association (IrDA)) or a second network (e.g., a telecommunication network such as a cellular network, the Internet, or a computer network (e.g., a local area network (LAN) or a wide area network (WAN))).

[0058] Reference Numeral **1**-*a* of FIG. **1** is a perspective view showing that a door **20** of the electronic apparatus **10** is open.

[0059] Referring to Reference Numeral **1**-*a* of FIG. **1**, a user may open the door **20** of the electronic apparatus **10** and place various types of clothes in a process room **11**. According to an embodiment, clothes or clothing may refer to items made of fabric, leather, etc. to cover or protect a part of a

human body. The electronic apparatus **10** may perform a clothing care operation for reducing wrinkles and eliminating odors of the clothes inside the process room **11**.

[0060] The electronic apparatus **10** may photograph the clothes in the process room **11** by using at least one camera (not shown) capable of photographing the process room **11**. For example, the electronic apparatus **10** may generate a first clothing image by photographing first clothing in the process room **11** by using the camera. The first clothing may refer to, for example, one of various types of clothes such as shirts, jackets, jeans, cotton pants, short pants, and coats, etc.

[0061] The electronic apparatus **10** may obtain information about the first clothing by using the generated first clothing image.

[0062] The information about the first clothing may include at least one of, for example, a representative image of the first clothing, a type of the first clothing, a brand of the first clothing, or a color of the first clothing. The electronic apparatus **10** may obtain the information about the first clothing by using, for example, a clothing trend database to be described below. Alternatively, the electronic apparatus **10** may obtain the information about the first clothing by using, for example, online search.

[0063] The representative image may be, for example, the first clothing image generated by photographing the first clothing. Alternatively, the representative image may be an image obtained online by the electronic apparatus **10** based on the type or brand of the first clothing.

[0064] Referring to Reference Numeral **1**-*b* of FIG. **1**, the electronic apparatus **10** may include a display **21**. For example, the display **21** may be located on the door **20** of the electronic apparatus **10**. The display **21** may include a touchscreen display. However, the location of the display **21** is not limited thereto. The electronic apparatus **10** may display information related to clothes by using the display **21**. For example, the user may control operation of the electronic apparatus **10** by selecting an execution object (not shown) displayed on the display **21**.

[0065] According to an embodiment, the electronic apparatus **10** may recommend clothing to the user by using the display **21**. For example, the electronic apparatus **10** may obtain the information about the first clothing as described above in relation to Reference Numeral **1**-*a* of FIG. **1**. Then, the electronic apparatus **10** may obtain information about second clothing matching the first clothing by using the information about the first clothing. The second clothing may refer to, for example, one of various types of clothes such as shirts, jackets, jeans, cotton pants, short pants, and coats, etc.

[0066] The information about the second clothing may include at least one of, for example, a representative image of the second clothing, a type of the second clothing, a brand of the second clothing, or a color of the second clothing. The electronic apparatus **10** may obtain the information about the second clothing by using, for example, the clothing trend database to be described below. Alternatively, the electronic apparatus **10** may obtain the information about the second clothing by using, for example, online search.

[0067] The representative image may be, for example, a second clothing image generated by photographing the second clothing. Alternatively, the representative image may be an image obtained online by the electronic apparatus **10** based on the type or brand of the second clothing.

[0068] The obtaining of the information about the second clothing matching the first clothing may refer to, for example, identifying the second clothing as clothing suitable for the user to wear with the first clothing, and obtaining information about the second clothing. Alternatively, the obtaining of the information about the second clothing matching the first clothing may refer to, for example, identifying the second clothing as clothing that the user is highly likely to wear with the first clothing, and obtaining information about the second clothing. Alternatively, the obtaining of the information about the second clothing matching the first clothing may refer to, for example, identifying the second clothing as clothing which is included in a preset or larger number of images including the first clothing, and obtaining information about the second clothing. Alternatively, the obtaining of the information about the second clothing matching the first clothing may refer to, for example, identifying the second clothing as clothing which is mentioned a preset or larger number of times together with the information about the first clothing, and obtaining information about the second clothing.

[0069] According to an embodiment, the electronic apparatus **10** may obtain the information about the second clothing matching the first clothing, by using the clothing trend database. The clothing trend database may be generated using at least one of clothing images or clothing data included in online fashion magazines, clothing images or clothing data included in social media, or pedestrian images obtained using closed-circuit televisions (CCTVs) located in various regions. However, the clothing trend database is not limited thereto. The clothing trend database may include various types of data related to clothes.

[0070] According to an embodiment, the clothing trend database may cluster collected data. As such, the clothing trend database may classify or group the collected data into various groups. The electronic apparatus **10** may identify the second clothing matching the first clothing, by using the classified and grouped clothing trend database.

[0071] According to various embodiments, the clothing trend database may be configured per user. For example, the electronic apparatus **10** may use clothes owned by the user, for the clothing trend database. For example, the electronic apparatus **10** may reflect, to the clothing trend database, clothing images previously captured using the camera included in the electronic apparatus **10**. Alternatively, the electronic apparatus **10** may configure the clothing images previously captured using the camera included in the electronic apparatus **10**, as an additional database to be referred by the electronic apparatus **10** when the electronic apparatus **10** uses the clothing trend database to obtain the information about the second clothing. Alternatively, the electronic apparatus **10** may add preference of the user for clothes, which is obtained using information found by the user to purchase clothes or information about clothes stored in a shopping list, to the additional database.

[0072] The clothing trend database may be periodically updated. The clothing trend database may be stored in, for example, a memory of the electronic apparatus **10** or an external server.

[0073] Referring to Reference Numeral **1**-*c* of FIG. **1**, the electronic apparatus **10** may display the information about the second clothing on the display **21**. For example, the electronic apparatus **10** may display the representative

image of the second clothing on the display **21** as the information about the second clothing.

[0074] According to an embodiment, the electronic apparatus **10** may display, on the display **21**, a recommendation condition **110** for obtaining the information about the second clothing. The recommendation condition **110** for obtaining the information about the second clothing may include at least one of, for example, a region where clothing is mainly consumed, a race, a color of clothing, a type of clothing, a brand of clothing, clothes owned by the user, and an age group who prefers clothing.

[0075] However, the recommendation condition **110** for obtaining the information about the second clothing is not limited thereto. For example, the electronic apparatus **10** may newly generate or delete the recommendation condition **110** by clustering data included in the clothing trend database. For example, the electronic apparatus **10** may generate or delete the recommendation condition **110** by using the classified or grouped various groups of the clothing trend database. Alternatively, the electronic apparatus **10** may generate the recommendation condition **110** based on personal preference of the user. Alternatively, the electronic apparatus **10** may generate the recommendation condition **110** as a condition input by the user.

[0076] According to various embodiments, when a region is used as the recommendation condition **110**, the electronic apparatus **10** may check social media sites and use clothing images posted on the social media sites in the region. Alternatively, when a region is used as the recommendation condition **110**, the electronic apparatus **10** may check online fashion magazines and use clothing images of the online fashion magazines issued in the region.

[0077] Referring to Reference Numeral **1**-*c* of FIG. **1**, the electronic apparatus **10** may identify the second clothing matching the first clothing by setting "Gangnam" **122** as a region **120** used as a recommendation condition **110**. The electronic apparatus **10** may identify the second clothing matching a shirt **130** corresponding to the first clothing by using images captured by CCTVs in Gangnam. For example, the electronic apparatus **10** may identify jeans **140** as the second clothing matching the shirt **130** corresponding to the first clothing, and obtain and display information about the jeans **140** on the display **21**.

[0078] According to an embodiment, the electronic apparatus **10** may identify the second clothing as the jeans **140** which are included in a large number of images including the shirt **130** corresponding to the first clothing, and obtain and display the information about the second clothing on the display **21**. In this case, for example, the electronic apparatus **10** may identify the second clothing as the jeans **140** which are included in a large number of images including the shirt **130** corresponding to the first clothing, and display the jeans **140** on the display **21** from among clothing images previously captured and stored by the electronic apparatus **10** by photographing the clothes owned by the user.

[0079] According to various embodiments, when the clothing trend database is stored in the external server, the electronic apparatus **10** may transmit the first clothing image to the server. The server may obtain the information about the first clothing by using the first clothing image and transmit the obtained information to the electronic apparatus **10**.

[0080] According to various embodiments, when the clothing trend database is stored in the external server, the electronic apparatus **10** may transmit the first clothing image to the server. The server may obtain the information about the first clothing by using the first clothing image, and obtain the information about the second clothing matching the first clothing by using the obtained information about the first clothing The electronic apparatus **10** may receive the information about the second clothing from the server and display the received information.

[0081] According to an embodiment, the electronic apparatus **10** may change and display the second clothing in response to a user input for changing the recommendation condition **110**. The changing and displaying of the second clothing may refer to, for example, newly identifying second clothing matching the first clothing to replace the previously identified second clothing, and obtaining and displaying information about the newly identified second clothing.

[0082] Referring to Reference Numeral **1**-*d* of FIG. **1**, the electronic apparatus **10** may receive a user input for changing the region **120** to "New York" **123**. The electronic apparatus **10** may change the information about the previously identified second clothing based on the changed recommendation condition **110**. For example, the electronic apparatus **10** may identify the second clothing matching the shirt **130** corresponding to the first clothing by using images captured by CCTVs in New York. For example, the electronic apparatus **10** may identify cargo pants **150** as the second clothing, and obtain and display information about the cargo pants **150** on the display **21**.

[0083] According to various embodiments, when the clothing trend database is stored in the external server, the electronic apparatus **10** may transmit the changed recommendation condition **110** to the server. The server may newly obtain the information about the second clothing matching the first clothing based on the changed recommendation condition **110**, and transmit the newly obtained information to the electronic apparatus **10**. The electronic apparatus **10** may display the received information about the second clothing on the display **21**.

[0084] According to various embodiments, the electronic apparatus **10** may display the information about the first clothing and the second clothing matching the first clothing by using another electronic apparatus. For example, the electronic apparatus **10** may establish communication with the other electronic apparatus such as a smartphone or a tablet PC. The user may control operation of the electronic apparatus **10** by using an application program installed in the other electronic apparatus. In addition, the other electronic apparatus may display the information described in relation to Reference Numerals **1**-*c* and **1**-*d* of FIG. **1**, on a display of the other electronic apparatus by using data (or information) received from the electronic apparatus **10**.

[0085] As described above, according to an embodiment of the disclosure, the electronic apparatus **10** may adaptively recommend the second clothing matching the first clothing in response to a clothing recommendation condition changed by the user.

[0086] FIG. **2** is a block diagram of the electronic apparatus **10** according to an embodiment.

[0087] Referring to Reference Numeral **2**-*a* of FIG. **2**, the electronic apparatus **10** may include a processor **210**, a body **220**, a heater **230**, a camera **240**, a display **250**, and a memory **260**. However, the electronic apparatus **10** is not limited thereto. For example, the electronic apparatus **10** may further include elements to perform functions of the

electronic apparatus **10**, or may not include some elements. For example, the electronic apparatus **10** may further include a communication module (not shown) for establishing communication with an external apparatus. The display **250** may include the display **21** of FIG. **1**.

[0088] According to an embodiment, the processor **210** may control overall operations of the electronic apparatus **10**. For example, the processor **210** may control the memory **260** to execute a program stored in the memory **260**, and read or store required information from or in the memory **260**.

[0089] According to an embodiment, the processor **210** may control the camera **240** to generate a first clothing image by photographing first clothing introduced into a process room, obtain information about the first clothing by using the first clothing image, obtain information about second clothing matching the first clothing by using the information about the first clothing, control the display **250** to display the obtained information about the second clothing, and obtain and display information about second clothing different from the displayed second clothing in response to a user input for changing a second clothing recommendation condition.

[0090] According to an embodiment, the body **220** forms the exterior of the electronic apparatus **10**. The body **220** may include an outer body provided outside, and an inner body provided inside the outer body to form the process room.

[0091] According to an embodiment, the process room may be a space for processing clothes introduced into the process room, e.g., a space for drying the clothes or eliminating wrinkles or odors of the clothes by applying hot air or steam to the clothes.

[0092] According to an embodiment, under the control of the processor **210**, the heater **230** may suck in the air inside the process room, heat the air, and then blow the heated air into the process room, or receive water and provide hot air and steam into the process room.

[0093] According to an embodiment, under the control of the processor **210**, the camera **240** may generate clothing images by photographing the clothes inside the process room.

[0094] According to an embodiment, the display **250** may display various contents. In addition, the display **250** may display an execution screen of an application program executed under the control of the processor **210**. The display **250** may include a touchscreen display integrated with a touchscreen panel. The electronic apparatus **10** may execute an operation of the electronic apparatus **10** based on a user command input using the display **250**.

[0095] According to an embodiment, the memory **260** may include at least one of flash memory, a hard disk, a multimedia card micro, a memory card (e.g., a secure digital (SD) or extreme digital (XD) memory card), random access memory (RAM), static random access memory (SRAM), read-only memory (ROM), electrically erasable programmable read-only memory (EEPROM), programmable read-only memory (PROM), magnetic memory, a magnetic disc, and an optical disc.

[0096] According to an embodiment, the memory **260** may store instructions to be executed by the processor **210** to control the camera **240** to generate the first clothing image by photographing the first clothing introduced into the process room, obtain the information about the first clothing by using the first clothing image, obtain the information about the second clothing matching the first clothing by using the information about the first clothing, control the display **250** to display the obtained information about the second clothing, and obtain and display the information about the second clothing different from the displayed second clothing in response to the user input for changing the second clothing recommendation condition.

[0097] According to an embodiment, the electronic apparatus **10** may cooperate with a server **270** to obtain the information about the second clothing.

[0098] Referring to Reference Numeral **2**-*b* of FIG. **2**, the server **270** may include a processor **272**, a communication module **274**, and a memory **276**.

[0099] According to an embodiment, the processor **272** may control overall operations of the server **270**. For example, the processor **272** may control the memory **276** to execute a program stored in the memory **276**, and read or store required information from or in the memory **276**.

[0100] According to an embodiment, the processor **272** may obtain the information about the first clothing through the communication module **274** from an external apparatus (e.g., the electronic apparatus **10**), obtain information about second clothing matching the first clothing by applying the information about the first clothing to a clothing trend database, and control the communication module **274** to transmit the information about the second clothing to the external apparatus.

[0101] According to an embodiment, under the control of the processor **272**, the communication module **274** may obtain the information about the first clothing from the external apparatus, and transmit the generated information about the second clothing to the external apparatus.

[0102] According to an embodiment, the memory **276** may store instructions configured to obtain the information about the first clothing through the communication module **274** from the external apparatus (e.g., the electronic apparatus **10**), obtain the information about the second clothing matching the first clothing by applying the information about the first clothing to the clothing trend database, and control the communication module **274** to transmit the information about the second clothing to the external apparatus.

[0103] FIG. **3** is a diagram for describing another situation of recommending clothing by using the electronic apparatus **10** according to an embodiment.

[0104] Referring to Reference Numeral **3**-*a* of FIG. **3**, the electronic apparatus **10** may display a representative image of second clothing on the display **21** as information about the second clothing.

[0105] According to an embodiment, the electronic apparatus **10** may display, on the display **21**, the recommendation condition **110** for obtaining the information about the second clothing. The recommendation condition **110** for obtaining the information about the second clothing may include at least one of, for example, a region where clothing is mainly consumed, a race, a color of clothing, a type of clothing, a brand of clothing, clothes owned by a user, and an age group who prefers clothing.

[0106] Referring to Reference Numeral **3**-*a* of FIG. **3**, the electronic apparatus **10** may identify the second clothing matching first clothing by setting "Gangnam" **122** as the region **120** used as a recommendation condition **110**. For example, the electronic apparatus **10** may identify the jeans

140 as the second clothing matching the shirt **130** corresponding to the first clothing, and obtain and display information about the jeans **140** on the display **21**.

[0107] According to an embodiment, the electronic apparatus **10** may identify the second clothing as the jeans **140** which are included in a large number of images including the shirt **130** corresponding to the first clothing, and obtain and display the information about the second clothing on the display **21**. In this case, for example, the electronic apparatus **10** may identify the second clothing as the jeans **140** which are included in a large number of images including the shirt **130** corresponding to the first clothing, and display the jeans **140** on the display **21** from among clothing images previously captured and stored by the electronic apparatus **10** by photographing the clothes owned by the user.

[0108] According to an embodiment, the electronic apparatus **10** may display the image including the second clothing in response to a user input for changing the recommendation condition **110**.

[0109] Referring to Reference Numeral **3**-*b* of FIG. **3**, the electronic apparatus **10** may receive a user input for changing the region **120** to "Milan" **121**. The electronic apparatus **10** may display the image including the second clothing matching the first clothing on the display **21** based on the changed recommendation condition **110**. For example, the electronic apparatus **10** may display, on the display **21**, an image **310** including clothing that a large number of people wear in Milan or which is included in a large number of images posted on social media sites in Milan together with the shirt **130** corresponding to the first clothing. In this case, the second clothing may include, for example, pants **312** or a jacket **314**.

[0110] According to various embodiments, the electronic apparatus **10** may display, on the display **21**, a user interface for adjusting a price range. In this case, the electronic apparatus **10** may display the image including the second clothing matching the first clothing on the display **21** in response to a user input for changing the price range.

[0111] According to an embodiment, in response to a user input for selecting one of items of clothing included in the image **310**, the electronic apparatus **10** may guide purchase of the selected item of clothing. For example, referring to Reference Numeral **3**-*b* of FIG. **3**, the electronic apparatus **10** may receive a user input for selecting the pants **312** from among the items of clothing included in the image **310** displayed on the display **21**.

[0112] Referring to Reference Numeral **3**-*c* of FIG. **3**, the electronic apparatus **10** may display, on the display **21**, an online shopping site selling the pants **312** selected by the user or pants similar to the pants **312**.

[0113] As described above, according to an embodiment of the disclosure, the electronic apparatus **10** may provide an image including a plurality of items of second clothing to the user. In response to a user input for selecting one of items of clothing included in an image, the electronic apparatus **10** may provide information about an online shopping mall selling the selected item of clothing or an item similar to the selected item of clothing, thereby increasing user convenience.

[0114] FIG. **4** is a diagram for describing a situation of using weather information to recommend clothing by using the electronic apparatus **10** according to an embodiment.

[0115] Referring to Reference Numeral **4**-*a* of FIG. **4**, the electronic apparatus **10** may display a representative image of second clothing on the display **21** as information about the second clothing.

[0116] According to an embodiment, the electronic apparatus **10** may display, on the display **21**, the recommendation condition **110** for obtaining the information about the second clothing. The recommendation condition **110** for obtaining the information about the second clothing may include, for example, weather information. The weather information may be weather information of a region where a user is located, which is obtained and reflected to the recommendation condition **110** by the electronic apparatus **10**.

[0117] Referring to Reference Numeral **4**-*a* of FIG. **4**, the electronic apparatus **10** may identify the second clothing before reflecting a weather **410** used as a recommendation condition **110**. For example, the electronic apparatus **10** may identify the second clothing as the jeans **140** which are included in a large number of images including the shirt **130** corresponding to first clothing, and obtain and display the information about the second clothing on the display **21**.

[0118] According to an embodiment, the electronic apparatus **10** may change and display the second clothing in response to a user input for changing the recommendation condition **110**.

[0119] Referring to Reference Numeral **4**-*b* of FIG. **4**, the electronic apparatus **10** may receive a user input for selecting the weather **410**. The electronic apparatus **10** may display weather information **412** on the display **21** in response to the user input. In addition, the electronic apparatus **10** may newly identify the second clothing matching the first clothing based on the added recommendation condition **110**. For example, the electronic apparatus **10** may identify short pants **420** as the second clothing, and obtain and display information about the short pants **420** on the display **21**.

[0120] According to various embodiments, the electronic apparatus **10** may recommend the second clothing by reflecting the weather of a region desired by the user. For example, the electronic apparatus **10** may provide a user interface for inputting weather information of a region other than the region where the user is currently located. The electronic apparatus **10** may change and display the second clothing by reflecting weather information of the region input using the user interface.

[0121] As described above, according to an embodiment of the disclosure, the electronic apparatus **10** may recommend the second clothing matching the first clothing by using weather information.

[0122] FIG. **5** is a diagram for describing a situation of using color information to recommend clothing by using the electronic apparatus **10** according to an embodiment.

[0123] Referring to Reference Numeral **5**-*a* of FIG. **5**, the electronic apparatus **10** may display a representative image of second clothing on the display **21** as information about the second clothing.

[0124] According to an embodiment, the electronic apparatus **10** may display, on the display **21**, the recommendation condition **110** for obtaining the information about the second clothing. The recommendation condition **110** for obtaining the information about the second clothing may include at least one of, for example, a region where clothing is mainly

consumed, a race, a color of clothing, a type of clothing, a brand of clothing, clothes owned by a user, and an age group who prefers clothing.

[0125] Referring to Reference Numeral **5**-*a* of FIG. **5**, the electronic apparatus **10** may identify the second clothing matching first clothing by setting "dark" **512** as a color **510** used as a recommendation condition **110**. For example, the electronic apparatus **10** may identify dark jeans **530** as the second clothing matching the shirt **130** corresponding to the first clothing, and obtain and display information about the dark jeans **530** on the display **21**.

[0126] According to an embodiment, the electronic apparatus **10** may change and display the second clothing in response to a user input for changing the recommendation condition **110**.

[0127] Referring to Reference Numeral **5**-*b* of FIG. **5**, the electronic apparatus **10** may receive a user input for changing the color **510** to "bright" **511**. The electronic apparatus **10** may newly identify the second clothing matching the first clothing based on the changed recommendation condition **110**. For example, the electronic apparatus **10** may identify bright jeans **530** as the second clothing, and obtain and display information about the bright jeans **530** on the display **21**.

[0128] FIG. **6** is a diagram for describing a situation of using a personal schedule of a user to recommend clothing by using the electronic apparatus **10** according to an embodiment.

[0129] Referring to Reference Numeral **6**-*a* of FIG. **6**, the electronic apparatus **10** may display a representative image of second clothing on the display **21** as information about the second clothing.

[0130] According to an embodiment, the electronic apparatus **10** may display, on the display **21**, the recommendation condition **110** for obtaining the information about the second clothing. The recommendation condition **110** for obtaining the information about the second clothing may include, for example, schedule information. The schedule information may be information obtained in association with another electronic apparatus of the user and reflected to the recommendation condition **110** by the electronic apparatus **10**.

[0131] Referring to Reference Numeral **6**-*a* of FIG. **6**, the electronic apparatus **10** may identify the second clothing before reflecting schedule information used as a recommendation condition **110**. For example, the electronic apparatus **10** may identify the second clothing as the jeans **140** which are included in a large number of images including the shirt **130** corresponding to first clothing, and obtain and display the information about the second clothing on the display **21**.

[0132] According to an embodiment, the electronic apparatus **10** may change and display the second clothing in response to a user input for changing the recommendation condition **110**.

[0133] Referring to Reference Numerals **6**-*b* and **6**-*c* of FIG. **6**, the electronic apparatus **10** may receive a user input for selecting a schedule **610**. The electronic apparatus **10** may display schedule information **612** on the display **21** in response to the user input. In addition, the electronic apparatus **10** may newly identify the second clothing matching the first clothing based on the added recommendation condition **110**. For example, the electronic apparatus **10** may identify formal pants **620** as the second clothing, and obtain and display information about the formal pants **620** on the display **21**. The electronic apparatus **10** may identify a jacket **630** as the second clothing, and obtain and display information about the jacket **630** on the display **21**.

[0134] According to various embodiments, the electronic apparatus **10** may recommend the second clothing by reflecting a schedule selected by the user. For example, the electronic apparatus **10** may display, on the display **21**, a user interface for selecting one of a plurality of displayed schedules. The electronic apparatus **10** may change and display the second clothing considering only the schedule selected using the user interface.

[0135] As described above, according to an embodiment of the disclosure, the electronic apparatus **10** may recommend the second clothing matching the first clothing by using schedule information.

[0136] FIG. **7** is a flowchart for describing a situation where the electronic apparatus **10** according to an embodiment recommends clothing.

[0137] Referring to operation **710**, the electronic apparatus **10** may generate a first clothing image by photographing first clothing introduced into a process room. For example, the electronic apparatus **10** may generate the first clothing image by photographing the first clothing by operating at least one camera included in the electronic apparatus **10** at a timing when a door is open and then closed.

[0138] Referring to operation **720**, the electronic apparatus **10** may obtain information about the first clothing by using the first clothing image. For example, the electronic apparatus **10** may obtain the information about the first clothing by using a clothing trend database. Alternatively, the electronic apparatus **10** may obtain the information about the first clothing by using online search.

[0139] Referring to operation **730**, the electronic apparatus **10** may obtain information about second clothing matching the first clothing by using the information about the first clothing. For example, the obtaining of the information about the second clothing matching the first clothing may refer to, for example, identifying the second clothing as clothing suitable for a user to wear with the first clothing, and obtaining information about the second clothing. Alternatively, the obtaining of the information about the second clothing matching the first clothing may refer to, for example, identifying the second clothing as clothing that the user is highly likely to wear with the first clothing, and obtaining information about the second clothing. Alternatively, the obtaining of the information about the second clothing matching the first clothing may refer to, for example, identifying the second clothing as clothing which is included in images including the first clothing, and obtaining information about the second clothing.

[0140] The information about the second clothing may include at least one of, for example, a representative image of clothing, a type of clothing, a brand of clothing, and a color of clothing.

[0141] According to various embodiments, the electronic apparatus **10** may estimate the information about the second clothing by using a trained model to be described below in relation to FIG. **11**. The trained model may be a model trained to estimate the information about the second clothing matching the first clothing by using the information about the first clothing. The trained model may be, for example, a model trained using clothing images and information about regions where the clothing images are captured.

[0142] Referring to operation **740**, the electronic apparatus **10** may display the information about the second clothing,

and change and display the second clothing in response to a user input for changing a second clothing recommendation condition. The second clothing recommendation condition for obtaining the information about the second clothing may include at least one of, for example, a region where clothing is mainly consumed, a color of clothing, a type of clothing, a brand of clothing, clothes owned by the user, and an age group who prefers clothing. However, the recommendation condition is not limited thereto.

[0143] FIG. **8** is a flowchart for describing a situation where a first element **801** recommends clothing by using a second element **802**.

[0144] In FIG. **8**, the first element **801** may be the electronic apparatus **10**, and the second element **802** may be a server having stored therein a trained model to be described below in relation to FIG. **11**. Alternatively, the first element **801** may be a general-purpose processor, and the second element **802** may be a dedicated artificial intelligence (AI) processor. Alternatively, the first element **801** may be at least one application, and the second element **802** may be an operating system (OS).

[0145] That is, as an element that is more integrated, is dedicated, has less delay, has higher performance, or has more resources compared to the first element **801**, the second element **802** may more rapidly and effectively process much calculation required to generate, refine, or apply the trained model compared to the first element **801**.

[0146] According to various embodiments, a third element functioning similarly to the second element **802** may be added.

[0147] In this case, an interface for transmitting/receiving data between the first and second elements **801** and **802** may be defined.

[0148] For example, an application program interface (API) including factor values (or parameter values or transfer values) as training data to be applied to the trained model may be defined. The API may be defined as a set of subroutines or functions that can be called by any one protocol (e.g., a protocol defined in the electronic apparatus **10**) for any process of another protocol (e.g., a protocol defined in the server). That is, the API may provide an environment where any one protocol may perform an operation of another protocol.

[0149] Referring to operation **810**, the first element **801** may generate a first clothing image by photographing first clothing introduced into a process room. For example, the first element **801** may generate the first clothing image by photographing the first clothing by operating at least one camera included in the first element **801** at a timing when a door is open and then closed.

[0150] Referring to operation **815**, the first element **801** may transmit the first clothing image to the second element **802**.

[0151] Referring to operation **820**, the second element **802** may obtain information about second clothing matching the first clothing by using the first clothing image. For example, the obtaining of the information about the second clothing matching the first clothing may refer to, for example, identifying the second clothing as clothing suitable for a user to wear with the first clothing, and obtaining information about the second clothing. Alternatively, the obtaining of the information about the second clothing matching the first clothing may refer to, for example, identifying the second clothing as clothing that the user is highly likely to wear with the first clothing, and obtaining information about the second clothing. Alternatively, the obtaining of the information about the second clothing matching the first clothing may refer to, for example, identifying the second clothing as clothing which is included in images including the first clothing, and obtaining information about the second clothing.

[0152] The information about the second clothing may include at least one of, for example, a representative image of clothing, a type of clothing, a brand of clothing, and a color of clothing.

[0153] According to various embodiments, the second element **802** may estimate the information about the second clothing by using the trained model to be described below in relation to FIG. **11**. The trained model may be a model trained to estimate the information about the second clothing matching the first clothing by using information about the first clothing. The trained model may be, for example, a model trained using clothing images and information about regions where the clothing images are captured.

[0154] Referring to operation **825**, the second element **802** may transmit the information about the second clothing to the first element **801**.

[0155] Referring to operation **830**, the first element **801** may display the information about the second clothing.

[0156] Referring to operation **835**, the first element **801** may receive a user input for changing a second clothing recommendation condition. For example, the first element **801** may change the second clothing recommendation condition by selecting an item displayed on a display.

[0157] Referring to operation **840**, the first element **801** may transmit the changed second clothing recommendation condition to the second element **802**.

[0158] Referring to operation **845**, the second element **802** may change the previously obtained information about the second clothing by using the changed second clothing recommendation condition.

[0159] Referring to operation **850**, the second element **802** may transmit the changed information about the second clothing to the first element **801**.

[0160] Referring to operation **855**, the first element **801** may display the received information about the second clothing.

[0161] FIG. **9** is a perspective view of the electronic apparatus **10** according to an embodiment. FIG. **10** is a side cross-sectional view of the electronic apparatus **10** according to an embodiment.

[0162] Referring to FIGS. **9** and **10**, the electronic apparatus **10** may include a body **910** for forming a process room **911** where clothes are placed and taken care of, a door **920** for opening or closing the process room **911**, and clothes hangers **930** provided in the process room **911** to hang the clothes on. The door **920** may include the door **20** of FIG. **1**. The process room **911** may include the process room **11** of FIG. **1**.

[0163] The electronic apparatus **10** further includes an air blower **940** provided at an upper side of the body **910** to supply air into the process room **911**, and a steam generator **950** provided at a lower side of the body **910** to generate steam to be supplied into the process room **911**. Although not clearly shown in FIGS. **9** and **10**, the body **910** may include refrigeration cycle elements for dehumidifying the clothes. Therefore, when the clothes are provided in the process room **911**, dust and odors of the clothes may be

eliminated by supplying the air generated by the air blower **940** into the process room **911**, and wrinkles of the clothes may be reduced by supplying the steam generated by the steam generator **950** into the process room **911**.

[0164] The door **920** may include a display **921** provided on a front surface of the door **920** to allow a user to control operation of the electronic apparatus **10**. The display **921** may include the display **21** of FIG. **1**. The display **921** may display a user interface for allowing the user to control operation of the electronic apparatus **10**, and an operating status of the electronic apparatus **10**. In addition, the display **921** may display clothing recommended to the user as described above.

[0165] FIG. **11** is a block diagram of the processor **210** according to an embodiment.

[0166] Referring to FIG. **11**, the processor **210** according to an embodiment may include a data trainer **1110** and a data recognizer **1120**.

[0167] According to an embodiment, the data trainer **1110** may train a model to have criteria for estimating information about second clothing matching first clothing. The data trainer **1110** may train the model to have criteria for training data to be used to estimate the information about the second clothing matching the first clothing, or for how to estimate the information about the second clothing by using the training data.

[0168] The data trainer **1110** may train the model by using, as the training data, clothing images and information about regions where the clothing images are captured. For example, the training data may include clothing images captured by CCTVs in Gangnam, and information indicating that the clothing images are captured in Gangnam. Alternatively, the training data may include clothing images captured by CCTVs in Milan, and information indicating that the clothing images are captured in Milan.

[0169] According to an embodiment, the data recognizer **1120** may estimate the information about the second clothing matching the first clothing by applying recognition data to the trained model. The data recognizer **1120** may obtain certain recognition data according to criteria that are preset through training, and estimate the information about the second clothing by using the obtained recognition data as an input value of the trained model. In addition, the information about the second clothing, which is estimated by the trained model by using the recognition data as the input value, may be used to refine the trained model.

[0170] The data recognizer **1120** may estimate second clothing information matching a first clothing image by applying the first clothing image to the trained model as the recognition data. For example, the data recognizer **1120** may estimate a shirt that can match pants in Gangnam by applying, to the trained model, a clothing image obtained by photographing the pants.

[0171] At least one of the data trainer **1110** and the data recognizer **1120** may be produced in the form of at least one hardware chip and be mounted in the electronic apparatus **10**. For example, at least one of the data trainer **1110** and the data recognizer **1120** may be produced in the form of a dedicated AI hardware chip, or be produced as a part of an existing general-purpose processor (e.g., CPU or application processor) or a dedicated graphic processor (e.g., a graphics processing unit (GPU)) and be mounted in any of various electronic apparatuses.

[0172] According to an embodiment, the dedicated AI hardware chip is a dedicated processor that is specialized for probability calculation, and may rapidly perform calculation in the field of AI, e.g., machine learning, due to a higher processing performance compared to the existing general-purpose processor.

[0173] In this case, the data trainer **1110** and the data recognizer **1120** may be mounted in a single electronic apparatus **10**, or in different electronic apparatuses. For example, one of the data trainer **1110** and the data recognizer **1120** may be included in the electronic apparatus **10**, and the other may be included in the server **270**. The data trainer **1110** may be connected to the data recognizer **1120** in a wired or wireless manner such that data of the model trained by the data trainer **1110** may be provided to the data recognizer **1120** and data input to the data recognizer **1120** may be provided to the data trainer **1110** as additional training data.

[0174] Meanwhile, at least one of the data trainer **1110** and the data recognizer **1120** may be implemented as a software module. When at least one of the data trainer **1110** and the data recognizer **1120** is implemented as a software module (or a program module including instructions), the software module may be stored in non-transitory computer readable media. In this case, at least one software module may be provided by an operating system (OS) or by a certain application. Alternatively, a part of at least one software module may be provided by an OS, and the other part may be provided by a certain application.

[0175] FIG. **12** is a schematic diagram of another electronic apparatus **1201** according to an embodiment.

[0176] Referring to FIG. **12**, the other electronic apparatus **1201** according to an embodiment of the disclosure may include a housing **1210**, a display **1220**, or a speaker **1230**. However, the other electronic apparatus **1201** is not limited thereto. The other electronic apparatus **1201** may be implemented as various apparatuses such as a laptop computer, a tablet PC, a desktop computer, an e-book reader, a digital broadcast receiver, a PDA, a PMP, an MP3 player, and a wearable device, etc.

[0177] The housing **1210** may provide a space for mounting an element (e.g., the display **1220** or the speaker **1230**). The housing **1210** may be implemented in various forms.

[0178] The display **1220** may be located on a front surface **1211** of the housing **1210**. The display **1220** may be provided as a touchscreen integrated with a touch panel. According to an embodiment, the display **1220** may include a curved surface. For example, the display **1220** may include a curved surface in edge regions adjacent to corners.

[0179] According to an embodiment, the speaker **1230** for outputting a sound signal may be located above the display **1220** provided on the front surface **1211** of the housing **1210**. A home key **1240** may be provided in the form of a soft key on a lower area of the display **1220**. However, the form of the home key **1240** is not limited thereto. For example, the other electronic apparatus **1201** may place a physical key serving as a home key on an area of a front surface of the other electronic apparatus **1201**.

[0180] According to an embodiment, the other electronic apparatus **1201** may mount, in the vicinity of the speaker **1230**, components for performing various functions. According to an embodiment, the components may include at least one sensor module. For example, the components may include at least one of an ambient light sensor (e.g., an

optical sensor), a proximity sensor, an infrared sensor, or an ultrasonic sensor. According to an embodiment, the components may include a light-emitting diode (LED) indicator to provide status information of the other electronic apparatus **1201** to a user.

[0181] According to an embodiment, the other electronic apparatus **1201** may establish communication with the electronic apparatus **10** and perform the above-described procedure described in relation to FIG. **1**, **3**, **4**, **5**, or **6** by using the display **1220** included in the other electronic apparatus **1201**.

[0182] Various embodiments of the disclosure may be implemented as software including one or more instructions stored in a storage medium (e.g., embedded memory or external memory) readable by a machine (e.g., the electronic apparatus **10**). For example, a processor (e.g., the processor **210**) of the machine (e.g., the electronic apparatus **10**) may call at least one of the stored one or more instructions from the storage medium, and execute the same. As such, the machine may be operated to perform at least one function based on the called at least one instruction. The one or more instructions may include codes generated by a compiler or codes executable by an interpreter. The storage medium readable by the machine may be provided in the form of a non-transitory storage medium. When the storage medium is 'non-transitory', it merely means that the storage medium is tangible and does not include signals (e.g., electromagnetic waves), and it does not limit that data is semi-permanently or temporarily stored in the storage medium.

[0183] The method according to various embodiments of the disclosure may be included and provided in a computer program product. The computer program product may be traded between a seller and a buyer. The computer program product may be distributed in the form of a machine-readable storage medium (e.g., a compact disc read only memory (CD-ROM)), or be electronically distributed (e.g., downloaded or uploaded) via an application store (e.g., Play Store™) or directly between two user devices (e.g., smartphones). For electronic distribution, at least a part of the computer program product may be at least temporarily stored in a machine-readable storage medium such as a memory of a server of a manufacturer, a server of an application store, or a relay server, or be temporarily created.

[0184] According to various embodiments, each of the above-mentioned elements (e.g., modules or programs) may include one or more entities. According to various embodiments, one or more of the above-mentioned elements or operations thereof may be omitted, or one or more other elements or operations may be added. Alternatively or additionally, a plurality of elements (e.g., modules or programs) may be integrated into one element. In this case, the integrated element may perform one or more functions equally or similarly to those of each of the plurality of elements before being integrated. According to various embodiments, operations performed by modules, programs, or other elements may be carried out sequentially, in parallel, repeatedly, or heuristically, or one or more of the operations may be performed in a different order or be omitted, or one or more other operations may be added.

1. An electronic apparatus comprising:

a body for providing a process room where clothes are placed;

a heater for supplying at least one of hot air and steam into the process room;

at least one camera for photographing an inside of the process room;

a display;

a processor; and

a memory,

wherein the memory stores instructions to be executed by the processor to:

control the camera to generate a first clothing image by photographing first clothing introduced into the process room;

obtain information about the first clothing by using the first clothing image;

obtain information about second clothing matching the first clothing by using the information about the first clothing;

control the display to display the obtained information about the second clothing; and

obtain and display information about second clothing different from the displayed second clothing in response to a user input for changing a second clothing recommendation condition.

2. The electronic apparatus of claim **1**, wherein the information about the first clothing and the information about the second clothing comprise at least one of a representative image of clothing, a type of clothing, a brand of clothing, and a color of clothing.

3. The electronic apparatus of claim **1**, wherein the memory stores further instructions to be executed by the processor to:

identify the second clothing matching the first clothing by using a clothing trend database stored in the electronic apparatus; and

obtain information about the identified second clothing.

4. The electronic apparatus of claim **3**, wherein the clothing trend database is generated using at least one of clothing images or clothing data comprised in online fashion magazines, clothing images or clothing data comprised in social media, and images obtained using closed-circuit televisions (CCTVs) located in various regions.

5. The electronic apparatus of claim **1**, further comprising:

a communication module,

wherein the memory stores further instructions to be executed by the processor to:

control the communication module to obtain weather information; and

change and display the second clothing in response to a user input for applying the weather information as the second clothing recommendation condition.

6. The electronic apparatus of claim **1**, further comprising:

a communication module,

wherein the memory stores further instructions to be executed by the processor to:

control the communication module to obtain schedule information of a user; and

change and display the second clothing in response to a user input for applying the schedule information as the second clothing recommendation condition.

7. The electronic apparatus of claim **1**, wherein the memory stores further instructions to be executed by the processor to obtain the information about the second clothing matching the first clothing by using clothing images previously captured using the camera and stored into the electronic apparatus.

8. The electronic apparatus of claim **1**, wherein the memory stores further instructions to be executed by the processor to display an image comprising clothing equal or similar to the first clothing, and an image comprising the second clothing.

9. A method of controlling an electronic apparatus, the method comprising:

generating a first clothing image by photographing first clothing;

obtaining information about the first clothing by using the first clothing image;

obtaining information about second clothing matching the first clothing by using the information about the first clothing;

displaying the information about the second clothing; and

obtaining and displaying information about second clothing different from the displayed second clothing in response to a user input for changing a second clothing recommendation condition.

10. The method of claim **9**, further comprising:

identifying the second clothing matching the first clothing by using a clothing trend database stored in the electronic apparatus; and

obtaining information about the identified second clothing.

11. The method of claim **9**, further comprising:

obtaining weather information; and

changing and displaying the second clothing in response to a user input for applying the weather information as the second clothing recommendation condition.

12. The method of claim **9**, further comprising:

obtaining schedule information of a user; and

changing and displaying the second clothing in response to a user input for applying the schedule information as the second clothing recommendation condition.

13. The method of claim **14**, further comprising:

obtaining the information about the second clothing matching the first clothing by using clothing images previously captured using a camera and stored into the electronic apparatus.

14. The method of claim **9**, further comprising:

displaying an image comprising clothing equal or similar to the first clothing, and an image comprising the second clothing.

15. A non-transitory computer-readable recording medium having recorded thereon a computer program for executing the method of claim **9**.

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