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Chan et al.

(54) **METHOD OF PROVIDING RECOMMENDED DINING OPTIONS, METHOD OF SELECTING RECOMMENDED DINING OPTIONS AND ELECTRONIC APPARATUS, COMPUTER READABLE MEDIUM, SERVER APPARATUS THEREOF**

(71) Applicant: **HTC Corporation**, Taoyuan City (TW)

(72) Inventors: **Wendy Wai Mun Chan**, San Francisco, CA (US); **Pei-Ju Chen**, Taoyuan City (TW)

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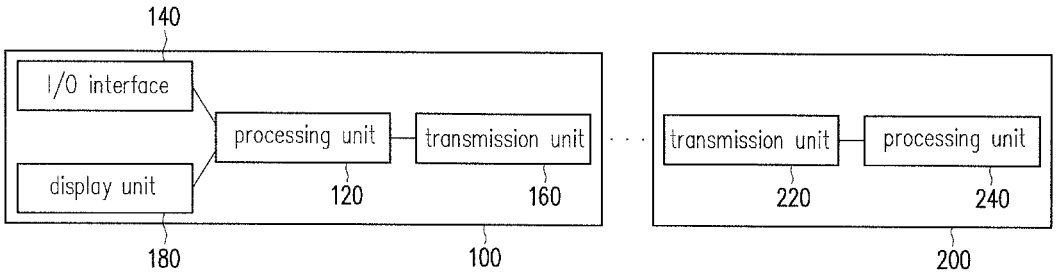
(57) **ABSTRACT**

The disclosure provides a method of providing recommended dining options, an electronic apparatus and a computer readable medium using the same. The method adapted to the electronic apparatus includes following steps. An option query is transmitted to a server apparatus at a query time point, the option query includes location information of a first location where the electronic apparatus is located at the query time point. An option bundle sent from the server apparatus in response to the option query is received, where the option bundle includes one or more dining options comprising option information. The option information is displayed in at least one of regions of a user interface within a predetermined meal period, and the regions of the user interface are applied to display information content collected by the electronic apparatus. The disclosure also provides a method of selecting recommended dining options and a server apparatus thereof.



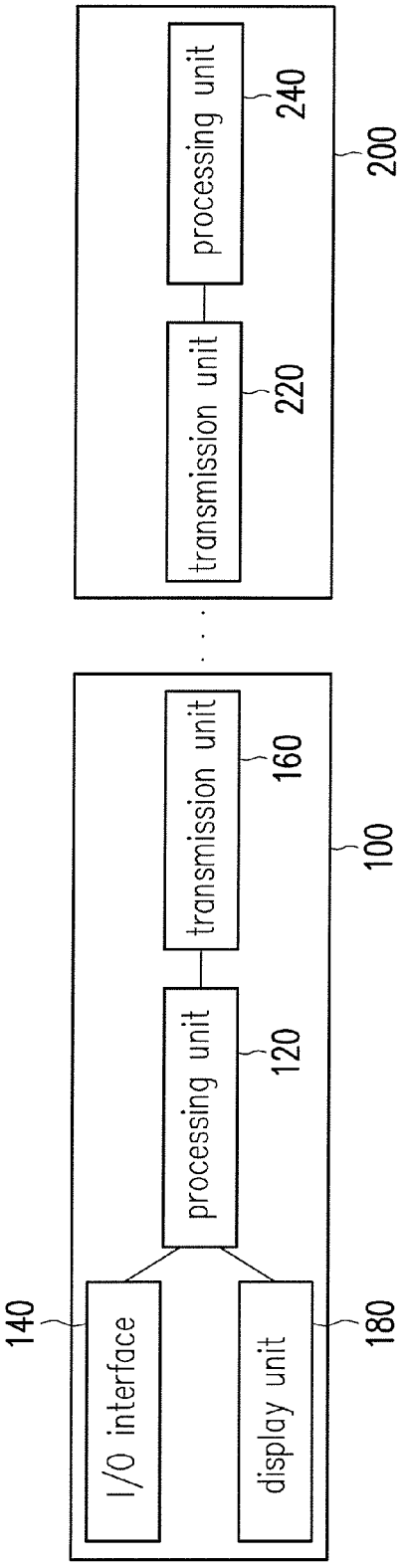

1000
200
processing unit
240
transmission unit
220
100
transmission unit
160
processing unit
120
140
I/O interface
display unit
180

FIG. 1

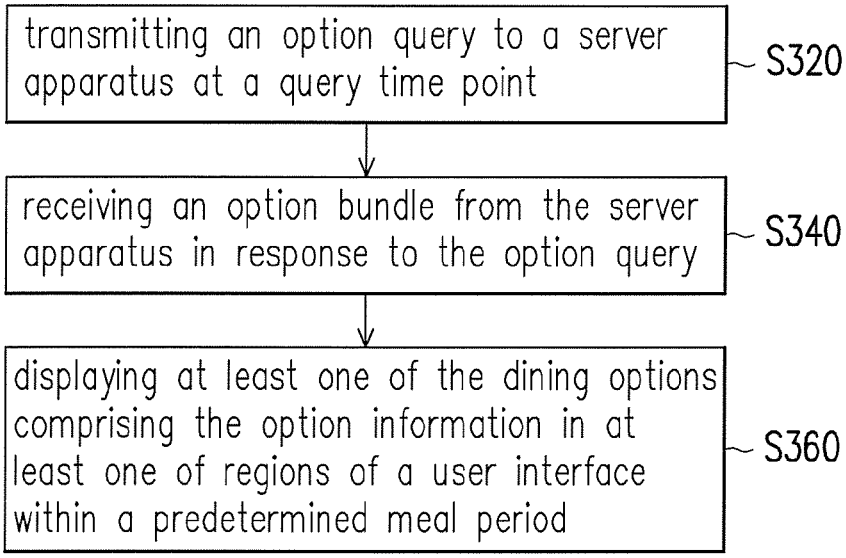

transmitting an option query to a server apparatus at a query time point
S320
receiving an option bundle from the server apparatus in response to the option query
S340
displaying at least one of the dining options comprising the option information in at least one of regions of a user interface within a predetermined meal period
S360

FIG. 2

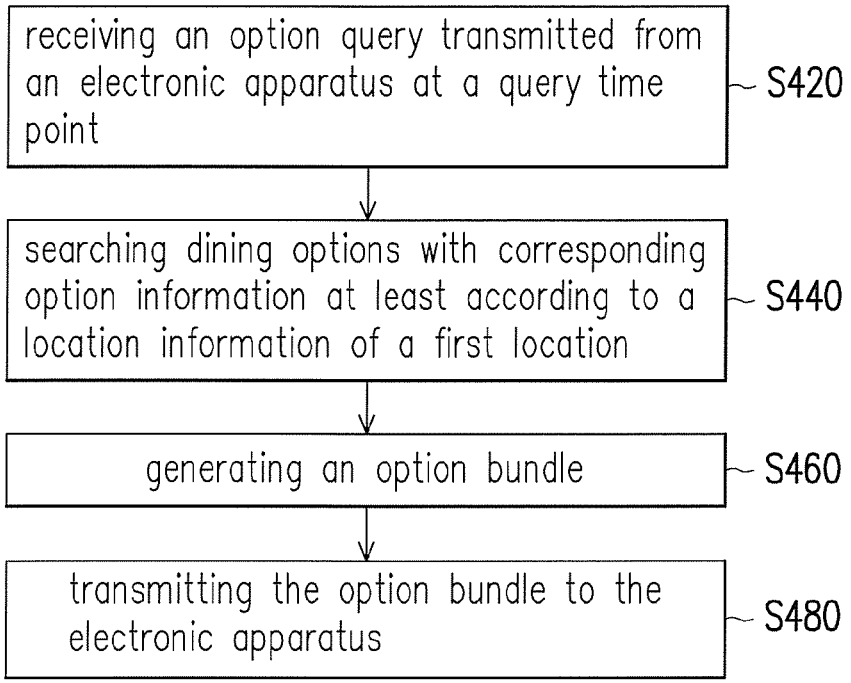

receiving an option query transmitted from an electronic apparatus at a query time point
S420
searching dining options with corresponding option information at least according to a location information of a first location
S440
generating an option bundle
S460
transmitting the option bundle to the electronic apparatus
S480

FIG. 3

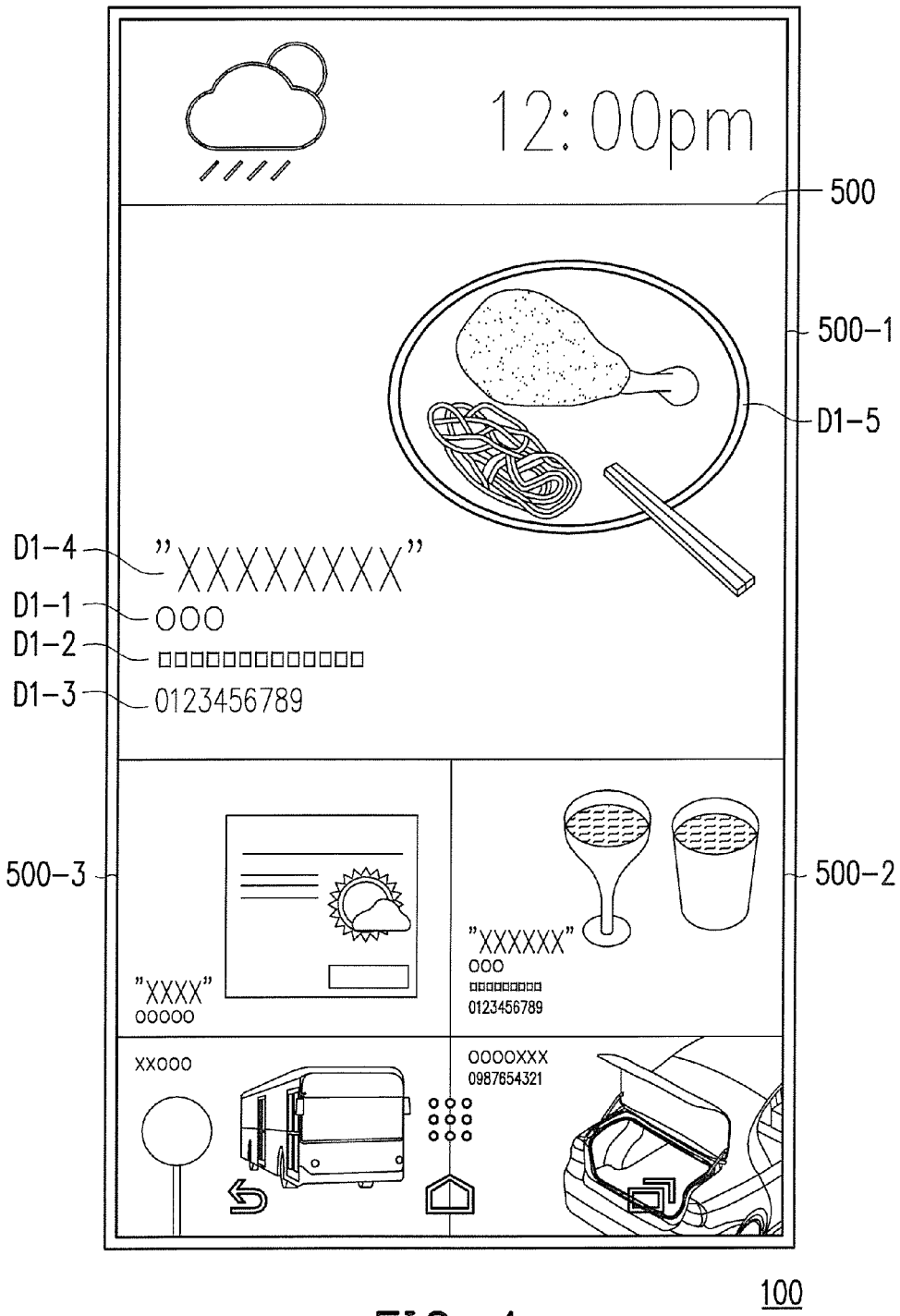

12:00pm
500
500-1
D1-5
D1-4
"XXXXXXXX"
D1-1
OOO
D1-2
□□□□□□□□□□□□□
D1-3
0123456789
500-3
500-2
"XXXX"
OOOOO
"XXXXXX"
OOO
□□□□□□□□□
0123456789
XXOOO
OOOOXXX
0987654321
100

FIG. 4

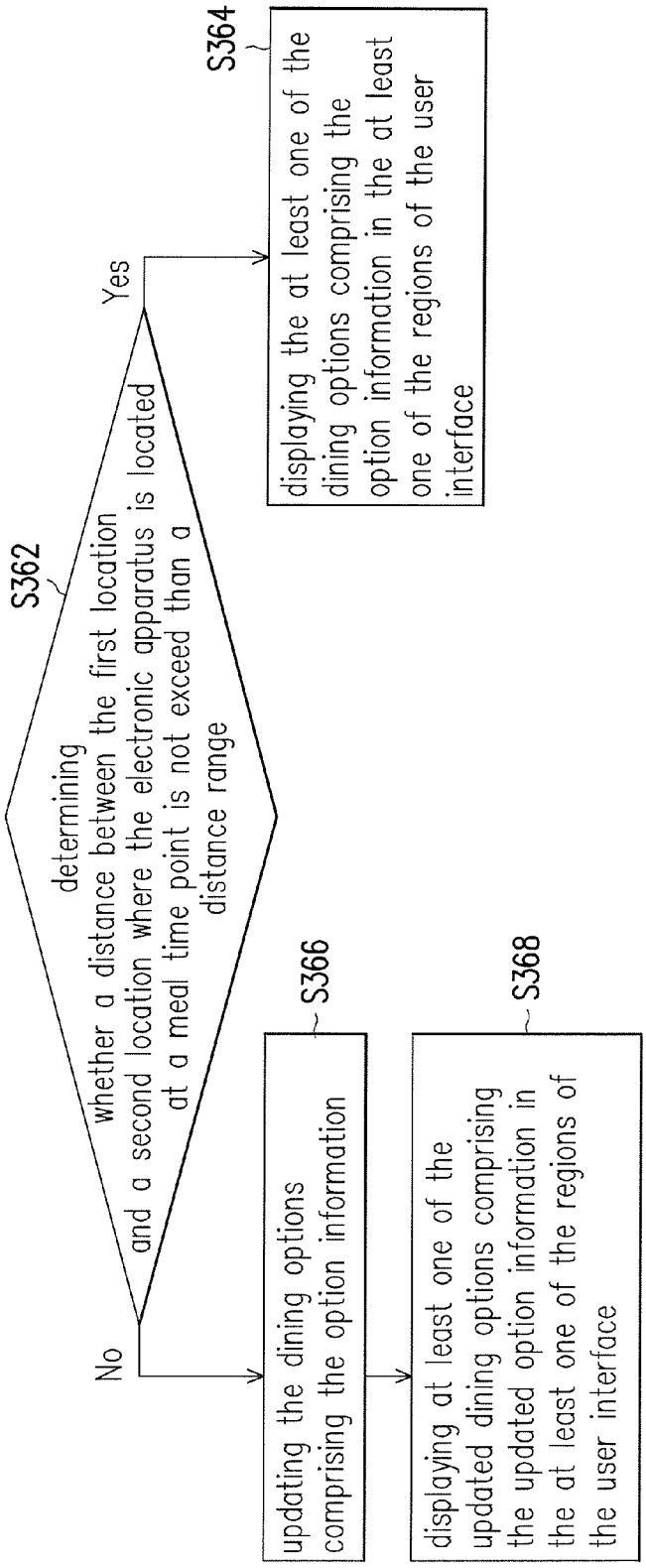

S362
determining whether a distance between the first location and a second location where the electronic apparatus is located at a meal time point is not exceed than a distance range
Yes
S364
displaying the at least one of the dining options comprising the option information in the at least one of the regions of the user interface
No
S366
updating the dining options comprising the option information
S368
displaying at least one of the updated dining options comprising the updated option information in the at least one of the regions of the user interface

FIG. 5

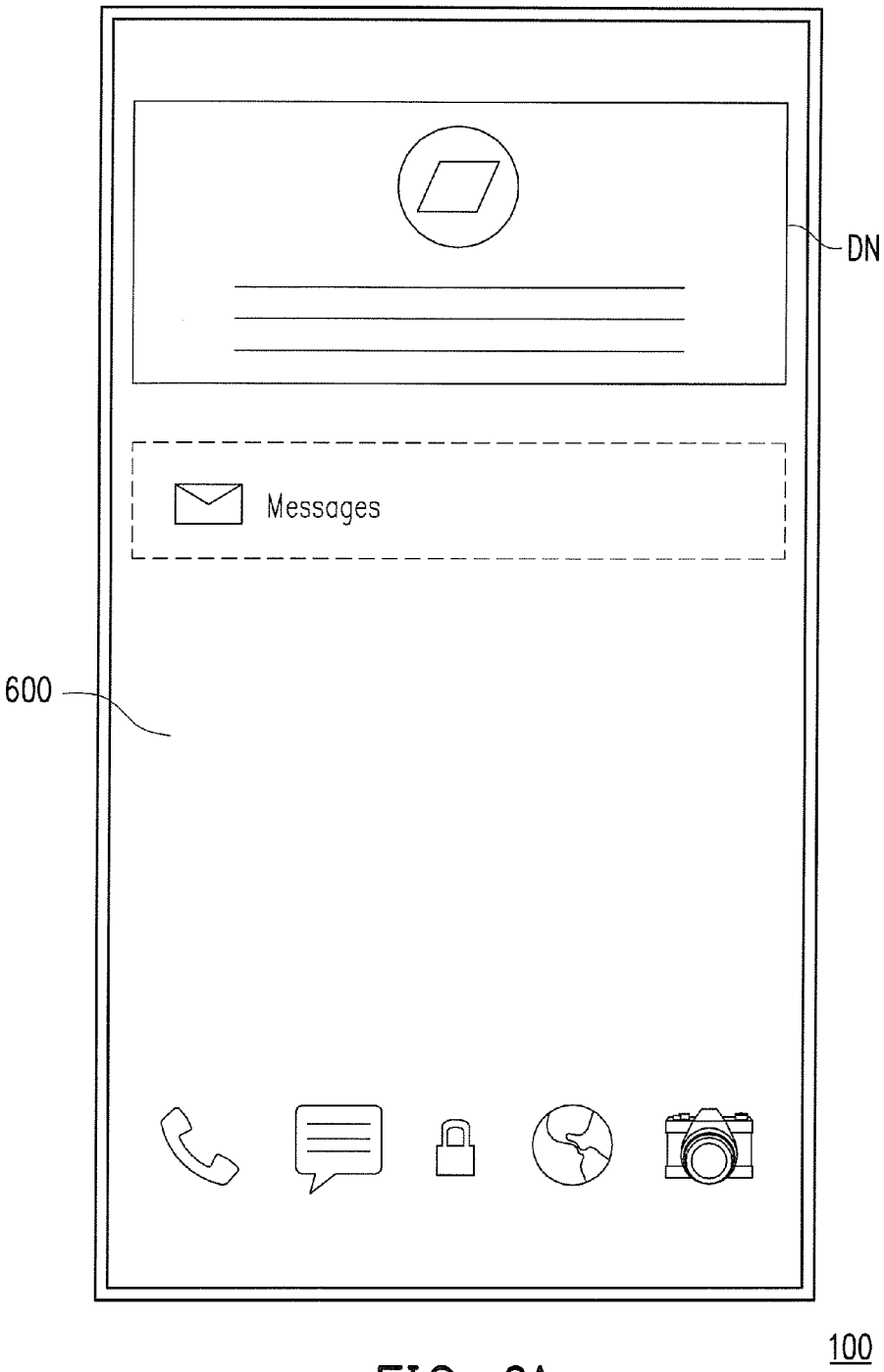


FIG. 6A

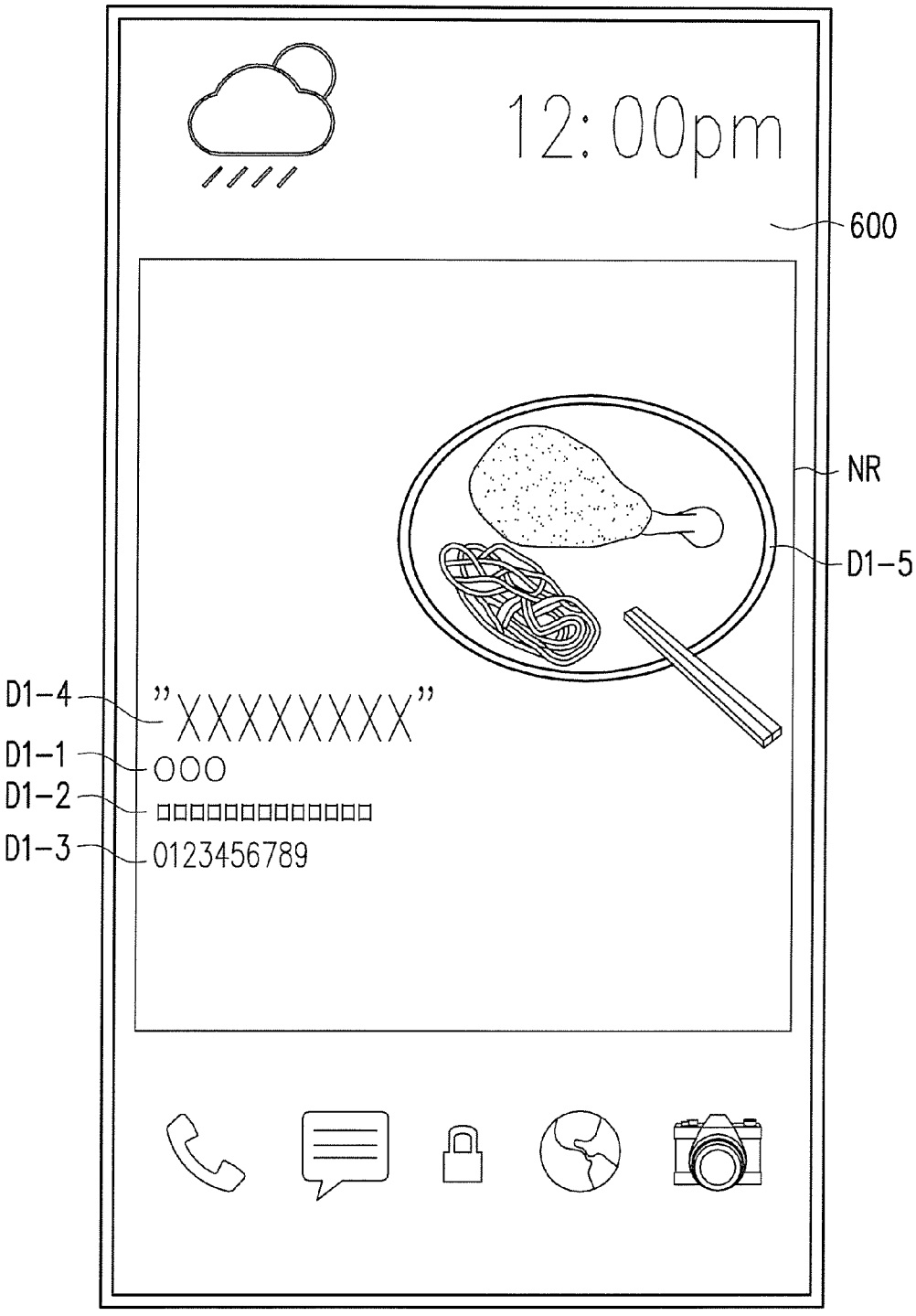

12:00pm
600
NR
D1-5
D1-4
"XXXXXXXX"
D1-1
OOO
D1-2
D1-3
0123456789
100

FIG. 6B

METHOD OF PROVIDING RECOMMENDED DINING OPTIONS, METHOD OF SELECTING RECOMMENDED DINING OPTIONS AND ELECTRONIC APPARATUS, COMPUTER READABLE MEDIUM, SERVER APPARATUS THEREOF

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the priority benefit of U.S. provisional application Ser. No. 62/120,384, filed on Feb. 25, 2015. The entirety of the above-mentioned patent application and U.S. patent application Ser. No. 61/709,997, U.S. patent application Ser. No. 61/750,339, U.S. patent application Ser. No. 61/812,217, and U.S. patent application Ser. No. 14/044,685, filed on Oct. 2, 2013 are hereby incorporated by reference herein and made a part of this specification.

TECHNICAL FIELD

[0002] The disclosure relates to a method of providing recommended dining options, an electronic apparatus and a computer readable medium using the same. Further, the disclosure also relates to a method of selecting recommended dining options and a server apparatus using the same.

BACKGROUND

[0003] In order to catch up with the quick pace for the modern life of the mass, more and more applications are installed and applied in electronic devices, such as smart devices, communication devices, and daily appliances, for instantaneously providing essential information and reminding important events and matters at anytime and anywhere. Through those applications, service providers of the network services, manufacturers of the electronic devices, and application developers of the applications bring convenience and sufficient information to users of the electronic devices from easily accessing to vast of the network resources.

[0004] The user of the electronic device may actively perform search or query for business service. To be more specific, the user may search or query the favourable business service on a search engine, and the aforementioned business service could be the restaurant or the store serving food. Specifically, during the meal time, the user may search for the restaurant that meets the demand of the user.

[0005] However, in many cases, the user is easily overwhelmed by the volume and scope of available information. For example, the user is often confused on choosing the place for food from the large amount of available dining options. As the result, an automatic recommendation mechanism for business services, especially the dining options, is thus required. Further, how to recommend the user with suitable dining option is now being a challenge for people in the related art.

SUMMARY OF THE DISCLOSURE

[0006] Accordingly, the disclosure is directed to a method of providing recommended dining options, an electronic apparatus and a computer readable medium using the same, which suitable dining options are searched at least based on location information related to the electronic apparatus and displayed to the user of the electronic apparatus automatically within a predetermined meal period; thereby, a small set of information that is appropriate in the context of time and location will be presented to the user. The disclosure is further directed to a method of selecting recommended dining options and a server apparatus using the same.

[0007] An embodiment of the present disclosure is directed to a method of providing recommended dining options, wherein the method is adapted to an electronic apparatus connected to a server apparatus. The method includes following steps. An option query is transmitted to the server apparatus at a query time point. The option query includes location information of a first location where the electronic apparatus is located at the query time point. An option bundle sent from the server apparatus in response to the option query is received. The option bundle includes one or more dining options comprising option information. At least one of the dining options comprising the option information is displayed in at least one of the regions of a user interface within a predetermined meal period. Each region of the user interface is applied to display information content collected by the electronic apparatus.

[0008] An embodiment of the present disclosure is directed to an electronic apparatus, which is connected to a server apparatus. The electronic apparatus includes a processing unit, an input/output (I/O) interface, a transmission unit and a display unit. The I/O interface is coupled to the processing unit. The transmission unit coupled to the processing unit transmits an option query to the server apparatus at a query time point and receives an option bundle sent from the server apparatus in response to the option query. The option query includes location information of a first location where the electronic apparatus is located at the query time point, and the option bundle includes one or more dining options comprising option information. The display unit coupled to the processing unit displays at least one of the dining options comprising the option information in at least one of the regions of a user interface within a predetermined meal period. Each region of the user interface is applied to display information content collected by the processing unit.

[0009] An embodiment of the present disclosure is directed to a non-transitory computer readable medium, which records computer program to be loaded into an electronic apparatus to execute the steps of the aforementioned method of providing recommended dining options. The computer program is composed of a plurality of program instructions (for example, an organization chart, establishing program instruction, a table approving program instruction, a setting program instruction, and a deployment program instruction, etc.), and these program instructions are loaded into the electronic apparatus and executed by the same to accomplish various steps of the method of providing recommended dining options.

[0010] An embodiment of the present disclosure is directed to a method of selecting recommended dining options. The method adapted to a server apparatus connected to an electronic apparatus includes following steps. An option query transmitted from the electronic apparatus at a query time point is received. The option query includes location information of a first location where the electronic apparatus is located at the query time point. One or more dining options with option information are searched at least according to the location information of the first location. An option bundle is generated. The option bundle includes the dining options comprising the option information. The option bundle is transmitted to the electronic apparatus.

[0011] An embodiment of the present disclosure is directed to a server apparatus connected to an electronic apparatus. The server apparatus includes a transmission unit and a processing unit. The transmission unit receives an option query transmitted from the electronic apparatus at a query time point. The option query includes location information of a first location where the electronic apparatus is located at the query time point. The processing unit coupled to the transmission unit searches One or more dining options with option information at least according to the location information of the first location and generates an option bundle. The option bundle includes the dining options comprising the option information. The option bundle is transmitted to the electronic apparatus by the transmission unit.

[0012] In view of the aforementioned descriptions, the disclosure is directed to a technique for automatically recommending user of the electronic apparatus with suitable dining options. The dining options comprising the option information are searched at least based on the location information of the electronic apparatus and displayed though a user interface on the electronic apparatus within the predetermined meal period. Thus, the disclosure provides a convenient and instinctive recommendation mechanism.

[0013] In order to make the aforementioned features and advantages of the present disclosure comprehensible, preferred embodiments accompanied with figures are described in detail below. It is to be understood that both the foregoing general description and the following detailed description are exemplary, and are intended to provide further explanation of the disclosure as claimed.

[0014] It should be understood, however, that this summary may not contain all of the aspect and embodiments of the present disclosure and is therefore not meant to be limiting or restrictive in any manner. Also the present disclosure would include improvements and modifications which are obvious to one skilled in the art.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] The accompanying drawings are included to provide a further understanding of the disclosure, and are incorporated in and constitute a part of this specification. The drawings illustrate embodiments of the disclosure and, together with the description, serve to explain the principles of the disclosure.

[0016] FIG. **1** is a block diagram illustrating an electronic system according to an embodiment of the present disclosure.

[0017] FIG. **2** is a flowchart illustrating a method of providing recommended dining options according to an embodiment of the present disclosure.

[0018] FIG. **3** is a flowchart illustrating a method of selecting recommended dining options according to an embodiment of the present disclosure.

[0019] FIG. **4** is a schematic diagram illustrating displaying option information in regions of a user interface according to an embodiment of the present disclosure.

[0020] FIG. **5** is a flowchart illustrating steps of displaying option information in regions of a user interface according to an embodiment of the present disclosure.

[0021] FIG. **6**A is a schematic diagram illustrating displaying a dining notification under a lockscreen state according to an embodiment of the present disclosure.

[0022] FIG. **6**B is a schematic diagram illustrating launching a notification region under a lockscreen state according to an embodiment of the present disclosure.

[0023] To make the above features and advantages of the application more comprehensible, several embodiments accompanied with drawings are described in detail as follows.

DESCRIPTION OF THE EMBODIMENTS

[0024] Some embodiments of the disclosure will now be described more fully hereinafter with reference to the accompanying drawings, in which some, but not all embodiments of the application are shown. Indeed, various embodiments of the disclosure may be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided so that this disclosure will satisfy applicable legal requirements. Like reference numerals refer to like elements throughout.

[0025] FIG. **1** is a block diagram illustrating an electronic system according to an embodiment of the present disclosure. The electronic system **1000** includes an electronic apparatus **100** and a server apparatus **200** connected to each other. The electronic apparatus **100** is capable of utilizing the proposed method of providing recommended dining options, and the server apparatus **200** is capable of utilizing the proposed method of selecting recommended dining options. However, the present disclosure is not limited herein. In another example, the proposed method of selecting recommended dining options may be executed by the electronic apparatus **100**. The proposed methods of providing recommended dining options and selecting recommended dining options may further be respectively implemented by other suitable devices with/without a server apparatus. All components of the electronic systems **1000** and their configurations are first introduced in FIG. **1**.

[0026] Referring to FIG. **1**, in the present exemplary embodiment, the electronic apparatus **100** includes a processing unit **120**, an input/output (I/O) interface **140**, a transmission unit **160**, and a display unit **180**. The electronic apparatus **100** may be a smart phone, a tabular computer, a personal computer, a laptop computer, or other types of electronic devices or platforms that equipped with computation and communication abilities. In addition, the server apparatus **200** includes a transmission unit **220** and a processing unit **240**. The server apparatus **200** may be a server computer, or other types of electronic devices or platforms that running the server program.

[0027] In an embodiment, the processing units **120** and **240** may respectively include one or more of a North Bridge, a South Bridge, a field programmable array (FPGA), a programmable logic device (PLD), an application specific integrated circuit (ASIC), a central processing unit (CPU), a programmable general purpose or special purpose microprocessor, a digital signal processor (DSP), a graphics processing unit (GPU), or other similar device or a combination thereof.

[0028] In an embodiment, the I/O interface **140** coupled to the processing unit **120** may include one or more of a keyboard, a mouse, a touch control panel, a speaker or other device that capable for performing input/output function or a combination thereof.

[0029] In an embodiment, the transmission units **160** and **220** may respectively include one or more of a wired communication interface, a wireless communication interface or a combination thereof. The wired communication interface includes one or more of a universal serial bus (USB), a RS232, a universal asynchronous receiver-transmitter (UART), an inter-integrated circuit (I2C), a serial peripheral

interface (SPI), a display port, a thunderbolt, or a local area network (LAN) interface. The wireless communication interface supports one or more of a wireless fidelity (Wi-Fi) protocol, a Bluetooth protocol, a Bluetooth low energy (BLE) protocol, a near-field communication (NFC) protocol, a long term evolution (LTE) protocol, a worldwide interoperability for microwave access (WiMAX) protocol or a device-to-device (D2D) protocol. The transmission unit **160** is coupled to the processing unit **120**, and the transmission unit **220** is coupled to the processing unit **240**.

[0030] In an embodiment, the display unit **180** coupled to the processing unit **120** may be one of a liquid crystal display (LCD), a light emitting diode (LED) display, an organic light emitting diode (OLED) display, a cathode ray tube (CRT) display or a plasma display. Further, in another one embodiment of the disclosure, the display unit **180** may be integrated with the touch control panel and implemented in the electronic apparatus **100** as a touch display unit.

[0031] In an embodiment, both of the electronic apparatus **100** and the server apparatus **200** may include a storage unit (not illustrated) respectively coupled to the processing units **120** and **240**. To be more specific, the storage unit may include various forms of non-transitory, volatile, and non-volatile memories such as one or a combination of a stationary or mobile random access memory (RAM), a read-only memory (ROM), a flash memory, a hard drive or other similar devices. The storage unit would store buffered or permanent data and compiled programming codes used to execute functions of the exemplary electronic apparatus **100** and server apparatus **200**.

[0032] FIG. **2** is a flowchart illustrating a method of providing recommended dining options according to an embodiment of the present disclosure. FIG. **3** is a flowchart illustrating a method of selecting recommended dining options according to an embodiment of the present disclosure. The steps of FIG. **2** could be implemented by the proposed electronic apparatus **100** as illustrated in FIG. **1**. Moreover, the steps of FIG. **3** could be implemented by the proposed server apparatus **200** as illustrated in FIG. **1**. From FIG. **1**, FIG. **2**, and FIG. **3**, a complete recommendation mechanism for recommending dining options to user of the electronic apparatus **100** is depicted.

[0033] Referring to FIG. **1** and FIG. **2**, at a query time point, the transmission unit **160** of the electronic apparatus **100** transmits an option query to the server apparatus **200** (step S**320**). The option query at least includes location information of a first location where the electronic apparatus **100** is located before or at the query time point and the current location information of the electronic apparatus **100** is retrieved at the query time point. Here, the processing unit **120** of electronic apparatus **100** controls the transmission unit **160** to transmit its location information to the server apparatus **200** and asks for the recommended dining options nearby. The first location and the location information may be obtained from Global Positioning System (GPS) and/or other locating system built in the electronic apparatus **100**, but it is not limited herein.

[0034] Referring to FIG. **1** and FIG. **3**, after the option query is sent out by the electronic apparatus **100** at the query time point, the transmission unit **220** of the server apparatus **200** receives the option query transmitted from the electronic apparatus **100** (step S**420**). Since the option query includes the location information of the first location where the electronic apparatus **100** is located at the query time point, the processing unit **240** of the server apparatus **200** then searches the dining options information at least according to the location information of the first location (Step S**440**), wherein the dining option comprising at least one option information corresponding to the dining option.

[0035] Specifically, in the present embodiment, the processing unit **240** first searches available dining options with the related option information from one or various network resources, such as websites, blogs, databases, or other similar resources, based on contextual data of the location information contained in the option query. The aforementioned network resources may be specialized in food review or food recommendation. The processing unit **240** may search the available dining options by comparing coordinates or addresses of various dining spots recorded in the network resources with the first location. In one embodiment, if the distance between the first location and the dining spot is lower than a threshold, than the dining spot is selected as one of the available dining options by the processing unit **240**. In contrast, if the distance between the first location and the dining spot is not lower than the distance threshold, than the dining spot is not selected by the processing unit **240**. In an embodiment of the present disclosure, the distance threshold may be, for example, 500 meters or 1 kilometer.

[0036] The location information may not only indicates the coordinates or the address of the first location. In addition, the option query not only includes the location information of the first location. In an embodiment of the present disclosure, the location information may further include the information related to the first location, for example the country where the first location is located or the weather condition of the first location. Further, in another embodiment of the present disclosure, the option query further includes preference information which may be automatically determined by a software program or set by the user of the electronic apparatus **100**. As the result, in the present embodiment, the processing unit **240** of the server apparatus **200** may search the available dining options from the various network resources based on contextual data of the location information and the preference information contained in the option query. For example, the preference information may include religion information of the user of the electronic apparatus **100**. If the user is a Hindu devotee, the processing unit **240** may also avoid the dining spots that serving beef being the available dining options. If the user is a vegetarian, the processing unit **240** may provide the recommend the dining spots with vegetarian food. Through the location information and the preference information, the available dining options searched by the server apparatus **200** are the most moderate options for the user of the electronic apparatus **100**.

[0037] When the dining spot recorded in a network resource is selected as the available dining option, the processing unit **240** of the server apparatus **200** may further collect the corresponding option information from that network resource. The information content of the option information may include the name, the address, the contact number, the comment, and the photos related to the available dining option. After all the available dining options are obtained, the processing unit **240** may select a portion of the available dining options as the dining options. The processing unit **240** may select the dining options according to, for example, distance between each of the dining options and the first location, the average cost of each of the dinging option, or the rating of each of the dining options. For example, the

processing unit **240** may select several dining options from all the available dining options, wherein the selected dining option corresponding to the dining spots that are closest to the first location, but it is not limited herein. In another embodiment of the present disclosure, the processing unit **240** may treat all the available dining options as the dining options.

[0038] In another embodiment of the present disclosure, if the dining options corresponding to the same dining spot are searched from different network sources, the processing unit **240** will reserve the dining option searched from one of the network sources and excludes the dining options searched from the rest of the network sources, and, in an embodiment, integrate all the option information of each dining option from different network sources corresponding to the same dining spot to the reserved dining option, such that there will not be duplicate dining options for the same dining spot to present to the user.

[0039] In an embodiment of the present disclosure, the server apparatus **200** may further control the frequency of displaying the recommended dining options on the electronic apparatus **100**. The processing unit **220** of the server apparatus **200** determines an option display frequency according to the amount of available dining options related to the first location, and imports the option display frequency to the electronic apparatus **100**, such that the electronic apparatus **100** follows the option display frequency to display the dining option when it is located at the first location. Under such condition, even the predetermined meal period is reached, the dining option may not be displayed, so that the user will not receive the same dining option too often.

[0040] Referring to FIG. **1** and FIG. **3**, the processing unit **240** of the server apparatus **200** generates an option bundle (step S**460**), where the option bundle includes the dining options. Next, the option bundle is transmitted to the electronic apparatus **100** by the transmission unit **220** of the server apparatus **200** (step S**480**). In an embodiment, the dining options in the option bundle are further stored to the storage unit of the server apparatus **200** by the processing unit **240**.

[0041] Referring to FIG. **1** and FIG. **2**, after the option bundle is sent out from the server apparatus **200**, the transmission unit **160** of the electronic apparatus **100** receives the option bundle from the server apparatus **200** in response to the option query (step S**340**). The option bundle includes the dining options. Next, the display unit **180** displays at least one of the dining options comprising the option information in at least one of the regions of a user interface within a predetermined meal period (step S**360**). In an embodiment, the dining option in the option bundle are further stored to the storage unit of the electronic apparatus **100** by the processing unit **120**.

[0042] FIG. **4** is a schematic diagram illustrating displaying dining options in regions of a user interface according to an embodiment of the present disclosure. In an embodiment of the present disclosure, a user interface is applied to display information content collected by the electronic apparatus **100** on the display unit **180**. Referring to FIG. **4**, the user interface **500** is composed of a plurality of regions, such as regions **500-1**, **500-2**, and **500-3**. Each region, such as regions **500-1**, **500-2**, and **500-3**, of the user interface **500** is respectively applied to display information content of the information collected from various network resources. The display unit **180** may only display a portion of the regions of the user interface **500**, and the user may slide, scroll, or drag the user interface **500** though the I/O interface **140** to change the regions of the user interface **500** being displayed by the display unit **180**.

[0043] To be more specific, the information displayed in the regions **500-1**, **500-2**, **500-3** of the user interface **500** is collected by the electronic apparatus **100**, and the information may be news information, advertisement information, weather information, social network information, calendar information, TV program information, or other similar information. In an embodiment, at least a part of the information content of the option information included in the dining options searched or collected by the server apparatus **200** is also displayed in the regions of the user interface **500** on the display unit **180**.

[0044] As stated above, the information content of the option information may include the name, the address, the contact number, the comment, and the photos related to the dining option. Referring to FIG. **4**, the information, for example the name D**1-1**, the address D**1-2**, the contact number D**1-3**, the comment D**1-4**, and the photo D**1-5**, related to one of the dining options is displayed in the region **500-1** on the display unit **180** of the electronic apparatus **100**. Further, the information, for example the name, the address, the contact number, the comment, and the photo, related to the another dining option may also be displayed in the region **500-2** on the display unit **180** of the electronic apparatus **100**. The number of the dining options displayed in the user interface **500** within the predetermined meal period in the previous embodiment is multiple. In another embodiment, only one dining option with the option information is displayed in one of the regions of the user interface **500** within the predetermined meal period. Further, the photos corresponding to the dining options may be respectively set as the backgrounds of the regions **500-1** and **500-2** or set as the background of the user interface **500**.

[0045] An example of the user interface **500** comprising the regions may refer to U.S. patent applications Ser. Nos. 61/709,997, 61/750,339, 61/812,217, and Ser. No. 14/044,685.

[0046] In the present embodiment, a meal time point, which is an initial time point of the predetermined meal period, is later than the query time point, such that the processing unit **120** may transmit the option query to the server apparatus **200** to obtain the option bundle prior to the meal time point of the predetermined meal period, and then displays the dining option to the user of the electronic apparatus **100** on the display unit **180**. The query time point may be, for example, an hour or 30 minutes prior to the meal time point of the predetermined meal period, but it is not limited herein. In an embodiment, the dining option is only displayed during the predetermined meal period, and the dining option is not displayed out of the predetermined meal period. In another embodiment, only the meal time point is predetermined and without the predetermined meal period.

[0047] In one embodiment of the present disclosure, the meal time point and the length of the predetermined meal period may be set by the processing unit **240** of the server apparatus **200**. The processing unit **240** may determine different predetermined meal periods for different location information and the electronic apparatus **100** may import the predetermined meal period according to the current location of the electronic apparatus **100**. Therefore, the predetermined meal period set by the server apparatus **200** may reflect the lifestyle of the area around the current location of the elec-

tronic apparatus **100**. In another embodiment, the meal time point and the length of the predetermined meal period may be set by the processing unit **120** in the electronic apparatus **100** and preferably according to the current location. In still another embodiment of the present disclosure, the predetermined meal period may be set by the user of the electronic apparatus **100** through the I/O interface **140**.

[0048] FIG. **5** is a flowchart illustrating steps of displaying dining options in regions of a user interface according to an embodiment of the present disclosure. In the present embodiment, the dining options are obtained through the option bundle before the meal time point of the predetermined meal period. However, taking the mobility of the user into consideration, it is foreseeable for that the user of the electronic apparatus **100** might not stay at the same location all the time. Thus, the first location for receiving the dining options at the time before the meal time point of the predetermined meal period may be different from the current location of the electronic apparatus **100** at the time of the meal time point.

[0049] Referring to FIG. **5**, in an embodiment of the present disclosure, before displaying the dining options, the electronic apparatus **100** may first determine whether the dining options are still suitable for the user. Specifically, processing unit **120** of the electronic apparatus **100** determines whether a distance between the first location and a second location, where the electronic apparatus **100** is located at the meal time point, not exceed than a distance range (step S**362**). The distance range may be, for example, 500 meters or 1 kilometer, but it is not limited herein. If the distance between the first location and the second location is not exceed than the distance range, the display unit **180** displays at least one of the dining options in the at least one of the regions of the user interface **500** (step S**364**). By contrast, if the distance between the first location and the second location is exceed than the distance range, the processing unit **120** updates the dining options (step S**366**). Then, the display unit **180** displays at least one of the updated dining options (step S**368**).

[0050] To be more specific, the processing unit **120** controls the transmission unit **160** to transmit an option updating query to the server apparatus **200**. The option updating query includes location information of the second location. The transmission unit **220** of the server apparatus **200** receives the option updating query, and the processing unit **240** searches the updated dining options at least according to the location information of the second location. The detail of searching the updated dining options can be learned and deduced with the reference of the aforementioned embodiments illustrating the detail of searching the dining options, so it is not illustrated herein.

[0051] After the updated dining options are obtained, the processing unit **240** generates an update bundle including the updated dining options, and the update bundle is transmitted to the electronic apparatus **100** by the transmission unit **220**. The transmission unit **160** of the electronic apparatus **100** receives the update bundle sent from the server apparatus in response to the option updating query. The processing unit **120** then controls the display unit **180** to display the updated dining options comprising the updated option information within the predetermined meal period.

[0052] In an embodiment, while the dining option and option information is displayed in the regions of the user interface **500**, the processing unit **120** of the electronic apparatus **100** detects whether any of the regions in the user interface **500** displaying the dining option or option information is selected by the user though the I/O interface **140**. If a region in the user interface **500** displaying the dining option or option information is selected through the I/O interface, the processing unit **120** controls the display unit **180** to display detail information of the dining option corresponding to the selected region through an application interface of the application. In an example, the detailed information is displayed in a specific application launched after receiving the selection signal.

[0053] To be more specific, in the present embodiment, the information content of the option information displayed in the regions of the user interface **500** is collected from one or various network sources. When the region displaying the dining option or option information is selected by the user of the electronic apparatus **100**, the processing unit **120** further directs the user to the original network source where the dining option or option information came from. For example, if the original network source is a website, then the processing unit **120** launches the browser application and displays the detail information of the dining option stated on the website through the browser of the browser application. In another embodiment, if the original network source has a corresponding application installed in the electronic apparatus **100**, then the processing unit **120** launches that application and displays the detail information of the dining option on the original network source. In still another embodiment, the user interface **500** is generated by a specific application, after dining option in a region is selected, an another user interface of the specific application for displaying the detail information of the selected dining option will be displayed.

[0054] FIG. **6**A is a schematic diagram illustrating displaying a dining notification under a lockscreen state according to an embodiment of the present disclosure. FIG. **6**B is a schematic diagram illustrating launching a notification region under a lockscreen state according to an embodiment of the present disclosure. Referring to FIG. **6**A, after the option bundle is received, when the electronic apparatus **100** is in a lockscreen state at the meal time point of the predetermined meal period, then the display unit **180** displays a dining notification DN on a lockscreen interface **600** within the predetermined meal period. The dining notification DN is applied to notify the user of the electronic apparatus **100** that at least one of the recommended dining options is ready to show for the user.

[0055] Referring to FIG. **6**B, after the dining notification DN is shown, the processing unit **120** further detects whether the dining notification DN is selected or activated by the user of the electronic apparatus **100** through the I/O interface **140**. If the dining notification DN is selected through the I/O interface **140**, the processing unit **120** further launches a notification region NR on the lockscreen interface **600**, and the display unit **180** displays at least one of the dining options in the notification region NR. For example, the name D**1**-**1**, the address D**1**-**2**, the contact number D**1**-**3**, the comment D**1**-**4**, and the photo D**1**-**5** related to the selected dining options are displayed in the notification region NR on the display unit **180** of the electronic apparatus **100**. In one embodiment of the present disclosure, the photo D**1**-**5** may further be displayed as the background image on the lockscreen interface **600**. In another embodiment, the notification region NR is a user interface of an application corresponding to the selected dining notification DN, and in one embodiment the corresponding application is launched after the dining notification be selected.

[0056] In another embodiment of the present disclosure, after the dining notification DN is shown, the processing unit **120** further detects whether the electronic apparatus **100** is unlocked through the I/O interface **140**. If the electronic apparatus **100** is unlocked by the user through the I/O interface **140**, the display unit **180** displays at least one of dining options in the at least one of the regions of the user interface **500** under the control of the processing unit **120** or in a user interface of an specific application for displaying the dining option

[0057] In an embodiment, if the dining option displayed in the lockscreen interface **600** and not selected or activated by the user in the lockscreen interface **600**, and then the electronic device **100** is switched to the user interface **500** from the lockscreen interface **600**, the dining option will not be displayed in the user interface **500**.

[0058] In an embodiment, after the option bundle or the update bundle is received by the electronic apparatus **100** through the transmission unit **160**, the processing unit **120** may further check the dining options and determine a portion of the dining options that may be displayed in the user interface **500**.

[0059] To be more specific, in the present embodiment, the processing unit **120** determines whether the electronic apparatus **100** has been located at the dining spots respectively indicated by the dining options according to location records obtained from one or more various applications, for example the application with location recording related function, and the time information or detention periods respectively corresponding to the location records may also be obtained. According to the location records and the corresponding detention periods, the processing unit **120** may determine whether the user of the electronic apparatus **100** has been to one or more of the dining spots indicated by the dining options before or recently.

[0060] For example, the electronic apparatus **100** or the server apparatus may get the information of whether the user has been the dining spot before and the time when the user has been the dining spot from check-in information form social network information (e.g., Facebook), tag information with location information from social network service (e.g., Facebook), timeline information from electronic map service (e.g., Google Map), place record information from social network service or electronic map service (e.g., Google Map), calendar information, the record of an order application from for the dining spot, and the like, but is not limited herein. In one embodiment, some record may also be useful for determining whether the user had the meal by taking away. For example, the record of an order application from for the dining spot, and the like, but is not limited herein.

[0061] Further, in one embodiment, whether the user actually had a meal by eating in the dining spots rather than just passed by or visited the dining spots will be determined through the information that how long the user stayed in the dining spots will also be considered. To be more specific, if the time that the user stayed in the dining spot exceed a time threshold, than it will be determined that the user had a meal there before or recently and the priority to displayed these dining options will be low.

[0062] The display unit **180** may only display the dining options which corresponding to the dining spots that the electronic apparatus **100** has not been located at for an endurance period in the regions of the user interface **500** or the dining options that the electronic apparatus **100** has never been located at there before. The endurance period may be, for example, a week or a month, but it is not limited herein.

[0063] In another embodiment, the dining option that has been displayed in a prior period or was displayed before will be excluded, and then the display unit **180** displays rest of the dining options in the user interface **500** and/or lockscreen state with the predetermined meal period. The prior period may be the period that prior to the predetermined meal period from the meal time point, and the duration of the prior period may be, for example, one week or one month, but it is not limited herein.

[0064] In still another embodiment, if there is a coupon event or sales event for a dining spot, the dining option correspond to the dining spot will still be displayed to the user even the electronic apparatus **100** has been the dining spot before or recently and with high priority to display than the other received dining options.

[0065] In an embodiment, the processing unit **120** further determines whether the predetermined meal period is overlapped with an appointment period of an appointment event recorded in an application. In other words, the processing unit **120** determines whether the user of the electronic apparatus **100** has to join an event during the predetermined meal period according to, for example, calendar information, task information, social network service event information, etc. If the predetermined meal period is not overlapped with the appointment period, then the display unit **180** displays the dining options within the predetermined meal period. However, if the predetermined meal period is overlapped with the appointment period, the processing unit **120** prevents the display unit **180** from displaying the dining options. In one embodiment, if the predetermined meal period is overlapped just a part with the appointment period, the dining options with the location close to the location of the appointment will be displayed to the user. In another embodiment, if the predetermined meal period is not overlapped but the time is close to the appointment period, the dining options with the location close to the location of the appointment will be displayed to the user. To be more specific, the dining options with the location close to the location of the appointment may be determined by determining whether the distance between the locations of the dining option and the appointment is within a predetermined range.

[0066] The disclosure also provides a non-transitory computer readable medium, which records computer program to be loaded into an electronic apparatus to execute the steps of the method of providing recommended dining options. The computer program is composed of a plurality of program instructions (for example, an organization chart, establishing program instruction, a table approving program instruction, a setting program instruction, and a deployment program instruction, etc.), and these program instructions are loaded into the electronic apparatus and executed by the same. In one embodiment, the non-transitory computer readable medium may be downloaded by the user from as application store.

[0067] Based on the description above, the disclosure is directed to a technique for automatically recommending user of the electronic apparatus with suitable dining options. The dining options and the corresponding option information are searched at least based on the location information of the electronic apparatus and displayed though a user interface on the electronic apparatus within the predetermined meal period. Thus, the disclosure provides a convenient and instinctive recommendation mechanism.

[0068] It will be apparent to those skilled in the art that various modifications and variations can be made to the structure of the disclosed embodiments without departing from the scope or spirit of the disclosure. In view of the foregoing, it is intended that the disclosure cover modifications and variations of this disclosure provided they fall within the scope of the following claims and their equivalents.

What is claimed is:

1. A method of providing recommended dining options, adapted to an electronic apparatus connected to a server apparatus, the method comprising:

transmitting an option query to the server apparatus at a query time point, wherein the option query comprises location information of a first location where the electronic apparatus is located at the query time point;

receiving an option bundle from the server apparatus in response to the option query, wherein the option bundle comprising one or more dining option comprising option information; and

displaying at least one of the dining options comprising the option information in at least one of regions of a user interface within a predetermined meal period, wherein the regions of the user interface are applied to display information content collected by the electronic apparatus.

2. The method according to claim **1**, wherein the step of displaying at least one of the dining options comprising the option information in the at least one of regions of the user interface further comprises:

determining whether a distance between the first location and a second location where the electronic apparatus is located at a meal time point is not exceed than a distance range;

in response to determining the distance between the first location and the second location is not exceed than the distance range, displaying the at least one of the dining options comprising the option information in the at least one of the regions of the user interface; and

in response to determining the distance between the first location and the second location is exceed than the distance range, updating the dining options comprising the option information, and displaying at least one of the updated dining options comprising the updated option information in the at least one of the regions of the user interface.

3. The method according to claim **2**, wherein the step of updating the dining options comprising the option information further comprises:

transmitting an option updating query to the server apparatus, wherein the option updating query comprises location information of the second location; and

receiving an update bundle from the server apparatus in response to the option updating query, wherein the update bundle comprises the updated dining options comprising the updated option information.

4. The method according to claim **1**, further comprising:

detecting whether the region in the user interface displaying the option information is selected; and

in response to detecting the region in the user interface displaying the option information is selected, launching an application and displaying detail information of the dining option corresponding to the selected region through an application interface of the application.

5. The method according to claim **1**, further comprising:

entering a lockscreen state and entering a next predetermined meal period; and

displaying one of one or more new dining notification received for the next predetermined meal period on a lockscreen interface within the next predetermined meal period.

6. The method according to claim **5**, further comprising:

after the dining notification for the next predetermined meal period is displayed, detecting whether the dining notification for the next predetermined meal period is selected; and

in response to detecting the dining notification is selected, launching a notification region on the lockscreen interface and displaying the dining option corresponding to the selected dining notification comprising the option information in the notification region.

7. The method according to claim **5**, further comprising:

after the dining notification is displayed for the next predetermined meal period, detecting whether the dining notification for the next predetermined meal period is selected before the electronic apparatus is unlocked; and

in response to detecting the dining notification for the next predetermined meal period is not selected before the electronic apparatus is unlocked, displaying the dining option for the next predetermined meal period in the regions of the user interface.

8. The method according to claim **1**, wherein the step of displaying the at least one of the dining options comprising the option information in the at least one of the regions of the user interface further comprises:

according to location records and corresponding information of time of stay obtained from an application with location recording related function to determine whether the electronic apparatus has been located at dining spots respectively indicated by the dining options; and

displaying the at least one of the dining options comprising the option information which corresponding to at least one of the dining spots that the electronic apparatus has not been located at for an endurance period in the at least one of the regions of the user interface.

9. The method according to claim **1**, wherein the step of displaying the at least one of the dining options comprising the option information in the at least one of the regions of the user interface further comprises:

determining whether the predetermined meal period is overlapped with an appointment period of an appointment event;

in response to determining the predetermined meal period is not overlapped with the appointment period, displaying the at least one of the dining options comprising the option information; and

in response to determining the predetermined meal period is overlapped a part with the appointment period, displaying the at least one of the dining options comprising the option information with the location close to the location of the appointment.

10. The method according to claim **1**, wherein the step of displaying the at least one of the dining options comprising the option information in the at least one of the regions of the user interface further comprises:

excluding the dining option comprising the option information in the option bundle that has been displayed in a prior period; and

displaying rest of the dining options comprising the option information in the at least one of the regions of the user interface within the predetermined meal period.

11. An electronic apparatus, connected to a server apparatus, the electronic apparatus comprising:

a processing unit;

an input/output (I/O) interface, coupled to the processing unit;

a transmission unit, coupled to the processing unit, transmitting an option query to the server apparatus at a query time point, and receiving an option bundle from the server apparatus in response to the option query, wherein the option query comprises location information of a first location where the electronic apparatus is located at the query time point, and wherein the option bundle comprises one or more dining options comprising option information; and

a display unit, coupled to the processing unit, displaying at least one of the dining options comprising the option information in at least one of regions of a user interface within a predetermined meal period, wherein the regions of the user interface are applied to display information content collected by the processing unit.

12. The electronic apparatus according to claim **11**, wherein the processing unit determines whether a distance between the first location and a second location where the electronic apparatus is located at a meal time point is not exceed than a distance range,

in response to determining the distance between the first location and the second location is not exceed than the distance range, the display unit displays the at least one of the dining options comprising the option information in the at least one of the regions of the user interface,

in response to determining the distance between the first location and the second location is exceed than the distance range, the processing unit updates the dining options comprising the option information, and the display unit displays at least one of the updated dining options comprising the updated option information in the at least one of the regions of the user interface.

13. The electronic apparatus according to claim **11**, wherein the processing unit detects whether the region in the user interface displaying the option information is selected through the I/O interface,

in response to detecting the region in the user interface displaying the option information is selected through the I/O interface, the processing unit launches an application and the display unit displays detail information of the dining option corresponding to the selected region through an application interface of the application.

14. The electronic apparatus according to claim **11**, wherein the processing unit controls the electronic apparatus to enter a lockscreen state and enter a next predetermined meal period, and the display unit displays one of the one or more dining notification received for the next predetermined meal period on a lockscreen interface within the next predetermined meal period.

15. The electronic apparatus according to claim **14**, wherein after the dining notification for the next predetermined meal period is displayed by the display unit, the processing unit detects whether the dining notification for the next predetermined meal period is selected through the I/O interface,

in response to detecting the dining notification is selected through the I/O interface, the processing unit launches a notification region on the lockscreen interface and the display unit displays the dining option corresponding to the selected dining notification comprising the option information in the notification region.

16. The electronic apparatus according to claim **14**, wherein after the dining notification for the next predetermined meal period is displayed by the display unit, the processing unit detects whether the dining notification for the next predetermined meal period is selected through the I/O interface before the electronic apparatus is unlocked,

in response to detecting the dining notification for the next predetermined meal period is not selected before the electronic apparatus is unlocked through the I/O interface, the display unit displays at least one of the dining options comprising the option information in the at least one of the regions of the user interface.

17. The electronic apparatus according to claim **11**, wherein the processing unit determines whether the electronic apparatus has been located at dining spots respectively indicated by the dining options according to location records and corresponding information of time of stay obtained from an application with location recording related function,

the display unit displays the at least one of the dining options comprising the option information which corresponding to at least one of the dining spots that the electronic apparatus has not been located at for an endurance period in the at least one of the regions of the user interface.

18. The electronic apparatus according to claim **11**, wherein the processing unit determines whether the predetermined meal period is overlapped a part with an appointment period of an appointment event recorded in an application,

in response to determining the predetermined meal period is not overlapped with the appointment period, the display unit displays the at least one of the dining options comprising the option information,

in response to determining the predetermined meal period is overlapped with the appointment period, the processing unit displays the at least one of the dining options comprising the option information with the location close to the location of the appointment.

19. The electronic apparatus according to claim **11**, the processing unit excludes the dining option comprising the option information in the option bundle that has been displayed in a prior period, and the display unit displays rest of the dining options comprising the option information in the at least one of the regions of the user interface within the predetermined meal period.

20. A non-transitory computer readable medium, storing programs to be loaded into an electronic apparatus to perform steps of:

transmitting an option query to the server apparatus at a query time point, wherein the option query comprises location information of a first location where the electronic apparatus is located at the query time point;

receiving an option bundle from the server apparatus in response to the option query, wherein the option bundle comprising one or more dining option comprising option information; and

displaying at least one of the dining options comprising the option information in at least one of regions of a user interface within a predetermined meal period, wherein the regions of the user interface are applied to display information content collected by the electronic apparatus.

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