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(54) METHOD AND APPARATUS FOR PROVIDING PROXIMITY-BASED INFORMATION

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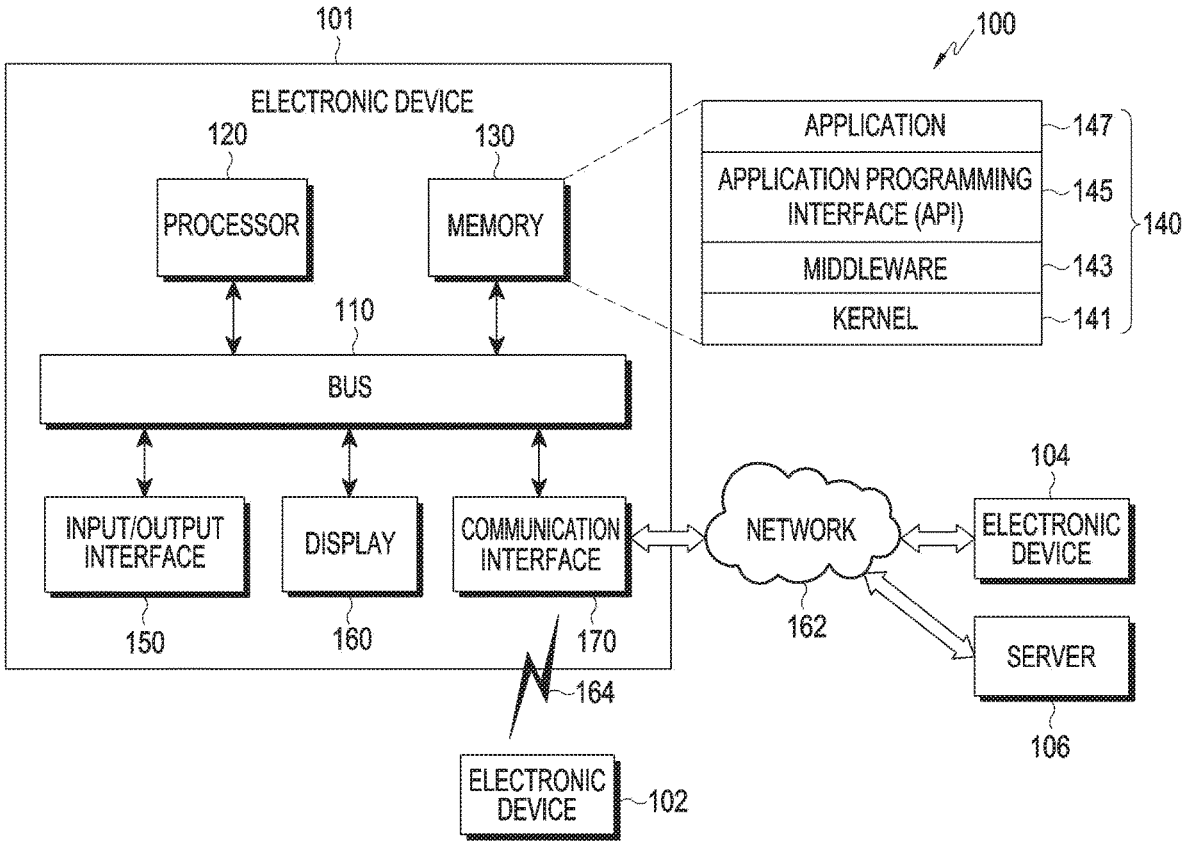
(57) **ABSTRACT**

The embodiments disclosed in the present specification relate to a method and an apparatus for providing proximity-based information. An electronic apparatus for providing proximity-based information according to various embodiments of the present invention comprises: a communication interface; a memory; and a processor electrically connected to the communication interface and the memory, wherein the processor may be set to obtain first context information from one or more programs running on the electronic apparatus, identify first location information corresponding to the first context information, transmit, to a server, first data including at least one of the first context information and the first location information, through the communication interface, receive, from the server, first event information on a point of interest corresponding to the transmitted first data, and store, in the memory, the received first event information on the point of interest. Other various embodiments are possible.



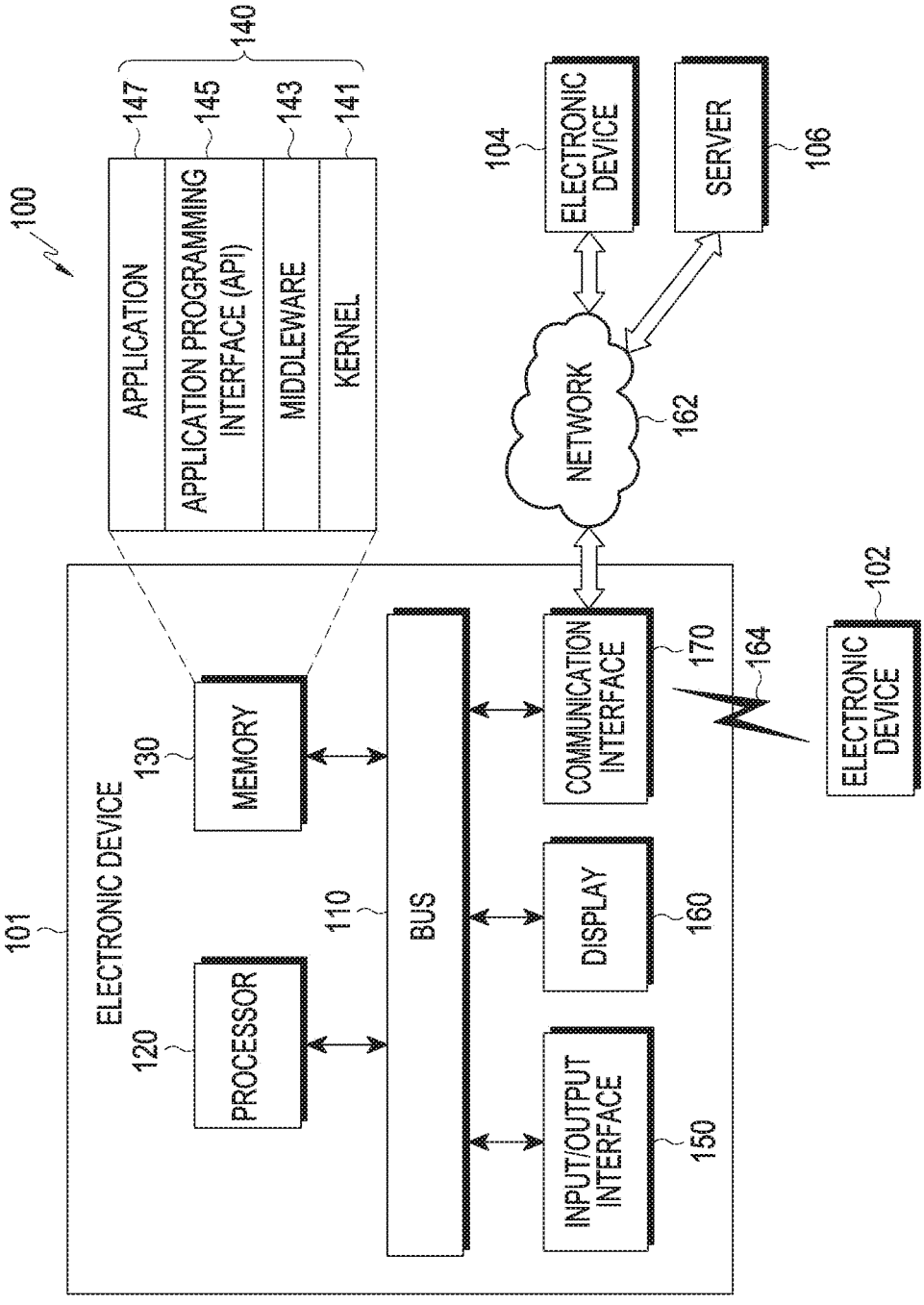

100
140
147
145
143
141
APPLICATION
APPLICATION PROGRAMMING INTERFACE (API)
MIDDLEWARE
KERNEL
104
ELECTRONIC DEVICE
SERVER
106
NETWORK
162
102
ELECTRONIC DEVICE
164
170
COMMUNICATION INTERFACE
101
ELECTRONIC DEVICE
130
MEMORY
110
BUS
DISPLAY
160
120
PROCESSOR
INPUT/OUTPUT INTERFACE
150

FIG. 1

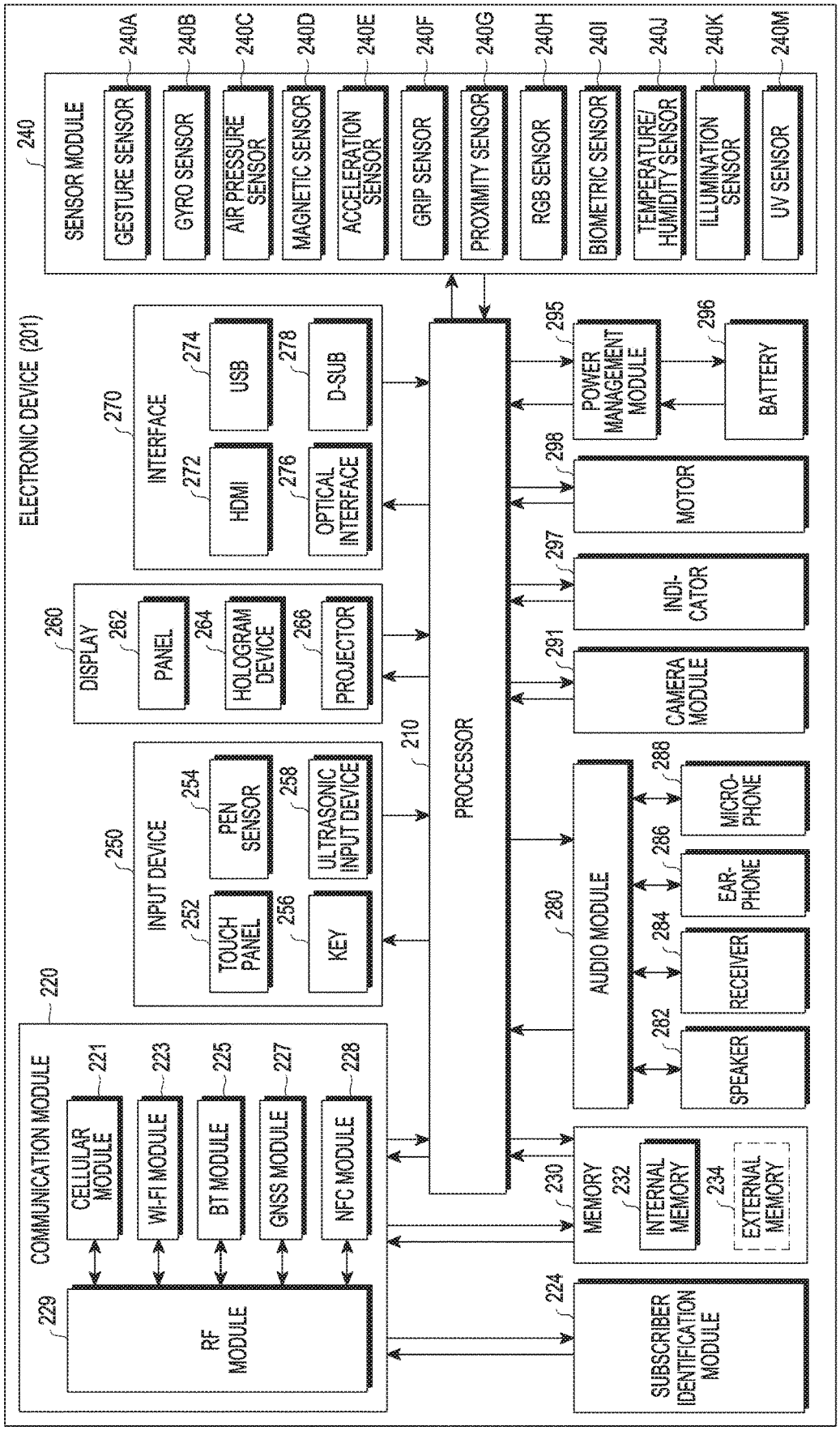

ELECTRONIC DEVICE (201)
PROCESSOR
210
SENSOR MODULE
240
GESTURE SENSOR
240A
GYRO SENSOR
240B
AIR PRESSURE SENSOR
240C
MAGNETIC SENSOR
240D
ACCELERATION SENSOR
240E
GRIP SENSOR
240F
PROXIMITY SENSOR
240G
RGB SENSOR
240H
BIOMETRIC SENSOR
240I
TEMPERATURE/ HUMIDITY SENSOR
240J
ILLUMINATION SENSOR
240K
UV SENSOR
240M
INTERFACE
270
HDMI
272
USB
274
OPTICAL INTERFACE
276
D-SUB
278
DISPLAY
260
PANEL
262
HOLOGRAM DEVICE
264
PROJECTOR
266
INPUT DEVICE
250
TOUCH PANEL
252
PEN SENSOR
254
KEY
256
ULTRASONIC INPUT DEVICE
258
COMMUNICATION MODULE
220
CELLULAR MODULE
221
WI-FI MODULE
223
BT MODULE
225
GNSS MODULE
227
NFC MODULE
228
RF MODULE
229
AUDIO MODULE
280
SPEAKER
282
RECEIVER
284
EAR-PHONE
286
MICRO-PHONE
288
MEMORY
230
INTERNAL MEMORY
232
EXTERNAL MEMORY
234
SUBSCRIBER IDENTIFICATION MODULE
224
CAMERA MODULE
291
INDI-CATOR
297
MOTOR
298
POWER MANAGEMENT MODULE
295
BATTERY
296

FIG.2

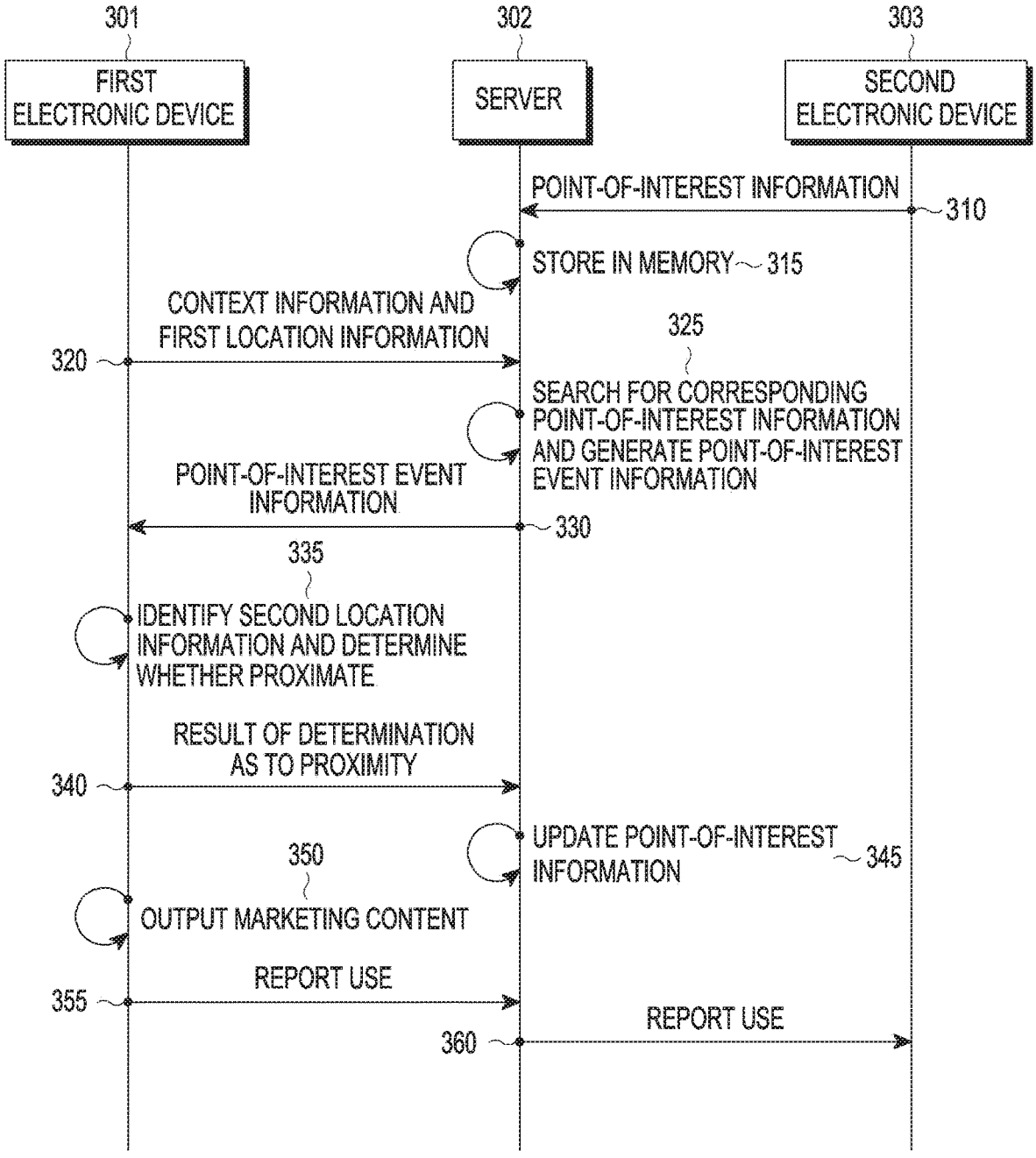

301
FIRST ELECTRONIC DEVICE
302
SERVER
303
SECOND ELECTRONIC DEVICE
POINT-OF-INTEREST INFORMATION
310
STORE IN MEMORY
315
CONTEXT INFORMATION AND FIRST LOCATION INFORMATION
320
325
SEARCH FOR CORRESPONDING POINT-OF-INTEREST INFORMATION AND GENERATE POINT-OF-INTEREST EVENT INFORMATION
POINT-OF-INTEREST EVENT INFORMATION
330
335
IDENTIFY SECOND LOCATION INFORMATION AND DETERMINE WHETHER PROXIMATE
RESULT OF DETERMINATION AS TO PROXIMITY
340
UPDATE POINT-OF-INTEREST INFORMATION
345
350
OUTPUT MARKETING CONTENT
REPORT USE
355
REPORT USE
360

FIG.3

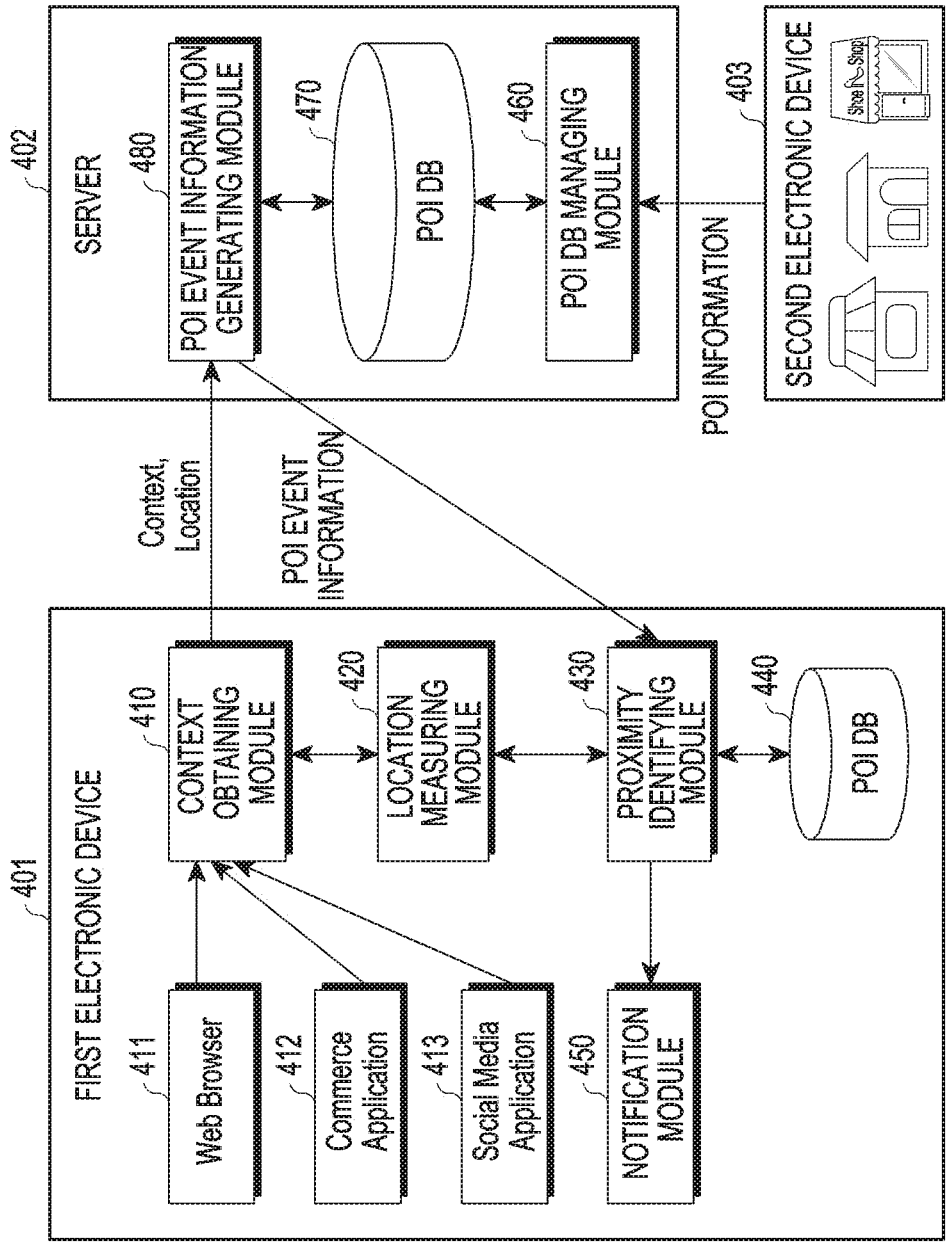

402
SERVER
480
POI EVENT INFORMATION GENERATING MODULE
470
POI DB
460
POI DB MANAGING MODULE
403
SECOND ELECTRONIC DEVICE
Shoe Shop
POI INFORMATION
Context, Location
POI EVENT INFORMATION
401
FIRST ELECTRONIC DEVICE
410
CONTEXT OBTAINING MODULE
420
LOCATION MEASURING MODULE
430
PROXIMITY IDENTIFYING MODULE
440
POI DB
411
Web Browser
412
Commerce Application
413
Social Media Application
450
NOTIFICATION MODULE

FIG.4

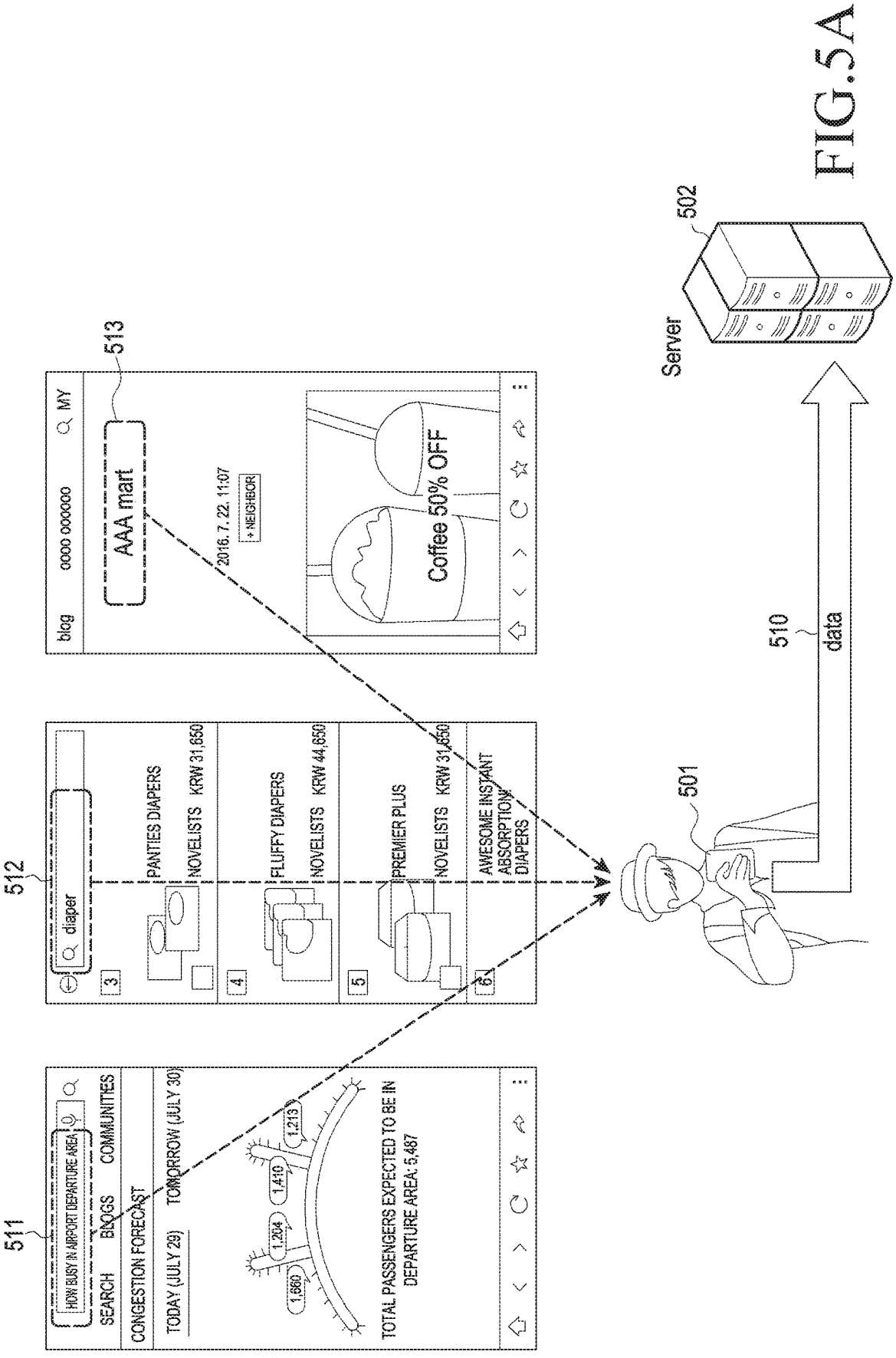

511
HOW BUSY IN AIRPORT DEPARTURE AREA
SEARCH
BLOGS
COMMUNITIES
CONGESTION FORECAST
TODAY (JULY 29)
TOMORROW (JULY 30)
1,660
1,204
1,419
1,213
TOTAL PASSENGERS EXPECTED TO BE IN DEPARTURE AREA: 5,487
512
diaper
3
PANTIES DIAPERS
NOVELISTS KRW 31,650
4
FLUFFY DIAPERS
NOVELISTS KRW 44,650
5
PREMIER PLUS
NOVELISTS KRW 31,650
6
AWESOME INSTANT ABSORPTION DIAPERS
513
blog
MY
AAA mart
2016. 7. 22. 11:07
NEIGHBOR
Coffee 50% OFF
501
510
data
Server
502

FIG.5A

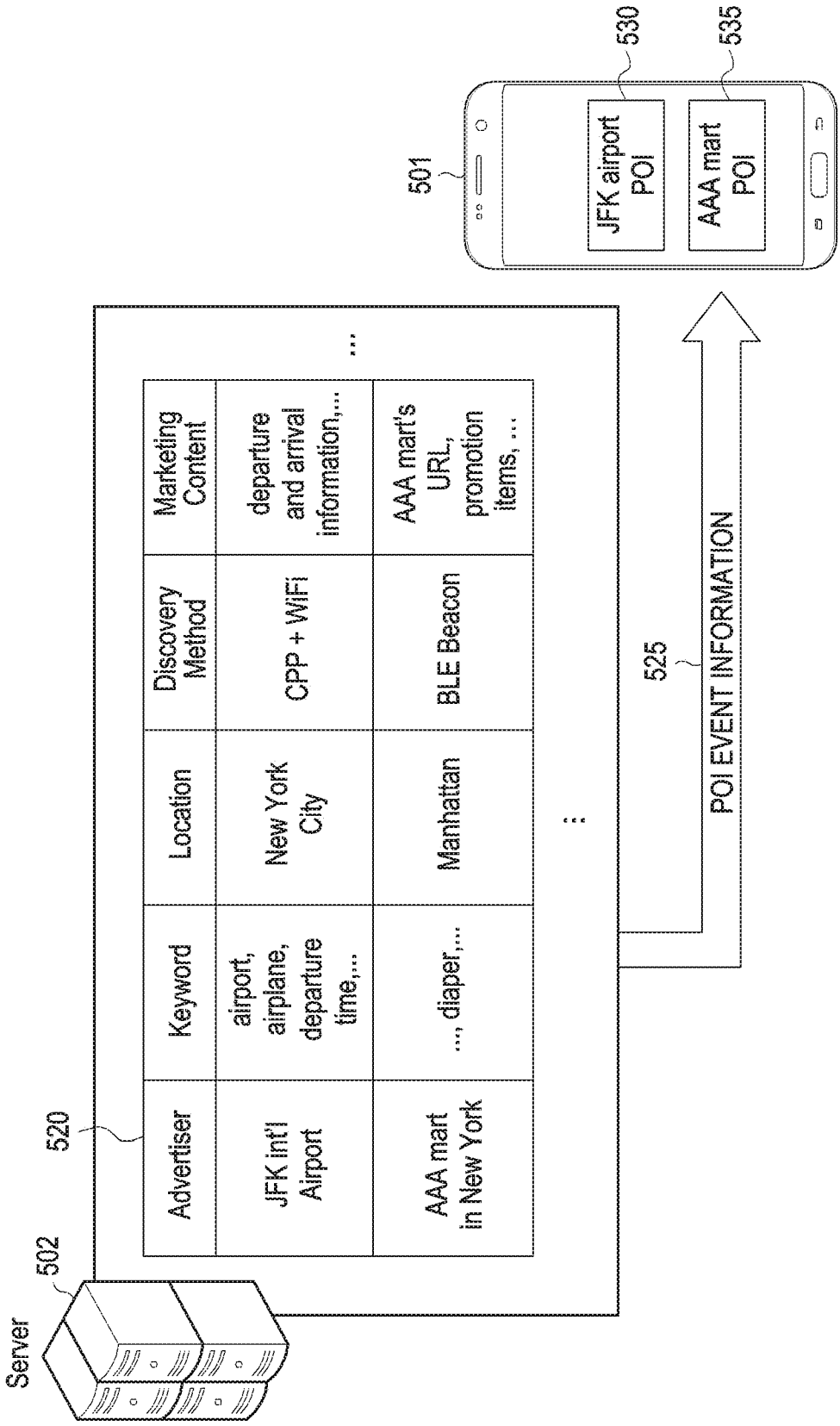

Server
502
520
Advertiser
Keyword
Location
Discovery Method
Marketing Content
JFK int'l Airport
airport, airplane, departure time,...
New York City
CPP + WiFi
departure and arrival information,...
AAA mart in New York
..., diaper,...
Manhattan
BLE Beacon
AAA mart's URL, promotion items, ...
525
POI EVENT INFORMATION
501
530
JFK airport POI
535
AAA mart POI

FIG.5B

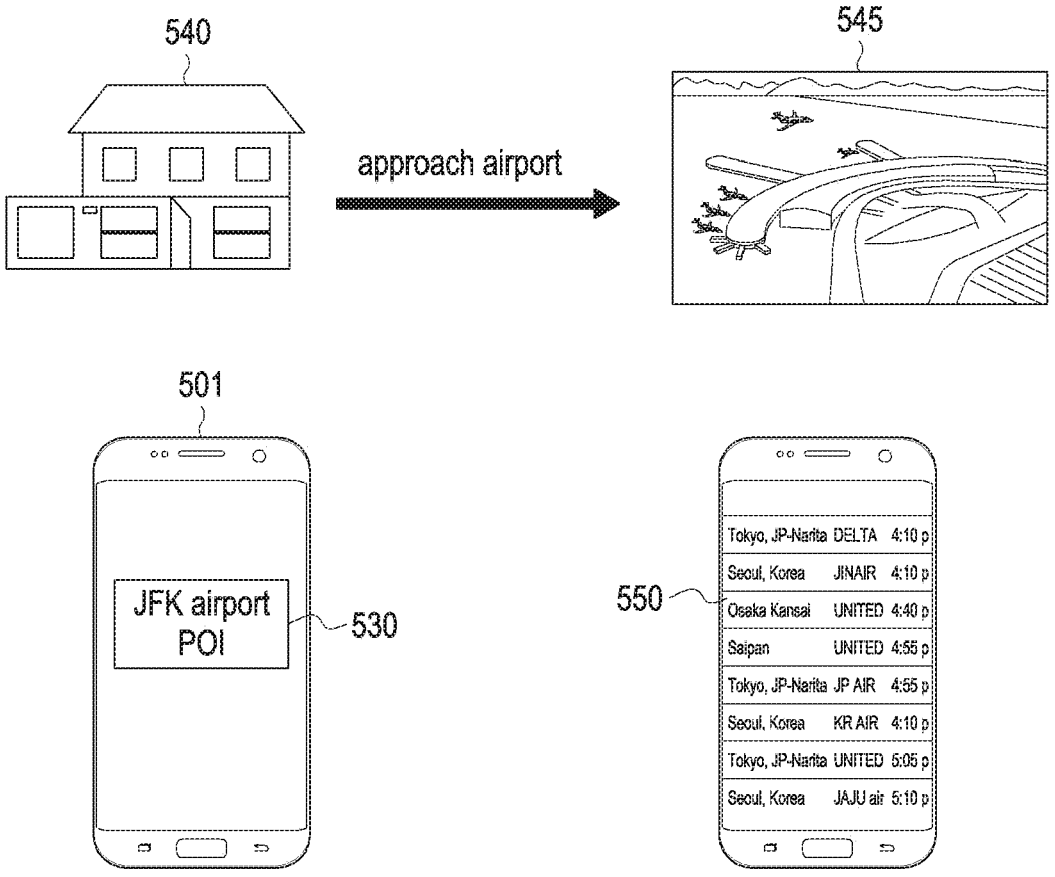

540
545
approach airport
501
JFK airport
POI
530
550
Tokyo, JP-Narita DELTA 4:10 p
Seoul, Korea JINAIR 4:10 p
Oseka Kansai UNITED 4:40 p
Saipan UNITED 4:55 p
Tokyo, JP-Narita JP AIR 4:55 p
Seoul, Korea KR AIR 4:10 p
Tokyo, JP-Narita UNITED 5:05 p
Seoul, Korea JAJU air 5:10 p

FIG.5C

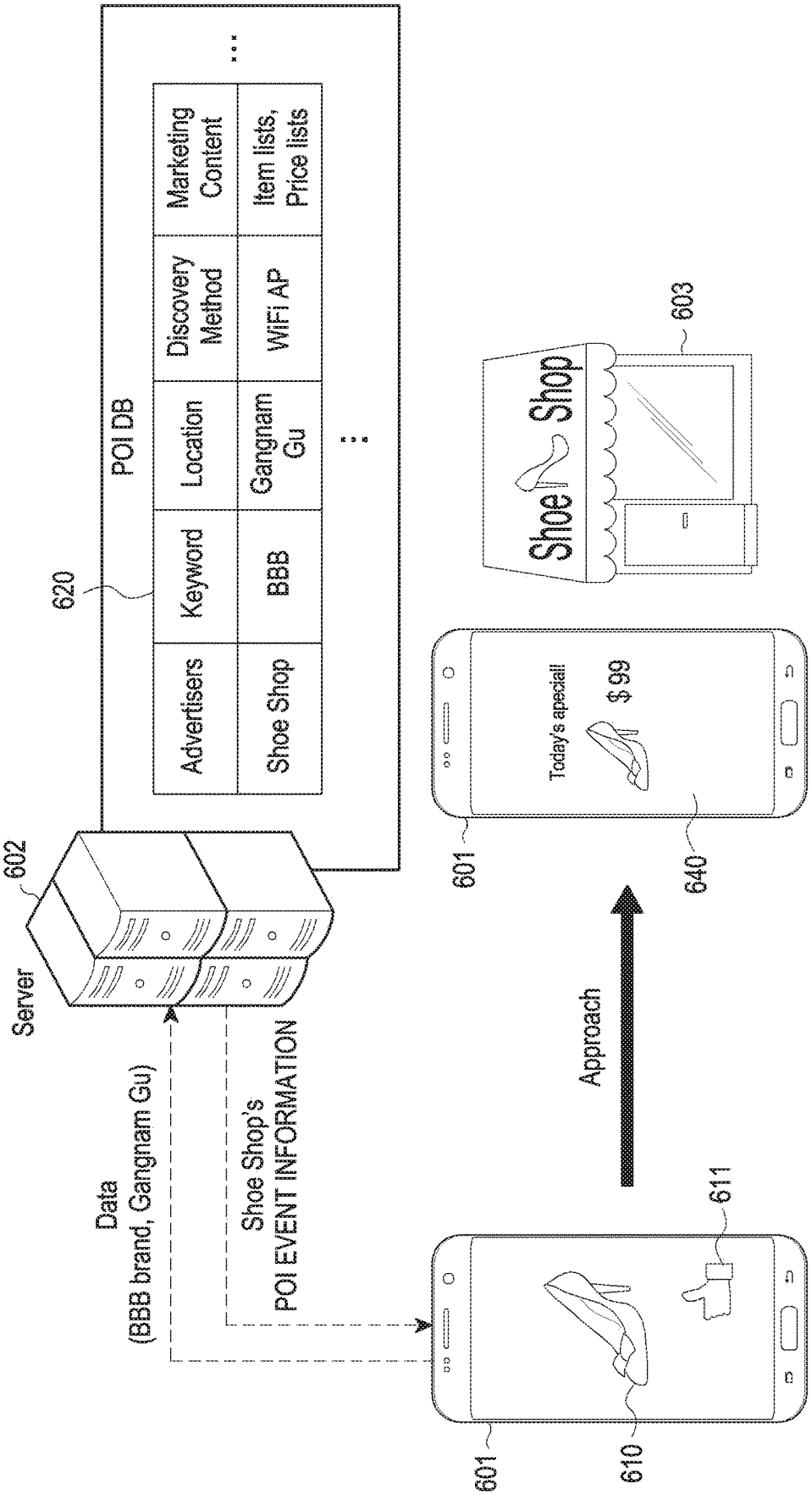

POI DB
620
Advertisers
Keyword
Location
Discovery Method
Marketing Content
Shoe Shop
BBB
Gangnam Gu
WIFI AP
Item lists, Price lists
602
Server
Data
(BBB brand, Gangnam Gu)
Shoe Shop's
POI EVENT INFORMATION
Approach
601
610
611
601
Today's special!
$ 99
640
603
Shoe Shop

FIG.6

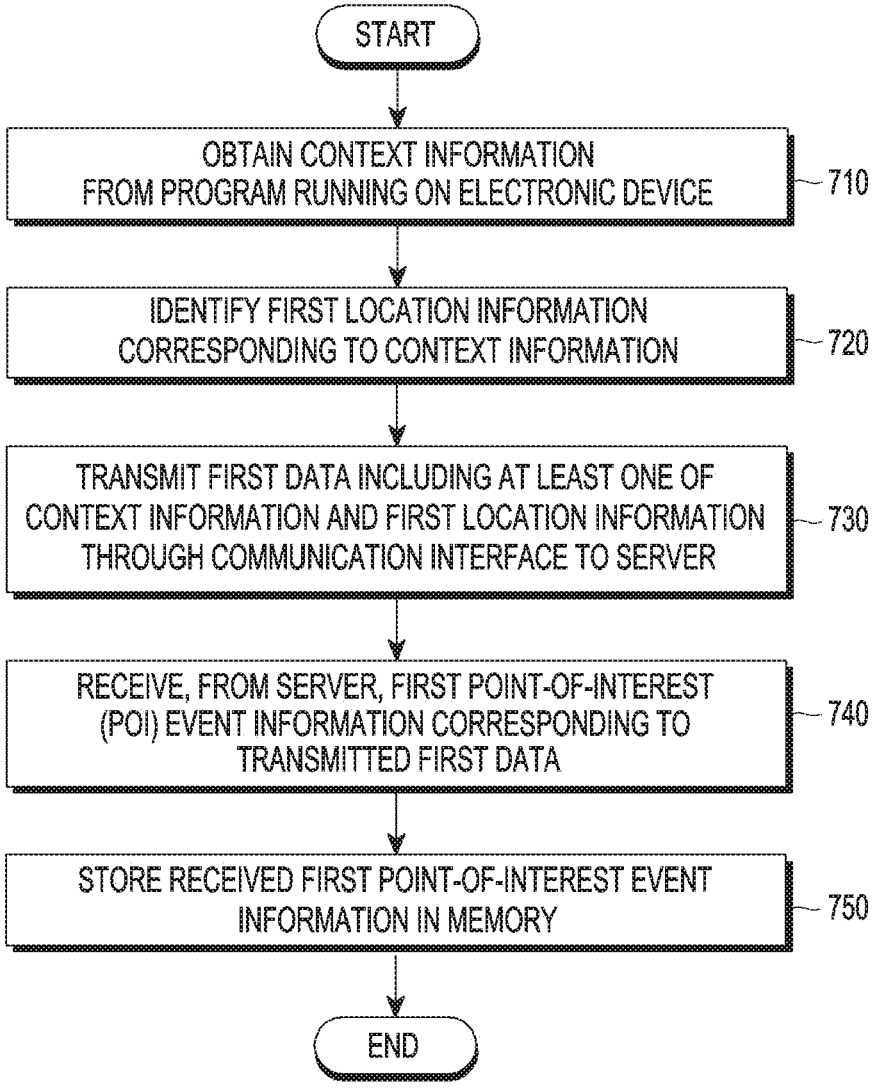

START
OBTAIN CONTEXT INFORMATION FROM PROGRAM RUNNING ON ELECTRONIC DEVICE
710
IDENTIFY FIRST LOCATION INFORMATION CORRESPONDING TO CONTEXT INFORMATION
720
TRANSMIT FIRST DATA INCLUDING AT LEAST ONE OF CONTEXT INFORMATION AND FIRST LOCATION INFORMATION THROUGH COMMUNICATION INTERFACE TO SERVER
730
RECEIVE, FROM SERVER, FIRST POINT-OF-INTEREST (POI) EVENT INFORMATION CORRESPONDING TO TRANSMITTED FIRST DATA
740
STORE RECEIVED FIRST POINT-OF-INTEREST EVENT INFORMATION IN MEMORY
750
END

FIG.7

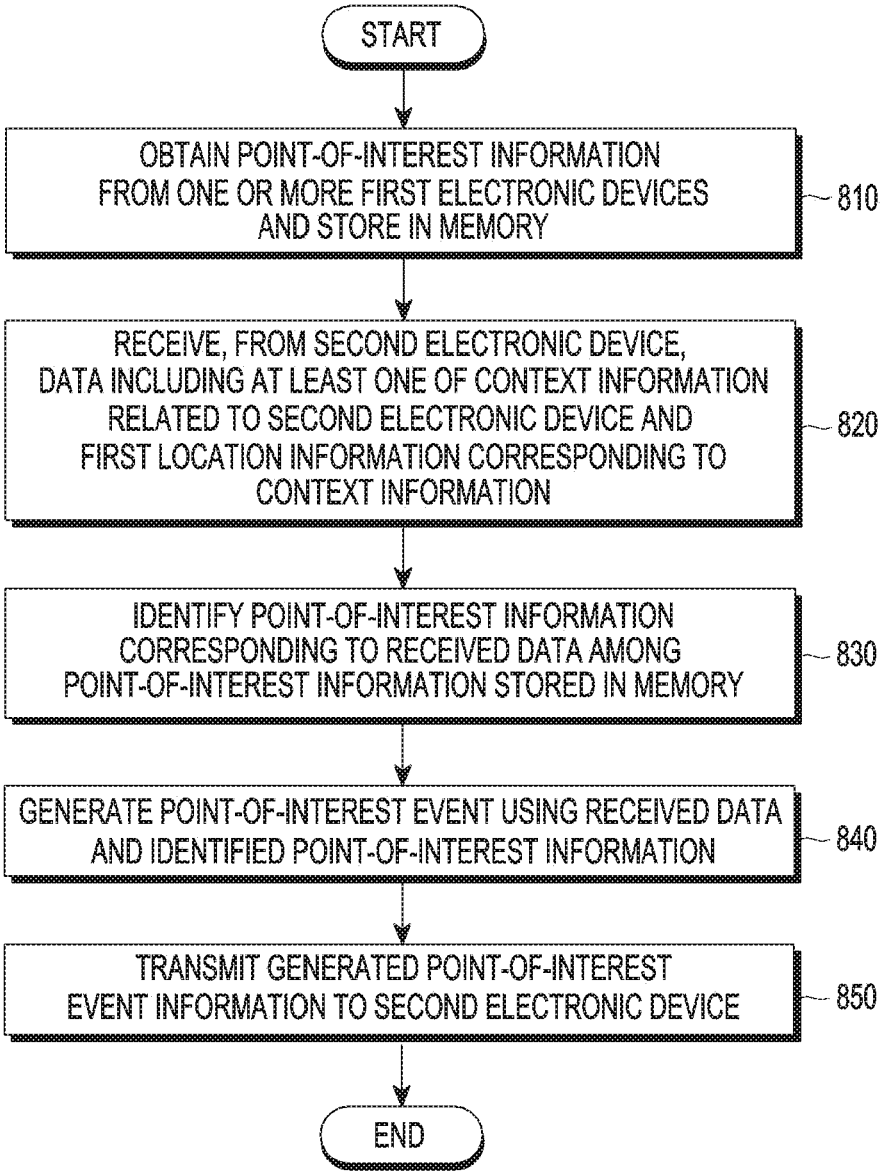

START
OBTAIN POINT-OF-INTEREST INFORMATION FROM ONE OR MORE FIRST ELECTRONIC DEVICES AND STORE IN MEMORY
810
RECEIVE, FROM SECOND ELECTRONIC DEVICE, DATA INCLUDING AT LEAST ONE OF CONTEXT INFORMATION RELATED TO SECOND ELECTRONIC DEVICE AND FIRST LOCATION INFORMATION CORRESPONDING TO CONTEXT INFORMATION
820
IDENTIFY POINT-OF-INTEREST INFORMATION CORRESPONDING TO RECEIVED DATA AMONG POINT-OF-INTEREST INFORMATION STORED IN MEMORY
830
GENERATE POINT-OF-INTEREST EVENT USING RECEIVED DATA AND IDENTIFIED POINT-OF-INTEREST INFORMATION
840
TRANSMIT GENERATED POINT-OF-INTEREST EVENT INFORMATION TO SECOND ELECTRONIC DEVICE
850
END

FIG.8

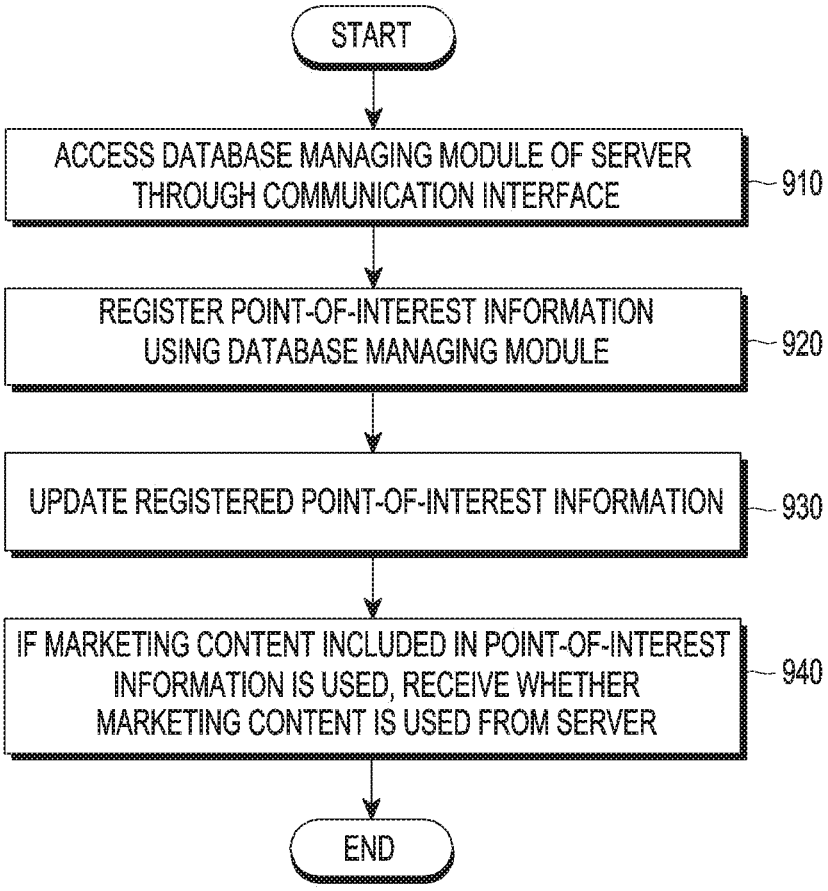

START
ACCESS DATABASE MANAGING MODULE OF SERVER THROUGH COMMUNICATION INTERFACE
910
REGISTER POINT-OF-INTEREST INFORMATION USING DATABASE MANAGING MODULE
920
UPDATE REGISTERED POINT-OF-INTEREST INFORMATION
930
IF MARKETING CONTENT INCLUDED IN POINT-OF-INTEREST INFORMATION IS USED, RECEIVE WHETHER MARKETING CONTENT IS USED FROM SERVER
940
END

FIG.9

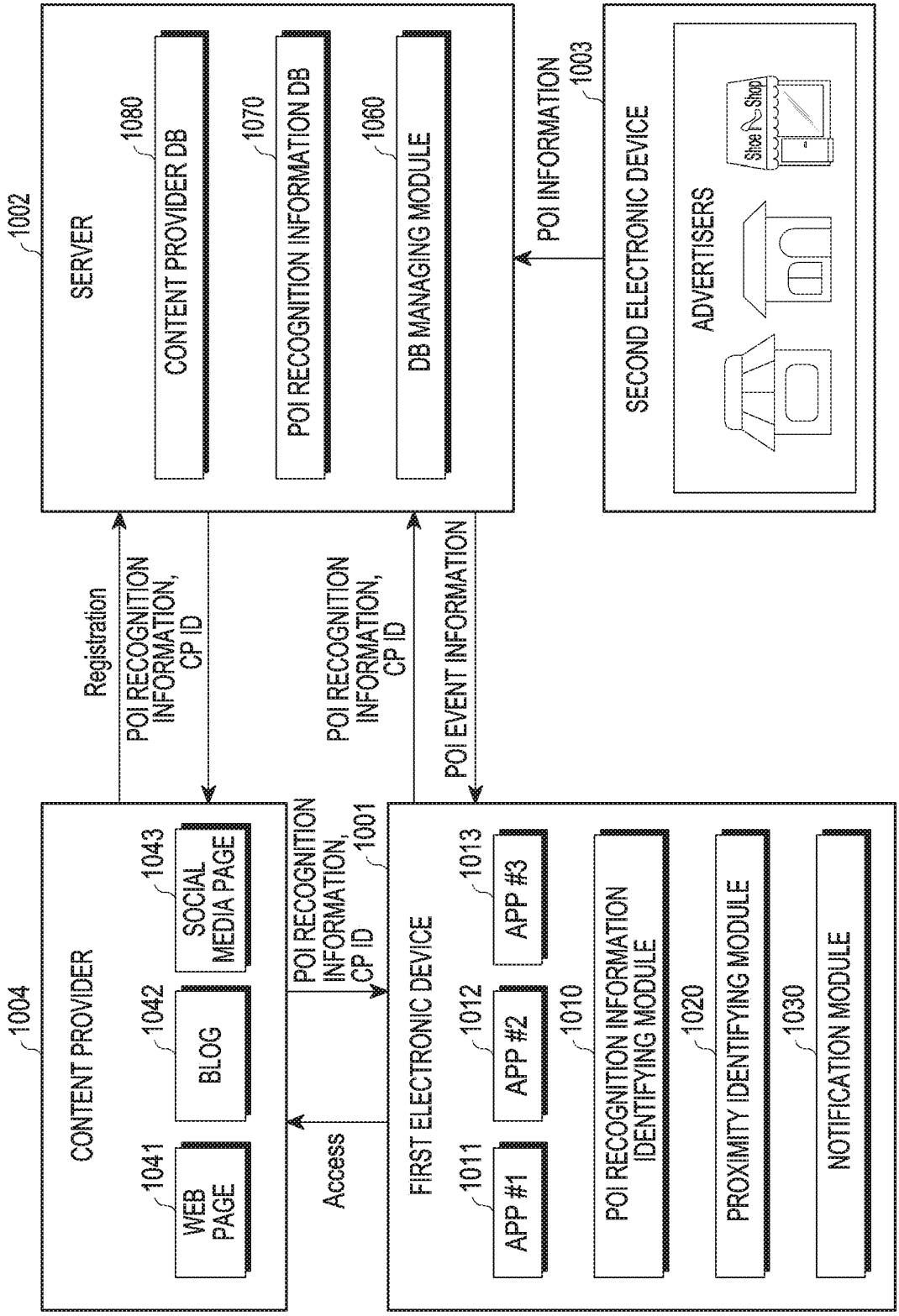

1002
SERVER
1080
CONTENT PROVIDER DB
1070
POI RECOGNITION INFORMATION DB
1060
DB MANAGING MODULE
POI INFORMATION
1003
SECOND ELECTRONIC DEVICE
ADVERTISERS
Shoe Shop
Registration
POI RECOGNITION INFORMATION, CP ID
POI RECOGNITION INFORMATION, CP ID
POI EVENT INFORMATION
1004
CONTENT PROVIDER
1041
WEB PAGE
1042
BLOG
1043
SOCIAL MEDIA PAGE
Access
POI RECOGNITION INFORMATION, CP ID
1001
FIRST ELECTRONIC DEVICE
1011
APP #1
1012
APP #2
1013
APP #3
1010
POI RECOGNITION INFORMATION IDENTIFYING MODULE
1020
PROXIMITY IDENTIFYING MODULE
1030
NOTIFICATION MODULE

FIG. 10

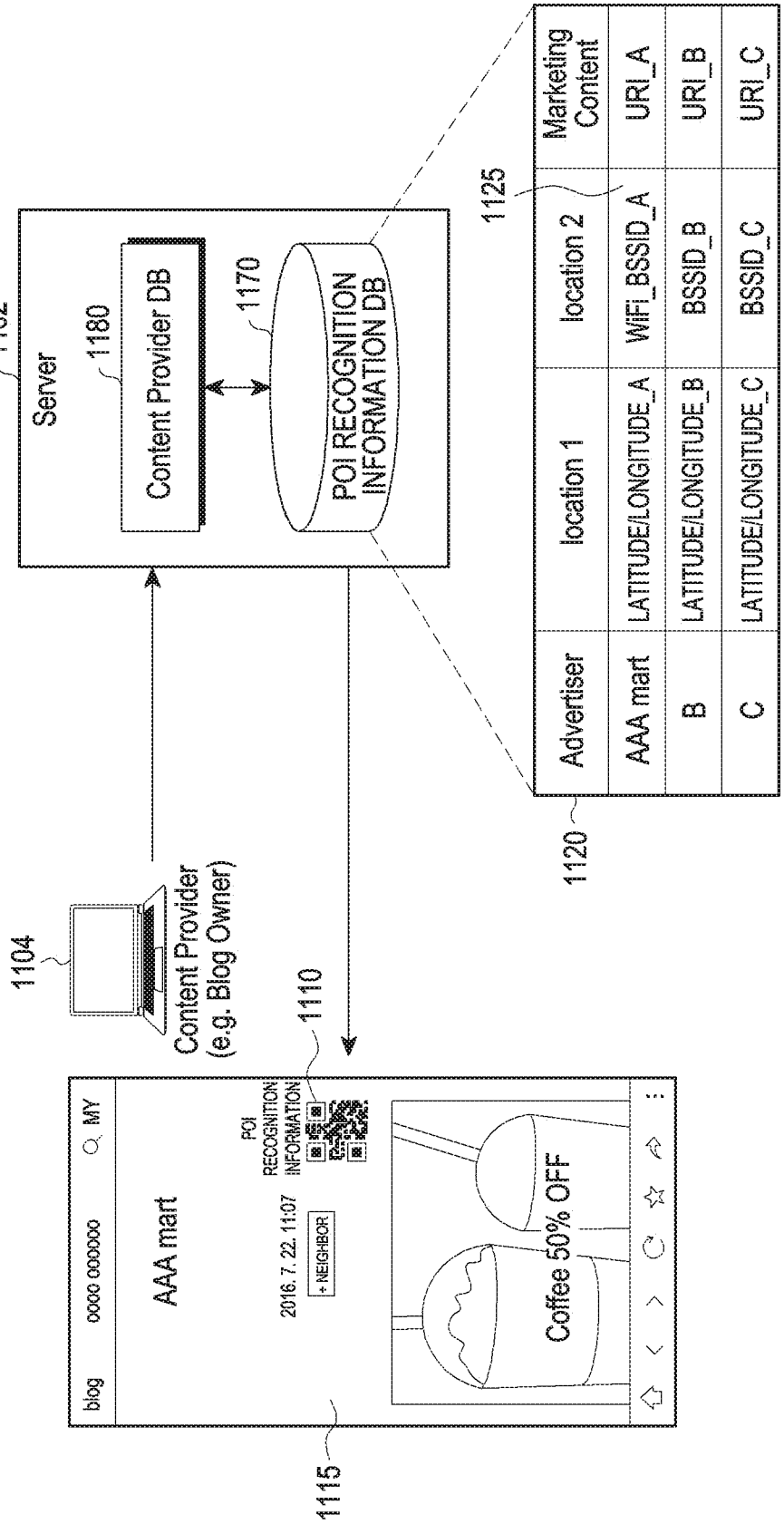

1102
Server
1180
Content Provider DB
1170
POI RECOGNITION INFORMATION DB
1125
1120
Advertiser
location 1
location 2
Marketing Content
AAA mart
LATITUDE/LONGITUDE_A
WiFi_BSSID_A
URI_A
B
LATITUDE/LONGITUDE_B
BSSID_B
URI_B
C
LATITUDE/LONGITUDE_C
BSSID_C
URI_C
1104
Content Provider (e.g. Blog Owner)
1110
1115
blog
AAA mart
POI RECOGNITION INFORMATION
2016. 7. 22. 11:07
+ NEIGHBOR
Coffee 50% OFF

FIG. 11A

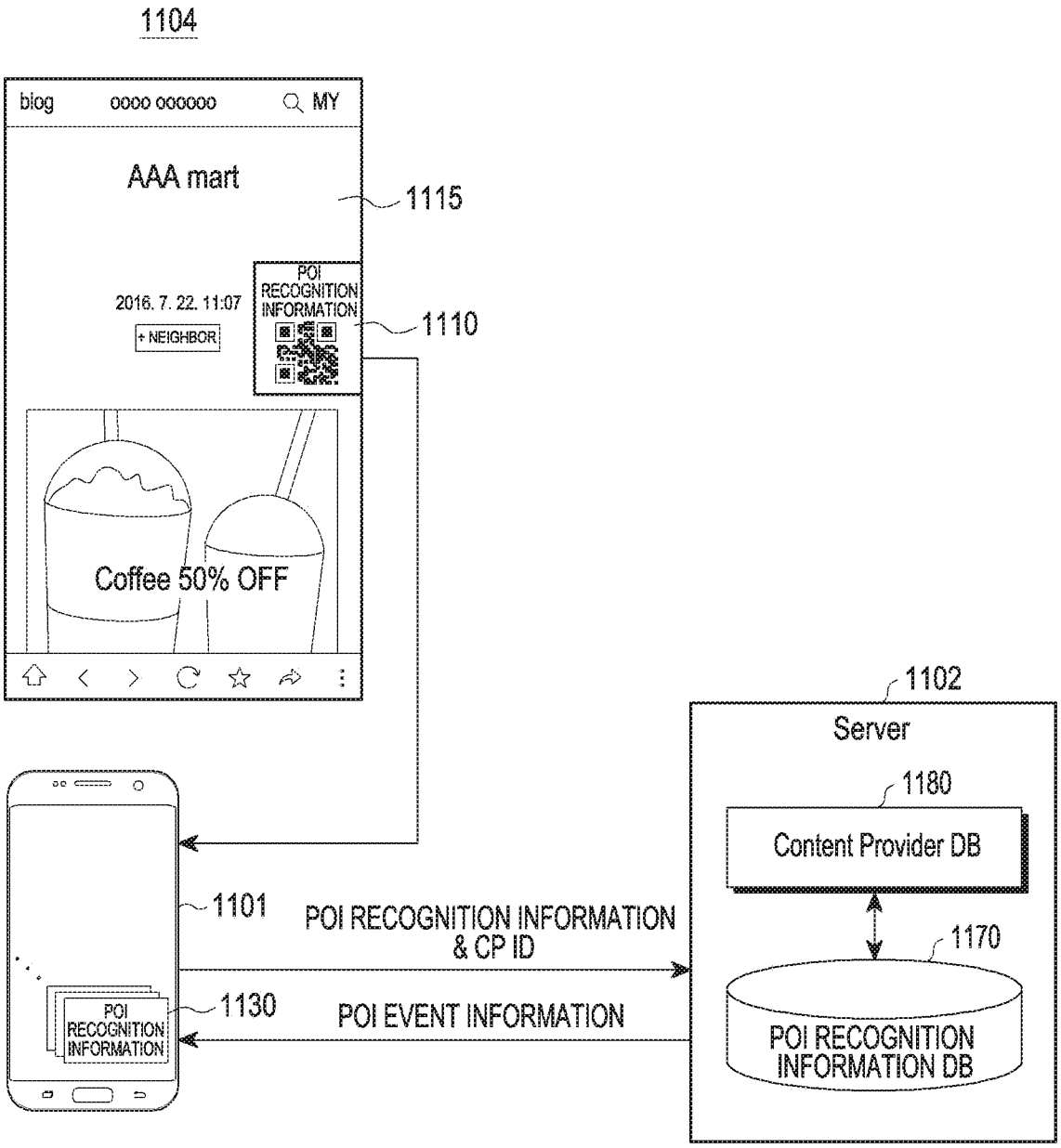

1104
blog
oooo oooooo
MY
AAA mart
1115
2016. 7. 22. 11:07
+ NEIGHBOR
POI RECOGNITION INFORMATION
1110
Coffee 50% OFF
1102
Server
1180
Content Provider DB
1101
POI RECOGNITION INFORMATION & CP ID
1170
1130
POI EVENT INFORMATION
POI RECOGNITION INFORMATION
POI RECOGNITION INFORMATION DB

FIG.11B

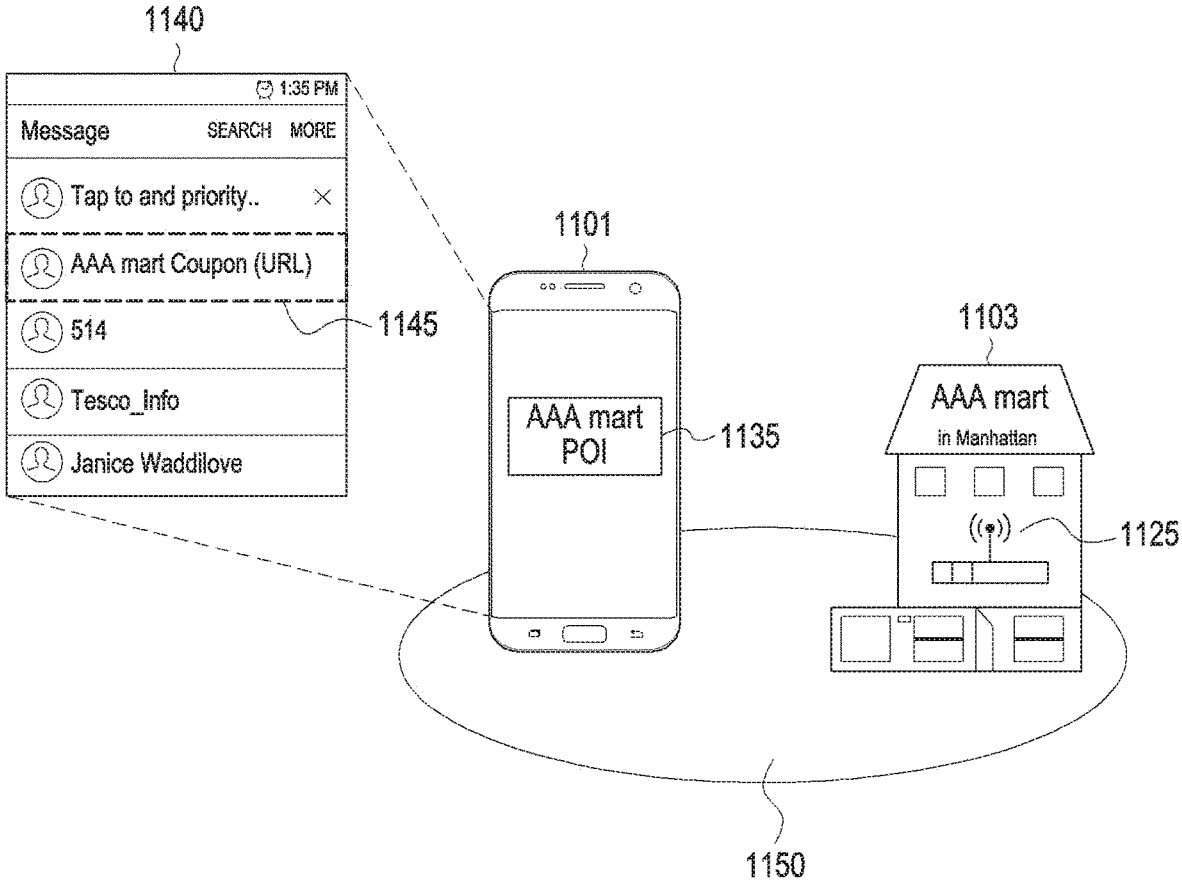

1140
1:35 PM
Message
SEARCH
MORE
Tap to and priority..
AAA mart Coupon (URL)
514
Tesco_Info
Janice Waddilove
1145
1101
AAA mart POI
1135
1103
AAA mart
in Manhattan
1125
1150

FIG.11C

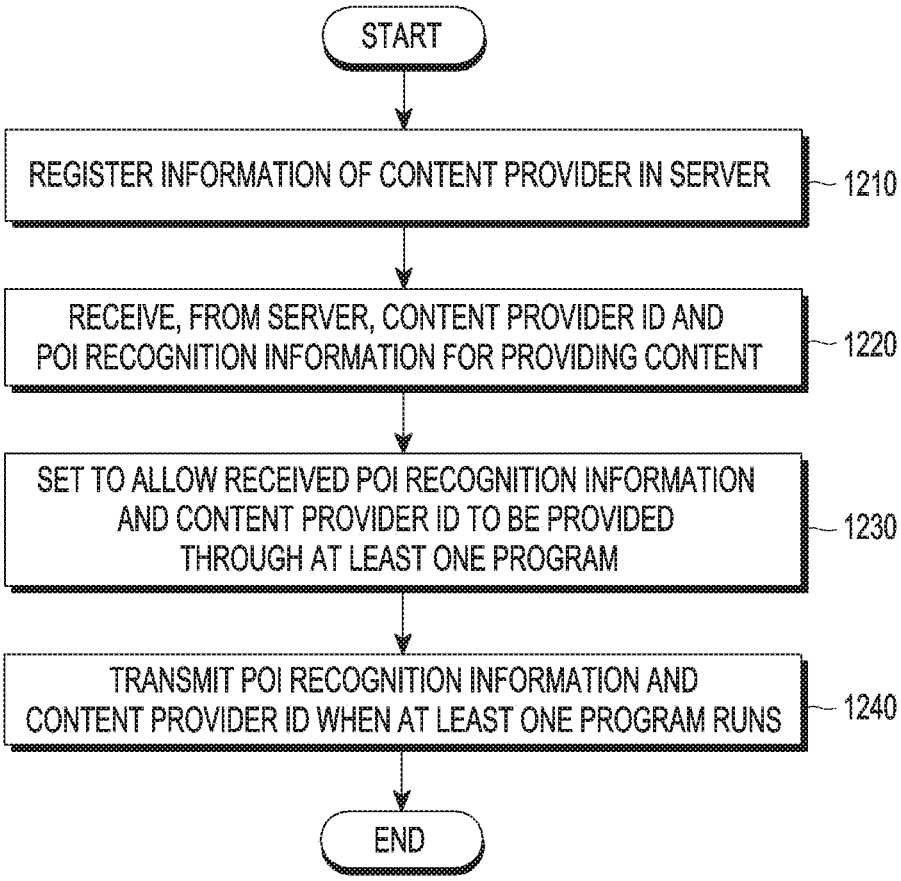

START
REGISTER INFORMATION OF CONTENT PROVIDER IN SERVER
1210
RECEIVE, FROM SERVER, CONTENT PROVIDER ID AND POI RECOGNITION INFORMATION FOR PROVIDING CONTENT
1220
SET TO ALLOW RECEIVED POI RECOGNITION INFORMATION AND CONTENT PROVIDER ID TO BE PROVIDED THROUGH AT LEAST ONE PROGRAM
1230
TRANSMIT POI RECOGNITION INFORMATION AND CONTENT PROVIDER ID WHEN AT LEAST ONE PROGRAM RUNS
1240
END

FIG.12

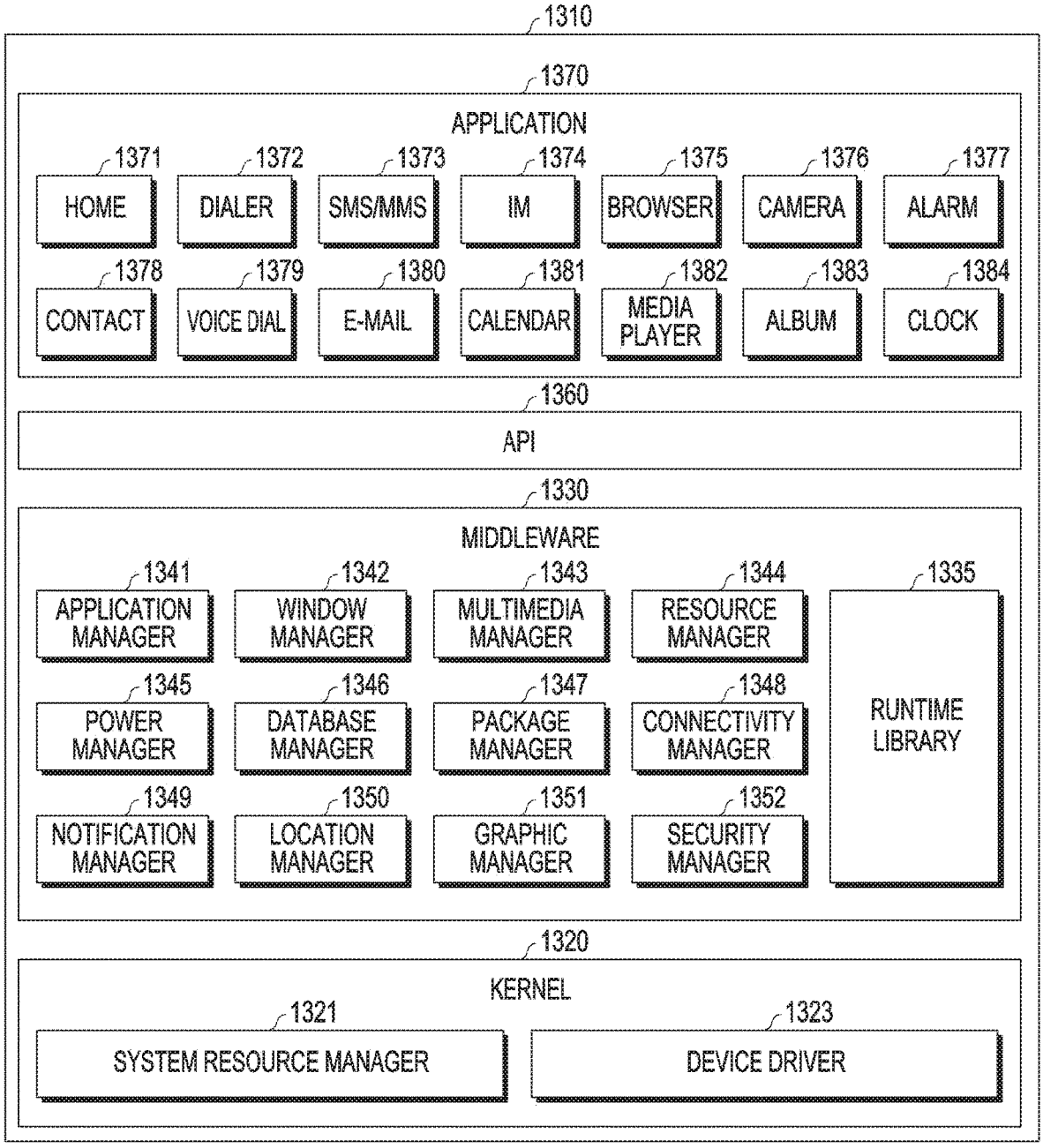

1310
1370
APPLICATION
1371
HOME
1372
DIALER
1373
SMS/MMS
1374
IM
1375
BROWSER
1376
CAMERA
1377
ALARM
1378
CONTACT
1379
VOICE DIAL
1380
E-MAIL
1381
CALENDAR
1382
MEDIA PLAYER
1383
ALBUM
1384
CLOCK
1360
API
1330
MIDDLEWARE
1341
APPLICATION MANAGER
1342
WINDOW MANAGER
1343
MULTIMEDIA MANAGER
1344
RESOURCE MANAGER
1335
RUNTIME LIBRARY
1345
POWER MANAGER
1346
DATABASE MANAGER
1347
PACKAGE MANAGER
1348
CONNECTIVITY MANAGER
1349
NOTIFICATION MANAGER
1350
LOCATION MANAGER
1351
GRAPHIC MANAGER
1352
SECURITY MANAGER
1320
KERNEL
1321
SYSTEM RESOURCE MANAGER
1323
DEVICE DRIVER

FIG.13

METHOD AND APPARATUS FOR PROVIDING PROXIMITY-BASED INFORMATION

CROSS-REFERENCE TO RELATED APPLICATION(S)

[0001] This application is a U.S. National Stage application under 35 U.S.C. § 371 of an International application number PCT/KR2018/005661, filed on May 17, 2018, which is based on and claimed priority of a Korean patent application number 10-10-2017-0061071, filed on May 17, 2017, in the Korean Intellectual Property Office, the disclosure of which is incorporated by reference herein in its entirety.

TECHNICAL FIELD

[0002] Embodiments of the disclosure relate to methods and apparatuses of providing proximity-based information.

BACKGROUND ART

[0003] With smartphones, tablet PCs, wearable devices, or other portable electronic devices in wide use, various services are coming out that use location information about portable electronic devices.

[0004] A representative example is the service where a location information provider sends out notifications or advertisements related to a particular area to an electronic device of a user when the user moves to the inside of a virtual border, 'geofence,' surrounding the particular area.

[0005] So-called proximity marketing, which identifies whether an electronic device and a place-of-interest or point-of-interest (POI) are proximate to each other and transfers coupons, menus, or POI information advertisers provide, may deliver a new experience to users and provide advertisers with a chance to advertise their POIs. What should be considered to provide proximity-based marketing information to users is a method of the electronic device to select a point-of-interest (POI) as a target for determination or a method of identifying whether the point-of-interest (POI) is proximate. Further, in a case where an electronic device is identified to be proximate to a point-of-interest (POI), there should also be considered a method of transferring the type of a service (e.g., delivery of a coupon or guide about amenities) to be provided to the user and services.

DETAILED DESCRIPTION OF THE INVENTION

Technical Problem

[0006] Various embodiments disclosed herein relate to methods of analyzing an interest of a user who holds an electronic device or the user's life pattern and providing information related to a point-of-interest (POI) to the user based on the results of analysis.

[0007] According to an embodiment of the present invention, an electronic device may address the issue where spam information related to a point-of-interest (POI) is indiscriminately delivered to the user only because the electronic device approaches the point-of-interest (POI). For example, according to an embodiment, an electronic device may obtain context information about the user of the electronic device even without a specific command or control and provide optimized marketing information to the user using the obtained context information and at least one piece of location information.

Technical Solution

[0008] According to various embodiments of the present invention, an electronic device providing proximity-based information comprises a communication interface, a memory, and a processor electrically connected with the communication interface and the memory, wherein the processor is configured to obtain first context information from one or more programs executed on the electronic device, identify first location information corresponding to the first context information, transmit first data including at least one of the first context information and the first location information to a server through the communication interface, receive, from the server, first point-of-interest event information corresponding to the transmitted first data, and store the received first point-of-interest event information in the memory.

[0009] According to various embodiments of the present invention, a method of providing proximity-based information may comprise obtaining first context information from one or more programs executed on an electronic device, identifying first location information corresponding to the first context information, transmitting first data including at least one of the first context information and the first location information to a server through a communication interface of the electronic device, receiving, from the server, point-of-interest event information corresponding to the transmitted first data, and storing the received point-of-interest event information in a memory of the electronic device.

[0010] According to various embodiments of the present invention, a server providing proximity-based information comprises a communication interface, a memory, and a processor electrically connected with the communication interface and the memory, wherein the processor is configured to obtain at least one piece of point-of-interest information from one or more first electronic devices through the communication interface and store the point-of-interest information in the memory, receive, from a second electronic device through the communication interface, data including at least one of first context information related to the second electronic device and first location information corresponding to the first context information, identify point-of-interest information corresponding to the received data among at least one piece of point-of-interest information stored in the memory, generate at least one piece of point-of-interest event information using the received data and the identified point-of-interest information, and transmit the generated point-of-interest event information to the second electronic device.

Advantageous Effects

[0011] According to an embodiment of the present invention, upon identifying that the user of an electronic device is proximate to a point-of-interest (POI), the electronic device may screen only information in which the user shows interest among myriad information related to the point-of-interest (POI) and provide the information to the user.

[0012] According to an embodiment of the present invention, a server may provide marketing information based on context information except for the user's personal informa-

tion, thus addressing such issues as personal information leakage or privacy invasion which may occur when marketing information is provided.

[0013] An embodiment of the present invention may screen only users who show interest in point-of-interest (POI) information among a number of users positioned proximate to the point-of-interest (POI) and provide marketing information, thereby providing the optimized marketing content per user.

BRIEF DESCRIPTION OF DRAWINGS

[0014] FIG. **1** is a block diagram illustrating an electronic device and a network according to various embodiments of the present invention;

[0015] FIG. **2** is a block diagram illustrating an electronic device according to various embodiments of the present invention;

[0016] FIG. **3** is a view illustrating the relationship between electronic devices according to various embodiments of the present invention;

[0017] FIG. **4** is a block diagram illustrating components included in electronic devices and the relationship between the components according to various embodiments of the present invention;

[0018] FIGS. **5**A to **5**C are views illustrating a method of providing proximity-based information according to various embodiments of the present invention;

[0019] FIG. **6** is a view illustrating a method of providing proximity-based information according to various embodiments of the present invention;

[0020] FIG. **7** is a flowchart illustrating a method of providing proximity-based information through an electronic device according to various embodiments of the present invention;

[0021] FIG. **8** is a flowchart illustrating a method of providing proximity-based information through a server according to various embodiments of the present invention;

[0022] FIG. **9** is a flowchart illustrating a method of registering proximity-based information in a server using an electronic device according to various embodiments of the present invention;

[0023] FIG. **10** is a block diagram illustrating components included in electronic devices and the relationship between the components according to various embodiments of the present invention;

[0024] FIGS. **11**A to **11**C are views illustrating a method of providing proximity-based information using content according to various embodiments of the present invention;

[0025] FIG. **12** is a flowchart illustrating a method of generating and providing content available for proximity-based marketing according to various embodiments of the present invention; and

[0026] FIG. **13** is a block diagram illustrating a program module according to various embodiments of the present invention.

MODE FOR CARRYING OUT THE INVENTION

[0027] Hereinafter, embodiments of the present disclosure are described with reference to the accompanying drawings. However, it should be appreciated that the present disclosure is not limited to the embodiments and the terminology used herein, and all changes and/or equivalents or replacements thereto also belong to the scope of the present disclosure. The same or similar reference denotations may be used to refer to the same or similar elements throughout the specification and the drawings. It is to be understood that the singular forms "a," "an," and "the" include plural references unless the context clearly dictates otherwise.

[0028] As used herein, the terms "A or B" or "at least one of A and/or B" may include all possible combinations of A and B. As used herein, the terms "first" and "second" may modify various components regardless of importance and/or order and are used to distinguish a component from another without limiting the components. 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 with/to" another element (e.g., a second element), it can be coupled or connected with/to the other element directly or via a third element.

[0029] As used herein, the terms "configured to" may be interchangeably used with other terms, such as "suitable for," "capable of," "modified to," "made to," "adapted to," "able to," or "designed to" in hardware or software in the context. Rather, the term "configured to" may mean that a device can perform an operation together with another device or parts. For example, the term "processor configured (or set) to perform A, B, and C" may mean a generic-purpose processor (e.g., a CPU or application processor) that may perform the operations by executing one or more software programs stored in a memory device or a dedicated processor (e.g., an embedded processor) for performing the operations.

[0030] For example, examples of the electronic device according to embodiments of the present disclosure may include at least one of a smartphone, a tablet personal computer (PC), a mobile phone, a video phone, an e-book reader, a desktop PC, a laptop computer, a netbook computer, a workstation, a server, a personal digital assistant (PDA), a portable multimedia player (PMP), an MP3 player, a medical device, a camera, or a wearable device. The wearable device may include at least one of an accessory-type device (e.g., a watch, a ring, a bracelet, an anklet, a necklace, glasses, contact lenses, or a head-mounted device (HMD)), a fabric- or clothes-integrated device (e.g., electronic clothes), a body attaching-type device (e.g., a skin pad or tattoo), or a body implantable device.

[0031] In some embodiments, examples of the smart home appliance may include at least one of a television, a digital video disk (DVD) player, an audio player, a refrigerator, an air conditioner, a cleaner, an oven, a microwave oven, a washer, a dryer, an air cleaner, a set-top box, a home automation control panel, a security control panel, a TV box (e.g., Samsung HomeSync™, Apple TV™, or Google TV™), a gaming console (Xbox™, PlayStation™), an electronic dictionary, an electronic key, a camcorder, or an electronic picture frame.

[0032] According to an embodiment of the present disclosure, the electronic device may include at least one of various medical devices (e.g., diverse portable medical measuring devices (a blood sugar measuring device, a heartbeat measuring device, or a body temperature measuring device), a magnetic resource angiography (MRA) device, a magnetic resource imaging (MRI) device, a computed tomography (CT) device, an imaging device, or an ultrasonic device), a navigation device, a global navigation satellite system (GNSS) receiver, an event data recorder (EDR), a flight data recorder (FDR), an automotive info-

tainment device, a sailing electronic device (e.g., a sailing navigation device or a gyro compass), avionics, security devices, vehicular head units, industrial or home robots, drones, automatic teller's machines (ATMs), point of sales (POS) devices, or internet of things (IoT) devices (e.g., a bulb, various sensors, a sprinkler, a fire alarm, a thermostat, a street light, a toaster, fitness equipment, a hot water tank, a heater, or a boiler).

[0033] According to various embodiments of the disclosure, examples of the electronic device may at least one of part of a piece of furniture, a building/structure or vehicle, an electronic board, an electronic signature receiving device, a projector, or various measurement devices (e.g., devices for measuring water, electricity, gas, or electromagnetic waves).

[0034] According to embodiments of the present invention, the electronic device may be flexible or may be a combination of the above-enumerated electronic devices. According to an embodiment of the disclosure, the electronic devices are not limited to those described above. As used herein, the term "user" may denote a human or another device (e.g., an artificial intelligent electronic device) using the electronic device.

[0035] Referring to FIG. **1**, according to various embodiments, an electronic device **100** is included in a network environment **101**. The electronic device **101** may include a bus **110**, a processor **120**, a memory **130**, an input/output interface **150**, a display **160**, and a communication interface **170**. In some embodiments, the electronic device **101** may exclude at least one of the components or may add another component.

[0036] The bus **110** may include a circuit for connecting the components **110** to **170** with one another and transferring communications (e.g., control messages or data) between the components.

[0037] The processor **120** may include one or more of a central processing unit (CPU), an application processor (AP), or a communication processor (CP). The processor **120** may perform control on at least one of the other components of the electronic device **101**, and/or perform an operation or data processing relating to communication.

[0038] The memory **130** may include a volatile and/or non-volatile memory. For example, the memory **130** may store commands or data related to at least one other component of the electronic device **101**. According to an embodiment, the memory **130** may store software and/or a program **140**.

[0039] The program **140** may include, e.g., a kernel **141**, middleware **143**, an application programming interface (API) **145**, and/or an application program (or "application") **147**. At least a portion of the kernel **141**, middleware **143**, or API **145** may be denoted an operating system (OS). For example, the kernel **141** may control or manage system resources (e.g., the bus **110**, processor **120**, or a memory **130**) used to perform operations or functions implemented in other programs (e.g., the middleware **143**, API **145**, or application program **147**). The kernel **141** may provide an interface that allows the middleware **143**, the API **145**, or the application **147** to access the individual components of the electronic device **101** to control or manage the system resources. The middleware **143** may function as a relay to allow the API **145** or the application **147** to communicate data with the kernel **141**, for example. Further, the middleware **143** may process one or more task requests received from the application program **147** in order of priority. For example, the middleware **143** may assign a priority of using system resources (e.g., bus **110**, processor **120**, or memory **130**) of the electronic device **101** to at least one of the application programs **147** and process one or more task requests. The API **145** is an interface allowing the application **147** to control functions provided from the kernel **141** or the middleware **143**. For example, the API **133** may include at least one interface or function (e.g., a command) for filing control, window control, image processing or text control.

[0040] For example, the input/output interface **150** may transfer commands or data input from the user or other external device to other component(s) of the electronic device **101** or may output commands or data received from other component(s) of the electronic device **101** to the user or other external devices.

[0041] The display **160** may include, e.g., a liquid crystal display (LCD), a light emitting diode (LED) display, an organic light emitting diode (OLED) display, or a microelectromechanical systems (MEMS) display, or an electronic paper display. The display **160** may display, e.g., various contents (e.g., text, images, videos, icons, or symbols) to the user. The display **160** may include a touchscreen and may receive, e.g., a touch, gesture, proximity or hovering input using an electronic pen or a body portion of the user.

[0042] For example, the communication interface **170** may set up communication between the electronic device **101** and an external device (e.g., a first electronic device **102**, a second electronic device **104**, or a server **106**). For example, the communication interface **170** may be connected with a network **162** through wireless communication or wired communication and may communicate with an external device (e.g., the second external electronic device **104** or server **106**).

[0043] The wireless communication may include cellular communication which uses at least one of, e.g., long term evolution (LTE), long term evolution-advanced (LTE-A), code division multiple access (CDMA), wideband code division multiple access (WCDMA), universal mobile telecommunication system (UNITS), wireless broadband (WiBro), or global system for mobile communication (GSM). According to an embodiment of the present invention, the wireless communication may include at least one of, e.g., wireless-fidelity (Wi-Fi), light-fidelity (Li-Fi), Bluetooth, Bluetooth low power (BLE), ZigBee, near-field communication (NFC), magnetic secure transmission (MST), radio frequency (RF), or body area network (BAN) as denoted with element **164** of FIG. **1**. According to an embodiment of the disclosure, the wireless communication may include global navigation satellite system (GNSS). The GNSS may be, e.g., global positioning system (GPS), global navigation satellite system (Glonass), Beidou navigation satellite system (hereinafter, "Beidou") or Galileo, or the European global satellite-based navigation system. Hereinafter, the terms "GPS" and the "GNSS" may be interchangeably used herein. The wired connection may include at least one of, e.g., universal serial bus (USB), high definition multimedia interface (HDMI), recommended standard (RS)-232, power line communication (PLC), or plain old telephone service (POTS). The network **162** may include at least one of telecommunication networks, e.g., a computer network (e.g.,

local area network (LAN) or wide area network (WAN)), Internet, or a telephone network.

[0044] The first and second external electronic devices **102** and **104** each may be a device of the same or a different type from the electronic device **101**. According to various embodiments, all or some of operations executed on the electronic device **101** may be executed on another or multiple other electronic devices (e.g., the electronic devices **102** and **104** or server **106**). According to an embodiment, when the electronic device **101** should perform some function or service automatically or at a request, the electronic device **101**, instead of executing the function or service on its own or additionally, may request another device (e.g., electronic devices **102** and **104** or server **106**) to perform at least some functions associated therewith. The other electronic device (e.g., electronic devices **102** and **104** or server **106**) may execute the requested functions or additional functions and transfer a result of the execution to the electronic device **101**. The electronic device **101** may provide a requested function or service by processing the received result as it is or additionally. To that end, a cloud computing, distributed computing, or client-server computing technology may be used, for example.

[0045] FIG. **2** is a block diagram illustrating an electronic device **201** according to various embodiments. The electronic device **201** may include the whole or part of the configuration of, e.g., the electronic device **101** shown in FIG. **1**. The electronic device **201** may include one or more processors (e.g., application processors (APs)) **210**, a communication module **220**, a subscriber identification module (SIM) **224**, a memory **230**, a sensor module **240**, an input device **250**, a display **260**, an interface **270**, an audio module **280**, a camera module **291**, a power management module **295**, a battery **296**, an indicator **297**, and a motor **298**.

[0046] The processor **210** may control multiple hardware and software components connected to the processor **210** by running, e.g., an operating system or application programs, and the processor **210** may process and compute various data. The processor **210** may be implemented in, e.g., a system on chip (SoC). According to an embodiment, the processor **210** may further include a graphic processing unit (GPU) and/or an image signal processor. The processor **210** may include at least some (e.g., the cellular module **221**) of the components shown in FIG. **2**. The processor **210** may load a command or data received from at least one of other components (e.g., a non-volatile memory) on a volatile memory, process the command or data, and store resultant data in the non-volatile memory.

[0047] The communication module **220** may have the same or similar configuration to the communication interface **170** of FIG. **1**. The communication module **220** may include, e.g., a cellular module **221**, a wireless fidelity (Wi-Fi) module **223**, a Bluetooth (BT) module **225**, a GNSS module **227**, a NFC module **228**, and a RF module **229**. The cellular module **221** may provide voice call, video call, text, or Internet services through, e.g., a communication network. The cellular module **221** may perform identification or authentication on the electronic device **201** in the communication network using a subscriber identification module **224** (e.g., the SIM card). According to an embodiment, the cellular module **221** may perform at least some of the functions providable by the processor **210**. According to an embodiment, the cellular module **221** may include a communication processor (CP). According to an embodiment of the present invention, at least some (e.g., two or more) of the cellular module **221**, the Wi-Fi module **223**, the Bluetooth module **225**, the GNSS module **227**, or the NFC module **228** may be included in a single integrated circuit (IC) or an IC package. The RF module **229** may communicate data, e.g., communication signals (e.g., RF signals). The RF module **229** may include, e.g., a transceiver, a power amp module (PAM), a frequency filter, a low noise amplifier (LNA), or an antenna. According to another embodiment, at least one of the cellular module **221**, the Wi-Fi module **223**, the Bluetooth module **225**, the GNSS module **227**, or the NFC module **228** may communicate RF signals through a separate RF module. The subscription identification module **224** may include, e.g., a card including a subscriber identification module, or an embedded SIM, and may contain unique identification information (e.g., an integrated circuit card identifier (ICCID) or subscriber information (e.g., an international mobile subscriber identity (IMSI)).

[0048] The memory **230** (e.g., the memory **130**) may include, e.g., an internal memory **232** or an external memory **234**. For example, the internal memory **232** may include at least one of a volatile memory (e.g., a dynamic RAM (DRAM), a static RAM (SRAM), a synchronous dynamic RAM (SDRAM), etc.) or a non-volatile memory (e.g., a one-time programmable ROM (OTPROM), a programmable ROM (PROM), an erasable and programmable ROM (EPROM), an electrically erasable and programmable ROM (EEPROM), a mask ROM, a flash ROM, a flash memory (e.g., a NAND flash, or a NOR flash), a hard drive, or solid state drive (SSD). The external memory **234** may include a flash drive, e.g., a compact flash (CF) memory, a secure digital (SD) memory, a micro-SD memory, a min-SD memory, an extreme digital (xD) memory, a multi-media card (MMC), or a memory stick. The external memory **234** may be functionally or physically connected with the electronic device **201** via various interfaces.

[0049] For example, the sensor module **240** may measure a physical quantity or detect an operational state of the electronic device **201**, and the sensor module **240** may convert the measured or detected information into an electrical signal. The sensor module **240** may include at least one of, e.g., a gesture sensor **240**A, a gyro sensor **240**B, an atmospheric pressure sensor **240**C, a magnetic sensor **240**D, an acceleration sensor **240**E, a grip sensor **240**F, a proximity sensor **240**G, a color sensor **240**H (e.g., a red-green-blue (RGB) sensor, a bio sensor **240**I, a temperature/humidity sensor **240**J, an illumination sensor **240**K, or an ultraviolet (UV) sensor **240**M. Additionally or alternatively, the sensing module **240** may include, e.g., an e-nose sensor, an electromyography (EMG) sensor, an electroencephalogram (EEG) sensor, an electrocardiogram (ECG) sensor, an infrared (IR) sensor, an iris sensor, or a finger print sensor. The sensor module **240** may further include a control circuit for controlling at least one or more of the sensors included in the sensing module. According to an embodiment, the electronic device **201** may further include a processor configured to control the sensor module **240** as part of the processor **210** or separately from the processor **210**, and the electronic device **2701** may control the sensor module **240** while the processor **210** is in a sleep mode.

[0050] The input unit **250** may include, e.g., a touch panel **252**, a (digital) pen sensor **254**, a key **256**, or an ultrasonic input device **258**. The touch panel **252** may use at least one of capacitive, resistive, infrared, or ultrasonic methods. The

touch panel **252** may further include a control circuit. The touch panel **252** may further include a tactile layer and may provide a user with a tactile reaction. The (digital) pen sensor **254** may include, e.g., a part of a touch panel or a separate sheet for recognition. The key **256** may include e.g., a physical button, optical key or keypad. The ultrasonic input device **258** may sense an ultrasonic wave generated from an input tool through a microphone (e.g., the microphone **288**) to identify data corresponding to the sensed ultrasonic wave.

[0051] The display **260** (e.g., the display **160**) may include a panel **262**, a hologram device **264**, a projector **266**, and/or a control circuit for controlling the same. The panel **262** may be implemented to be flexible, transparent, or wearable. The panel **262**, together with the touch panel **252**, may be configured in one or more modules. According to an embodiment of the present invention, the panel **262** may include a pressure sensor (or pose sensor) that may measure the strength of a pressure by the user's touch. The pressure sensor may be implemented in a single body with the touch panel **252** or may be implemented in one or more sensors separate from the touch panel **252**. The hologram device **264** may make three dimensional (3D) images (holograms) in the air by using light interference. The projector **266** may display an image by projecting light onto a screen. The screen may be, for example, located inside or outside of the electronic device **201**.

[0052] The interface **270** may include e.g., a high definition multimedia interface (HDMI) **272**, a USB **274**, an optical interface **276**, or a D-subminiature (D-sub) **278**. The interface **270** may be included in e.g., the communication interface **170** shown in FIG. **1**. Additionally or alternatively, the interface **270** may include a mobile high-definition link (MHL) interface, a secure digital (SD) card/multimedia card (MMC) interface, or infrared data association (IrDA) standard interface.

[0053] The audio module **280** may convert, e.g., a sound signal into an electrical signal and vice versa. At least a part of the audio module **280** may be included in e.g., the input/output interface **145** as shown in FIG. **1**. The audio module **280** may process sound information input or output through e.g., a speaker **282**, a receiver **284**, an earphone **286**, or a microphone **288**.

[0054] For example, the camera module **291** may be a device for capturing still images and videos, and may include, according to an embodiment of the present disclosure, one or more image sensors (e.g., front and back sensors), a lens, an image signal processor (ISP), or a flash such as an LED or xenon lamp. According to an embodiment of the present invention, the camera module **291** may include the whole or part of the camera module **180**.

[0055] The power manager module **295** may manage power of the electronic device **201**, for example. According to an embodiment, the power manager module **295** may include a power management Integrated circuit (PMIC), a charger IC, or a battery or fuel gauge. The PMIC may have a wired and/or wireless recharging scheme. The wireless charging scheme may include e.g., a magnetic resonance scheme, a magnetic induction scheme, or an electromagnetic wave based scheme, and an additional circuit, such as a coil loop, a resonance circuit, a rectifier, or the like may be added for wireless charging. The battery gauge may measure an amount of remaining power of the battery **296**, a voltage, a current, or a temperature while the battery **296** is being charged. The battery **296** may include, e.g., a rechargeable battery or a solar battery.

[0056] The indicator **297** may indicate a particular state of the electronic device **201** or a part (e.g., the processor **210**) of the electronic device, including e.g., a booting state, a message state, or recharging state. The motor **298** may convert an electric signal to a mechanical vibration and may generate a vibrational or haptic effect. The electronic device **201** may include a mobile TV supporting device (e.g., a GPU) that may process media data as per, e.g., digital multimedia broadcasting (DMB), digital video broadcasting (DVB), or mediaFlo™ standards. Each of the aforementioned components of the electronic device may include one or more parts, and a name of the part may vary with a type of the electronic device. According to various embodiments, the electronic device (e.g., the electronic device **201**) may exclude some elements or include more elements, or some of the elements may be combined into a single entity that may perform the same function as by the elements before combined.

[0057] According to various embodiments of the present invention, an electronic device providing proximity-based information comprises a communication interface (e.g., **170**), a memory (e.g., **130**), and a processor (e.g., **120**) electrically connected with the communication interface and the memory, wherein the processor is configured to obtain first context information from one or more programs executed on the electronic device, identify first location information corresponding to the first context information, transmit first data including at least one of the first context information and the first location information to a server through the communication interface, receive, from the server, first point-of-interest event information corresponding to the transmitted first data, and store the received first point-of-interest event information in the memory.

[0058] According to various embodiments of the present invention, in the electronic device of providing proximity-based information, the first context information may include at least one of second data extracted from the one or more programs and at least one keyword received through an input interface provided in the electronic device.

[0059] According to various embodiments of the present invention, in the electronic device of providing proximity-based information, the second data extracted from the one or more programs may include at least one of a keyword extracted from content provided through the one or more programs and a cookie for the one or more programs.

[0060] According to various embodiments of the present invention, in the electronic device of providing proximity-based information, the first location information may include at least one of location information related to the first context information and location information about the electronic device identified when the first context information is obtained.

[0061] According to various embodiments of the present invention, in the electronic device of providing proximity-based information, the first point-of-interest event information may include at least one of location information about a point-of-interest, a method of discovering the point-of-interest, content related to the point-of-interest, and a recommendation index for the point-of-interest.

[0062] According to various embodiments of the present invention, in the electronic device of providing proximity-

based information, the processor may be configured to identify second location information corresponding to a current location of the electronic device, identify whether the electronic device is proximate to the point-of-interest based on the identified second location information and the first point-of-interest event information, and in a case where the electronic device is identified to be proximate to the point-of-interest at a preset distance, output content related to the point-of-interest.

[0063] According to various embodiments of the present invention, in the electronic device of providing proximity-based information, the processor may be configured to identify whether the electronic device is proximate to the point-of-interest using a method of discovering the point-of-interest included in the first point-of-interest event information.

[0064] According to various embodiments of the present invention, in the electronic device of providing proximity-based information, the processor may be configured to output the content using at least one method of displaying a user interface, outputting a sound signal, generating a vibration, or executing at least one program of the electronic device.

[0065] According to various embodiments of the present invention, in the electronic device of providing proximity-based information, the processor may be configured to, in a case where recognition information about the point-of-interest is identified from the obtained first context information, store the recognition information and an identifier of an object, which has provided the recognition information, in the memory, transmit third data including identifiers of all objects, which have provided the recognition information, and the recognition information, corresponding to the number of pieces of the recognition information stored in the memory exceeding a preset number, receive, from the server, second point-of-interest event information corresponding to the transmitted third data, and store the received second point-of-interest event information in the memory.

[0066] According to various embodiments of the present invention, in the electronic device of providing proximity-based information, the processor may be configured to identify second location information corresponding to a current location of the electronic device, identify whether the electronic device is proximate to the point-of-interest based on the identified second location information and the second point-of-interest event information, and in a case where the electronic device is identified to be proximate to the point-of-interest at a preset distance, output content related to the point-of-interest.

[0067] According to various embodiments of the present invention, a server providing proximity-based information comprises a communication interface (e.g., **170**), a memory (e.g., **130**), and a processor (e.g., **120**) electrically connected with the communication interface and the memory, wherein the processor is configured to obtain at least one piece of point-of-interest information from one or more first electronic devices through the communication interface and store the point-of-interest information in the memory, receive, from a second electronic device through the communication interface, data including at least one of first context information related to the second electronic device and first location information corresponding to the first context information, identify point-of-interest information corresponding to the received data among at least one piece of point-of-interest information stored in the memory, generate at least one piece of point-of-interest event information using the received data and the identified point-of-interest information, and transmit the generated point-of-interest event information to the second electronic device.

[0068] According to various embodiments of the present invention, in the server of providing proximity-based information, the processor may be configured to receive at least one piece of feedback information from the second electronic device which has identified proximity to a point-of-interest based on the transmitted point-of-interest information and update the point-of-interest information stored in the memory using the at least one piece of feedback information received.

[0069] FIG. **3** is a view illustrating the relationship between electronic devices according to various embodiments of the present invention. According to an embodiment of the present invention, electronic devices **301** and **303** may be connected with at least one server **302** to provide proximity-based information. According to an embodiment, the electronic devices **301** and **303** and the server may include at least some of the components of the electronic device **101** of FIG. **1** or the electronic device **201** of FIG. **2**.

[0070] Referring to FIG. **3**, the first electronic device **301** and the second electronic device **303** may be connected with at least one server **302**. Here, the first electronic device **301** may mean an electronic device which may receive proximity-based information from at least one server **302** and provide the received proximity-based information to the user of the first electronic device **301**. The second electronic device **303** may mean an electronic device which may transmit, to at least one server **302**, proximity-based information to be provided to the user of the first electronic device **301** in response to a command of a user (e.g., an advertiser)

[0071] According to an embodiment, in operation **310**, the second electronic device **303** may transmit point-of-interest (POI) information to the server **302** in response to the command of the user (e.g., an advertiser). The point-of-interest (POI) information may include at least one of location information about the point-of-interest (POI), a discovery method of the point-of-interest (POI), a context (e.g., keyword) associated with the point-of-interest (POI), content related to the point-of-interest (POI), and a recommendation index for the point-of-interest (POI).

[0072] According to an embodiment, point-of-interest or place-of-interest (POI) may mean a store of the user (e.g., an advertiser) or a predetermined size of area (e.g., geofence) set by the user. Thus, the location information about the point-of-interest (POI) may include at least one coordinates indicating the address, latitude, and longitude of the store or building or geofence information indicating the predetermined size of area. The location information about the point-of-interest (POI) may include radio footprint information such as macro cell ID/micro cell ID/femto cell ID, WiFi BSSID/WiFi SSID, or Bluetooth Beacon ID. Meanwhile, the first electronic device **301** may transmit at least one piece of data, which is obtained while identifying whether it is proximate to the point-of-interest (POI), to the server **302**, and the server **302** may correct or update the location information about the point-of-interest (POI) based on the received data.

[0073] According to an embodiment, the method of discovering the point-of-interest (POI) may include informa-

tion available upon identifying whether the first electronic device **301** is proximate to the point-of-interest (POI). For example, in a case where the cell ID of a base station is primarily used and the BSSID of a Wi-Fi access point (AP) installed in the point-of-interest (POI) is secondarily used to identify whether it is proximate to the point-of-interest (POI), the method of discovering the point-of-interest (POI) may include the cell ID of the base station and the BSSID of the Wi-Fi AP. In this case, the first electronic device **301** may periodically detect the cell ID of the base station and the BSSID of the Wi-Fi AP included in the method of discovering the point-of-interest (POI) and, if the cell ID of the base station and the BSSID of the Wi-Fi AP are detected, identify that the first electronic device **301** is proximate to the point-of-interest (POI).

[0074] According to an embodiment, the content (e.g., marketing content) related to the point-of-interest (POI) may be content that the user (e.g., an advertiser) of the point-of-interest (POI) provides and may include menus, coupons, promotion information, or point-of-interest (POI) amenity information that the user provides. For example, the content that the user advertising at an airport provides may include, e.g., real-time flight information, flight schedule, airport amenity information, or departure/arrival guides. The content that the user advertising a cafe provides may include a menu or discount coupons. According to an embodiment, the point-of-interest (POI)-related content may be provided in various forms, e.g., as images, text, or uniform resource identifier (URI).

[0075] According to an embodiment, the recommendation index for the point-of-interest (POI) may mean information used upon identifying the priority of discovery among a plurality of pieces of point-of-interest (POI) information provided to the first electronic device **301**. The recommendation index for the point-of-interest (POI) may previously be produced considering the potential customer or keyword corresponding to the point-of-interest (POI) information when the point-of-interest (POI) information is generated through the second electronic device **303** or the point-of-interest (POI) information is registered in at least one server **302**. According to an embodiment, in a case where at least one server **302** receives at least one piece of data from the first electronic device **301**, the at least one server **302** may produce a recommendation index for the point-of-interest (POI) or update a previously produced recommendation index for the point-of-interest (POI) considering the at least one piece of data received from the first electronic device **301**.

[0076] According to an embodiment, in operation **315**, the server **302** may store the point-of-interest (POI) information obtained from the second electronic device **303** in the memory of the server **302**. The server **302** may manage a list of second electronic devices **303** which may communicate with the server **302** through a sign-up and authentication process. Accordingly, the user (e.g., an advertiser) may register, modify, and manage the point-of-interest (POI) information through the second electronic device **303** which has been registered in the server **302**.

[0077] According to an embodiment, the point-of-interest (POI) information stored in the memory of the server **302** may be registered, modified, and managed through various routes. For example, the user (e.g., an advertiser) of the point-of-interest (POI) may access the server **302** using an application installed on the second electronic device **303** or a separate electronic device, e.g., a web console, and the user (e.g., an advertiser) of the point-of-interest (POI), who has accessed the server **302**, may register context associated with the point-of-interest (POI). For example, the user (e.g., an advertiser) of "JFK airport" may register such keywords as "airport," "JFK," "JFK airport," or "Boston airport," in the server **302**. Or, in a case where the information associated with the point-of-interest (POI) is among the pieces of information received from the first electronic device **301**, the server **302** may modify or manage the point-of-interest (POI) information stored in the memory of the server **302** using the context information included in the information associated with the point-of-interest (POI).

[0078] According to an embodiment, the server **302** may update the point-of-interest (POI) information stored in the memory of the server **302** using the information obtained from an external device other than the second electronic device **303**. For example, the server **302** may obtain location information from at least one external device proximate to the point-of-interest (POI) and update the point-of-interest (POI) information stored in the memory of the server **302**. Or, in a case where payment is performed in the point-of-interest (POI) through at least one external device, the server **302** may obtain payment information and update the point-of-interest (POI) information stored in the memory of the server **302** using time information, product information, or location information included in the payment information. For example, in a case where there is a payment platform the server **302** provides, and the external device performs payment in at least one point-of-interest (POI) using the payment platform, the server **302** may obtain payment-related information (location information at the time of payment, information about the product purchased by the payment, or a keyword associated with the point-of-interest (POI)). Here, the external device may be the first electronic device **301**.

[0079] According to an embodiment, in operation **320**, the first electronic device **301** may transmit the context information and first location information to at least one server **302**. Context information may mean information obtained from one or more programs (e.g., **140**) executable on the first electronic device **301**. For example, the first electronic device **301** may obtain, as the context information, at least one keyword identified from a web browser application running on the first electronic device **301**. Or, the first electronic device **301** may obtain, as the context information, weather, place, or schedule from a scheduling application running on the first electronic device **301**.

[0080] According to an embodiment, the context information may mean information obtained from one or more programs running on the first electronic device **301**, but is not limited thereto. The context information may be obtained through at least some of the components of the first electronic device **301**. For example, the first electronic device **301** may obtain at least one piece of data stored in the memory of the first electronic device **301**, as the context information. Or, the first electronic device **301** may obtain, as the context information, data obtained periodically or in real-time from at least one sensor provided in the first electronic device **301**. Or, the first electronic device **301** may obtain, as the context information, location information about the place where the user of the first electronic device **301** frequently visits or stays long based on location information about the first electronic device **301** which is

detected through the communication interface (e.g., **170** or **220**) of the first electronic device **301**.

[0081] According to an embodiment, the first location information in operation **320** may mean location information related to the context information. For example, the first location information may include location information about the first electronic device **301** when the context information is obtained. Or, the first location information may include location information about the place that the context information indicates. For example, in a case where the keyword "JFK airport" is obtained from a web browser application running on the first electronic device **301**, the first electronic device **301** may store "JFK airport" as the context information in the memory while simultaneously storing the address of "JFK airport", as first location information, in the memory. Or, in a case where the location of the first electronic device **301** when "JFK airport" is obtained as the context information, the first electronic device **301** may store "Boston" as the first location information in the memory. Then, the first electronic device **301** may transmit the first location information and context information stored in the memory to the server **302**.

[0082] According to an embodiment, in operation **325**, the server **302** may search for point-of-interest (POI) information corresponding to the context information and first location information received from the first electronic device **301** and generate point-of-interest (POI) event information based on the result of search. For example, in a case where at least one of the address of "JFK airport" and "Boston" as the first location information and the context information "JFK airport" are received from the first electronic device **301**, the server **302** may search for the point-of-interest (POI) information including the keyword "JFK airport" among a plurality of pieces of point-of-interest (POI) information stored in the memory. Or, the server **302** may search for the point-of-interest (POI) information registered by the user (e.g., an advertiser) located in a place proximate to the address of "JFK airport" among the plurality of pieces of point-of-interest (POI) information stored in the memory. Or, the server **302** may identify whether there is point-of-interest (POI) information which has been provided to other user who has searched for "JFK airport" in "Boston" among the plurality of pieces of point-of-interest (POI) information stored in the memory.

[0083] According to an embodiment, in a case where at least one piece of point-of-interest (POI) information is searched from the memory of the server **302**, the server **302** may generate point-of-interest (POI) event information using the at least one piece of point-of-interest (POI) information searched. Here, the point-of-interest (POI) event information may include the whole or part of the data included in the point-of-interest (POI) information. Meanwhile, the server **302** may combine the plurality of pieces of point-of-interest (POI) information stored in the memory, thereby generating the point-of-interest (POI) event information. For example, the server may extract relevant data among pieces of data included in the plurality of pieces of point-of-interest (POI) information based on at least one piece of context information or first location information received from the first electronic device **301** and use the extracted data in generating the point-of-interest (POI) event information. In other words, the server **302** may combine the pieces of point-of-interest (POI) information stored in the memory of the server **302** and generate the point-of-interest (POI) event information to provide the optimized information to the first electronic device **301**.

[0084] In the above embodiment, the point-of-interest (POI) event information generated based on the address of "JFK airport" and the context information "JFK airport" received from the first electronic device **301** may include at least one of location information of "JFK airport", a discovery method of "JFK airport", a context (e.g., keyword) associated with "JFK airport", content related to "JFK airport", and a recommendation index for "JFK airport".

[0085] According to an embodiment, the point-of-interest (POI) event information generated based on "Boston" and the context information "JFK airport" received from the first electronic device **301** may include bus company information available when moving from Boston to "JFK airport" or information about travel agencies in Boston which have a promotion. For example, the point-of-interest (POI) event information about the bus company available when moving from Boston to "JFK airport" may include at least one of location information about the bus company or bus station, a discovery method of the bus company or terminal, content related to the bus company, and a recommendation index for the bus company. Likewise, the point-of-interest (POI) event information about the travel agency in Boston which has a promotion may include at least one of location information about the travel agency, a discovery method of the travel agency, content related to the travel agency, and a recommendation index for the travel agency.

[0086] According to an embodiment, in operation **330**, the first electronic device **301** may receive at least one piece of point-of-interest (POI) event information from the server **302**. The first electronic device **301** may store the received point-of-interest (POI) event information in the memory of the first electronic device **301**.

[0087] According to an embodiment, in operation **335**, the first electronic device **301** may identify second location information corresponding to the movement of the first electronic device **301**. For example, the second location information may mean the current location of the first electronic device **301**. According to an embodiment, the first electronic device **301** may detect that the changed current location of the first electronic device **301** is "JFK airport". Or, the first electronic device **301** may detect that the current location of the first electronic device **301** is a place adjacent to the bus station in Boston or the Boston travel agency.

[0088] According to an embodiment, when the first electronic device **301** moves toward "JFK airport", the first electronic device **301** may identify whether the first electronic device **301** and "JFK airport" are proximate to each other using the point-of-interest (POI) event information related to "JFK airport" stored in the memory of the first electronic device **301**. For example, the first electronic device **301** may identify whether the first electronic device **301** and "JFK airport" are proximate to each other using a method of discovering the point-of-interest (POI) included in the point-of-interest (POI) event information. If a condition according to the method of discovering the point-of-interest (POI) is met so that the first electronic device **301** is identified to be proximate to "JFK airport", the first electronic device **301** may transmit (operation **340**) the result of the identification to the server **302** and may output (operation **350**) content related to the point-of-interest (POI) included in the point-of-interest (POI) event information.

[0089] According to an embodiment, the point-of-interest (POI)-related content output in operation **350** may be one that the user (e.g., an advertiser) has registered in the server **302** using the second electronic device **303**. For example, the content related to "JFK airport" may include real-time flight information about "JFK airport", flight schedule, airport amenity information, or departure/arrival guides. The first electronic device **301** may output the point-of-interest (POI)-related content in various forms, e.g., as an image, text, or URI. The user of the first electronic device **301** may obtain various pieces of information related to the point-of-interest (POI) through the output point-of-interest (POI)-related content.

[0090] According to an embodiment, in a case where the point-of-interest (POI)-related content is used, the first electronic device **301** may report use of the point-of-interest (POI)-related content to the server **302** in operation **355**.

[0091] According to an embodiment, in operation **345**, the server **302** may update the point-of-interest (POI) information stored in the memory of the server **302** using the result of identification as to proximity received from the first electronic device **301**. The server **302** may generate more exact point-of-interest (POI) event information than the prior information using the updated point-of-interest (POI) information.

[0092] According to an embodiment, in operation **360**, the server **302** may report use of the point-of-interest (POI)-related content to the second electronic device **303** based on the use report received from the first electronic device **301**.

[0093] Some of the operations of the first electronic device **301**, the second electronic device **303**, and the server **302** may be omitted or repeated according to an embodiment of the present invention. The operations are merely intended for an embodiment of the present invention and the present invention is not limited thereto.

[0094] According to another embodiment, a system may include a first electronic device **301**, a server **302**, and a second electronic device **303**. The second electronic device **303** may generate point-of-interest (POI) information including at least one of content a user provides, a method of discovering a user, a keyword related to a user, and location information about a user (e.g., an advertiser) and register the point-of-interest (POI) information in a point-of-interest (POI) database (DB) managed by the server **302**. Meanwhile, the operation of generating the point-of-interest (POI) information may be performed through at least one program (e.g., **140**) installed on the second electronic device or a point-of-interest (POI) database managing module provided in the server **302**.

[0095] According to an embodiment, the first electronic device **301** may obtain context information which deserves the user's interest through various activities of the user of the first electronic device **301**. The first electronic device **301** may transmit first data including the location of the first electronic device **301** and the obtained context information to the server **302**.

[0096] According to an embodiment, the server **302** having received the first data may screen users (e.g., advertisers) related to the context information included in the first data from the point-of-interest (POI) database. Further, the server **302** may additionally screen users (e.g., advertisers) present within a predetermined radius of the first electronic device **301** based on the location information included in the first data. The server **302** may generate point-of-interest (POI) event information per screened user (e.g., advertiser) and transmit the generated per-user (e.g., advertiser) point-of-interest (POI) event information to the first electronic device **301**. Here, the point-of-interest (POI) event information may include at least one of the content the user (e.g., an advertiser) provides, a discovery method of the user (e.g., an advertiser), and the location information about the user (e.g., an advertiser). Meanwhile, the server **302** may generate a plurality of pieces of point-of-interest (POI) event information based on the first data received from the first electronic device **301** and transmit at least one piece of point-of-interest (POI) event information to the first electronic device **301**.

[0097] According to an embodiment, the first electronic device **301** having received the point-of-interest (POI) event information may store the point-of-interest (POI) event information in the memory of the first electronic device **301**. Further, the first electronic device **301** may use an available location measuring technique to identify periodically or in real-time whether it is proximate to the user (e.g., an advertiser) corresponding to the point-of-interest (POI) event information stored in the memory of the first electronic device **301**. If the first electronic device **301** and the user (e.g., an advertiser) are proximate to each other, the first electronic device **301** may output the content included in the point-of-interest (POI) event information about the user (e.g., an advertiser) by way of the display, vibration motor, or speaker of the first electronic device **301**.

[0098] Meanwhile, according to an embodiment, the first electronic device **301** may identify whether it is proximate to the user (e.g., an advertiser) using a positioning technique with high accuracy, such as GPS, and transmit location information, such as base station cell ID or Wi-Fi AP ID, which may additionally be obtained at the time of identifying proximity to the user (e.g., an advertiser), to the server **302**. The first electronic device **301** may visit the user (e.g., an advertiser) who has provided content (e.g., marketing content) and conducted such an activity as payment or using a coupon and transmit information related to the product purchased or coupon used to the server **302**. The server **302** may update, e.g., the content related to the user (e.g., an advertiser), the method of discovering the user (e.g., an advertiser), the keyword related to the user (e.g., an advertiser), or location information about the user (e.g., an advertiser) in the point-of-interest (POI) database using the received information and may thus provide more exact proximity-based information.

[0099] FIG. **4** is a block diagram illustrating components included in electronic devices and the relationship between the components according to various embodiments of the present invention. Referring to FIG. **4**, according to an embodiment of the present invention, a system may include a first electronic device **401**, at least one server **402**, and a second electronic device **403**.

[0100] According to an embodiment, the second electronic device **403** may transmit and receive data to/from the server **402** through various communication interfaces (e.g., **170**) as a terminal device (e.g., smartphone, tablet, laptop PC, or desktop PC). The second electronic device **403** may register point-of-interest (POI) information in the server **402** in response to a user (e.g., an advertiser)'s command.

[0101] According to an embodiment, the first electronic device **401** may mean an electronic device which may communicate data with the server **402** via a short-range

wireless communication interface, such as WLAN, or a wireless cellular interface, such as 3GPP or LTE, as a mobile electronic device, such as smartphone, tablet, or laptop PC. The first electronic device **401** may include a location measuring module **420** including at least one or more of, e.g., GPS, mobile triangulation, Wi-Fi AP detector, and BLE beacon detector which are able to identify its current location. The location measuring module **420** may store location information about the place where the first electronic device **401** frequently visits or stays long in the point-of-interest (POI) DB **440**.

[0102] According to an embodiment, the first electronic device **401** may include a context obtaining module **410** capable of obtaining context information which deserves the user's interest from the user's various activities. The context obtaining module **410** may obtain context information considering the user's interest level. For example, in a case where a web browser **411** runs on the first electronic device **401** and there is a word frequently entered or a button clicked often through an input device (e.g., **250**) of the first electronic device **401**, the context obtaining module **410** may obtain information related to the word or button as context information. In a case where there is a webpage browsed frequently or output for a long time on the web browser **411** running on the first electronic device **401**, the context obtaining module **410** may obtain at least one keyword included in the webpage as context information. In a case where there is content frequently used or content corresponding to entry of favor (e.g., Like) on a commerce application **412** or social media application **413** running on the first electronic device **401**, the context obtaining module **410** may obtain information related to the content as at least one piece of context information.

[0103] Meanwhile, according to an embodiment, the first electronic device **401** may transmit, to the server **402**, first data including at least one piece of context information obtained through the context obtaining module **410** and at least one piece of location information obtained through the location measuring module **420**.

[0104] According to an embodiment, at least one server **402** may include a point-of-interest (POI) DB managing module **460**, a point-of-interest (POI) DB **470**, and a point-of-interest (POI) event information generating module **480**. The point-of-interest (POI) DB **470** is a component capable of storing point-of-interest (POI) information users (e.g., advertisers) provide and may store the point-of-interest (POI) information generated through the second electronic device **403**.

[0105] Here, the point-of-interest (POI) information may include, e.g., location information about the point-of-interest (POI), a keyword related to the point-of-interest (POI), a discovery method of the point-of-interest (POI), and content related to the point-of-interest (POI). Here, the keyword related to the point-of-interest (POI) may be a word or sentence related to the service or product that the user (e.g., an advertiser) in the point-of-interest (POI) provides and may be a hash tag including at least one word. Meanwhile, the second electronic device **403** may access the server **402** in response to a command of the user (e.g., an advertiser) and may generate, register, or modify the point-of-interest (POI) information through the point-of-interest (POI) DB managing module **460** provided in the server **402**.

[0106] According to an embodiment, the point-of-interest (POI) event information generating module **480** may identify at least one piece of point-of-interest (POI) information among a plurality of pieces of point-of-interest (POI) information stored in the point-of-interest (POI) DB **470** based on first data including at least one piece of location information and context information received from the first electronic device **401**. For example, the point-of-interest (POI) event information generating module **480** may identify the point-of-interest (POI) information related to the context information received from the first electronic device **401** using the keyword related to the point-of-interest (POI). The point-of-interest (POI) event information generating module **480** may identify point-of-interest (POI) information about the user (e.g., an advertiser) who is located within a predetermined radius from at least one piece of location information received from the first electronic device **401** using the location information about the point-of-interest (POI).

[0107] According to an embodiment, the point-of-interest (POI) event information generating module **480** may generate point-of-interest (POI) event information that is to be transmitted to the first electronic device **401** using the identified point-of-interest (POI) information. Here, the point-of-interest (POI) event information may include the whole or part of the point-of-interest (POI) information. The point-of-interest (POI) event information may include a recommendation index for the point-of-interest (POI) available when identifying the priority of discovery among the plurality of pieces of point-of-interest (POI) information.

[0108] According to an embodiment, the server **402** may transmit the generated point-of-interest (POI) event information through the communication interface (e.g., **170**) to the first electronic device **401**. According to an embodiment, the server **402** may generate and transmit a plurality of pieces of point-of-interest (POI) event information corresponding to the first data received from the first electronic device **401**.

[0109] Meanwhile, according to an embodiment, in a case where the first data is received from the first electronic device **401**, the server **402** may refrain from storing at least one piece of location information and context information included in the first data in the memory of the server **402**. In other words, since the at least one piece of location information and context information included in the first data are used only when generating the point-of-interest (POI) event information to be transmitted to the first electronic device **401** and, immediately after generated, discarded, the server **402** may provide proximity-based information to the first electronic device **401** without gathering the user's personal information. Thus, according to an embodiment, the server **402** may be freed from legal or technical issues that may arise when the user's personal information is used or processed. In a case where the user authorizes to use his or her personal information, the server **402** may, however, store the context information and at least one piece of location information included in the first data in the memory of the server **402**. In this case, the server **402** may provide various precise contents (e.g., marketing content) to the user of the first electronic device **401** using the stored first data.

[0110] According to an embodiment, the first electronic device **401** may receive at least one piece of point-of-interest (POI) event information from the server **402** and store the information in the point-of-interest (POI) DB **440** of the first electronic device **401**. A proximity identifying module **430** provided in the first electronic device **401** may identify whether the first electronic device **401** and the point-of-

interest (POI) are proximate to each other based on the current location of the first electronic device **401** and at least one of the recommendation index for the point-of-interest (POI), method of discovering the point-of-interest (POI), and location information about the point-of-interest (POI) included in the point-of-interest (POI) event information. For example, in a case where a method of identifying the distance between the current location of the first electronic device **401** and the location of the point-of-interest (POI) using the GPS of the first electronic device **401** is proposed as the point-of-interest (POI) discovery method, the proximity identifying module **430** may measure the current location of the first electronic device **401** through the GPS module provided in the first electronic device **401**. The proximity identifying module **430** may compare the measured current location of the first electronic device **401** with the point-of-interest (POI) location information included in the point-of-interest (POI) event information to thereby identify the distance between the location of the point-of-interest (POI) and the current location of the first electronic device **401** and, if the identified distance is a preset value or less, identify that the first electronic device **401** and the point-of-interest (POI) are proximate to each other.

[0111] According to another embodiment, the proximity identifying module **430** may identify the proximity by calculating the physical distance between the location of the point-of-interest (POI) and the current location of the first electronic device **401** or identify whether the current location of the first electronic device **401** and the location of the point-of-interest (POI) are proximate to each other according to a preset radio footprint ID, identifier, or whether there is a type match. For example, the proximity identifying module **430** may identify whether the first electronic device **401** and the point-of-interest (POI) are proximate to each other via one or more steps based on the current location of the first electronic device **401** and point-of-interest (POI) discovery method included in the point-of-interest (POI) event information. For example, in a case where a method of using the cell ID of a base station primarily and BLE beacon information or information about the Wi-Fi AP installed in the point-of-interest (POI) secondarily is suggested as the point-of-interest (POI) discovery method, the proximity identifying module **430** may primarily identify whether the first electronic device **401** and the point-of-interest (POI) are proximate to each other by comparing the cell ID of the base station connected with the first electronic device **401** with the base station cell ID included in the point-of-interest (POI) discovery method. If the cell ID of the base station connected with the first electronic device **401** is identified to be identical to the base station cell ID included in the point-of-interest (POI) discovery method, the proximity identifying module **430** may activate the short-range wireless communication interface proposed through the point-of-interest (POI) discovery method, thereby discovering the BLE beacon information or information about the Wi-Fi AP installed in the point-of-interest (POI). Finally, in a case where the BLE beacon information or information about the Wi-Fi AP installed in the point-of-interest (POI) is discovered, the proximity identifying module **430** may identify that the first electronic device **401** and the point-of-interest (POI) are proximate to each other. Meanwhile, in a case where a method of using the BLE beacon information or information about the Wi-Fi AP installed in the point-of-interest (POI) is proposed as the point-of-interest (POI) discovery method, the point-of-interest (POI) discovery method may further include information about the channel the Wi-Fi AP in the point-of-interest (POI) uses or Bluetooth beacon channel information.

[0112] According to an embodiment, in a case where the first electronic device **401** and the point-of-interest (POI) are identified to be proximate to each other, the notification module **450** of the first electronic device **401** may output content related to the point-of-interest (POI) included in the point-of-interest (POI) event information. For example, in a case where the point-of-interest (POI)-related content is provided as an image or text, the notification module **450** may display the point-of-interest (POI)-related content through the display of the first electronic device **401** or output the point-of-interest (POI)-related content in various forms, e.g., as a sound or vibration, using a component of the first electronic device **401**. Meanwhile, in a case where the point-of-interest (POI)-related content is provided as URI, the proximity identifying module **430** may access the URI to thereby obtain the point-of-interest (POI)-related content automatically. In this case, the proximity identifying module **430** may receive the point-of-interest (POI)-related content using a wireless mobile communication network, such as 3GPP or LTE. The proximity identifying module **430** may access the AP installed in the point-of-interest (POI) and receive the point-of-interest (POI)-related content so as to save costs due to use of the wireless mobile communication network.

[0113] According to an embodiment, the first electronic device **401** may transmit, to the server **402**, various pieces of location information obtained upon identifying whether it is proximate to the point-of-interest (POI) or information generated as the point-of-interest (POI) is used, as feedback data. For example, the first electronic device **401** may identify the proximity using a positioning technique with relatively high accuracy, such as GPS, and transmit the cell ID of a nearby base station or information about the Wi-Fi AP in an ambient store as obtained at the time of identifying the proximity, to the server **402**. The first electronic device **401** used to visit the point-of-interest (POI) and purchase a product or service may transmit information about the coupon used by the user or information about the product purchased to the server **402**. Meanwhile, receiving the feedback data from the first electronic device **401**, the server **402** may update at least one piece of point-of-interest (POI) information stored in the point-of-interest (POI) DB **470** using the received feedback data. The updated point-of-interest (POI) information may be used later to generate point-of-interest (POI) event information, and the accuracy of the point-of-interest (POI) event information may be enhanced even without receiving additional information from the second electronic device **403**. With such machine learning, the server **402** may provide high-accurate proximity-based information.

[0114] According to an embodiment, when a particular condition is met, one or more pieces of point-of-interest (POI) event information stored in the point-of-interest (POI) DB **440** of the first electronic device **401** may be deleted from the point-of-interest (POI) DB **440**. For example, in a case where the first electronic device **401** and the point-of-interest (POI) are identified to be proximate to each other by the proximity identifying module **430** and the point-of-interest (POI)-related content is output by the notification module **450**, the related point-of-interest (POI) event infor-

mation may be deleted from the point-of-interest (POI) DB **440**. In a case where the first electronic device **401** and the point-of-interest (POI) fail to be located proximate to each other within a predetermined time after the point-of-interest (POI) event information has been received by the first electronic device **401**, the related point-of-interest (POI) event information may be deleted from the point-of-interest (POI) DB **440**. Thus, the first electronic device **401** may manage the point-of-interest (POI) DB **440** and may minimize the likelihood of bothering the user with point-of-interest (POI) event information which the user may have no interest in.

[0115] According to an embodiment, one or more pieces of point-of-interest (POI) event information stored in the point-of-interest (POI) DB **440** of the first electronic device **401** may be updated periodically or in an event-driven manner. For example, the first electronic device **401** may identify the valid time for the point-of-interest (POI)-related content and then update the valid time by update. Or, the first electronic device **401** may receive again, from the server **402**, the same content as the point-of-interest (POI)-related content whose valid time is about to end. The period at which the point-of-interest (POI) DB **440** is updated or the event to invoke an update may be defined in various types. For example, the first electronic device **401** may access the server **402** and update the point-of-interest (POI) DB **440** at each hour. Or, the first electronic device **401** may update the point-of-interest (POI) DB **440** only when the first electronic device **401** connects to the Wi-Fi AP.

[0116] FIGS. **5**A to **5**C are views illustrating a method of providing proximity-based information according to various embodiments of the present invention.

[0117] Referring to FIG. **5**A, a first electronic device **501** may obtain at least one piece of context information from one or more programs (e.g., **140**) running on the first electronic device **501**.

[0118] For example, in a case where a search application is executed on the first electronic device **501**, the first electronic device **501** may obtain at least one keyword **511** received through an input device (e.g., **250**) of the first electronic device **501**, as context information.

[0119] In a case where a commerce application runs on the first electronic device **501**, the first electronic device **501** may obtain at least one product name **512** identified from the commerce application, as context information.

[0120] In a case where a social media service application is executed on the first electronic device **501**, the first electronic device **501** may obtain at least one trademark **513**, as context information, identified through the social media service application.

[0121] The first electronic device **501** may transmit, to a server **502**, data **510** including at least one piece of location information and at least one piece of context information obtained.

[0122] Referring to FIG. **5**B, the server **502** may store at least one piece of point-of-interest (POI) information **520** in the memory of the server **502**. The point-of-interest (POI) information **520** stored in the memory of the server **502** may include user (e.g., an advertiser) information about the point-of-interest (POI), a keyword related to the point-of-interest (POI), location information about the point-of-interest (POI), a point-of-interest (POI) discovery method, and content related to the point-of-interest (POI).

[0123] For example, the point-of-interest (POI) information related to the user (e.g., an advertiser) in "JFK int'l Airport" may include, e.g., "airport," "airplane," and "departure time" as keywords related to "JFK int'l Airport" and New York City as location information about "JFK int'l Airport". The point-of-interest (POI) related to the user (e.g., an advertiser) in "JFK int'l Airport" may include communication processor positioning (CPP) of identifying the location of the electronic device using ambient cellular base stations and a Wi-Fi positioning system (WPS) method of identifying the location of the electronic device using ambient Wi-Fi APs, as the method of discovering "JFK int'l Airport" and may include departure and arrival information as the content related to "JFK int'l Airport".

[0124] Further, point-of-interest (POI) information related to the user (e.g., an advertiser) of "AAA mart" may include diaper as a keyword related to "AAA mart" and Manhattan as location information about "AAA mart". The point-of-interest (POI) information related to the user (e.g., an advertiser) of "AAA mart" may include a method of using BLE beacon as a method of discovering "AAA mart" and AAA mart's URL or promotion items as content related to "AAA mart".

[0125] According to an embodiment, the server **502** may generate point-of-interest (POI) event information **525** corresponding to the data **510** received from the first electronic device **501** and transmit the point-of-interest (POI) event information to the first electronic device **501**. Receiving at least one piece of point-of-interest (POI) event information **530** and **535** from the server **502**, the first electronic device **501** may store the at least one piece of point-of-interest (POI) event information **530** and **535** in the memory of the first electronic device **501**.

[0126] Referring to FIG. **5**C, it may be identified that the location of the first electronic device **501** is changed from a first location **540** to a second location **545**. For example, the first electronic device **501** storing event information **530** about "JFK Airport" may identify whether the first electronic device **501** and "JFK Airport" **545** are proximate to each other by the process of comparing, periodically or in real-time, the current location of the first electronic device **501** and the event information **530** about "JFK Airport".

[0127] If the first electronic device **501** is identified to be proximate to "JFK Airport" **545**, the first electronic device **501** may provide the user with the content **550**, which the user (e.g., an advertiser) in "JFK Airport" provides, using the event information **530** about "JFK Airport" stored in the memory of the first electronic device **501**.

[0128] FIG. **6** is a view illustrating a method of providing proximity-based information according to various embodiments of the present invention.

[0129] According to an embodiment, a first electronic device **601** may obtain context information from one or more programs (e.g., **140**) running on the first electronic device **601**. For example, the first electronic device **601** may obtain the user's favor input **611**, as context information, obtained through a social media service application **610**. Specifically, the user of the first electronic device **601** may show favor to BBB brand shoes provided through the social media service application **610**. Meanwhile, assuming that the user of the first electronic device **601** is in Gangnam-gu when he or she shows favor to BBB brand shoes, the first electronic device **601** may obtain "BBB brand" as context

information and may obtain "Gangnam-gu" as at least one piece of location information.

[0130] According to an embodiment, the first electronic device **601** may transmit "BBB brand" and "Gangnam-gu" as obtained to a server **602**. Receiving at least one piece of data from the first electronic device **601**, the server **602** may identify point-of-interest (POI) information **620** related to the received data among point-of-interest (POI) information stored in the memory of the server **602**. For example, the point-of-interest (POI) information **620** related to the received data may be information about the user (e.g., an advertiser) using the brand name "Shoe Shop" **603**. The user (e.g., an advertiser) of "Shoe Shop" **603**, as a shoes seller having registered BBB as a point-of-interest (POI)-related keyword, may carry BBB brand.

[0131] According to an embodiment, the server **602** may generate event information about "Shoe Shop" **603** using the point-of-interest (POI) information related to the user (e.g., an advertiser) of "Shoe Shop" **603** and transmit the generated event information about "Shoe Shop" **603** to the first electronic device **601**.

[0132] According to an embodiment, receiving the event information about "Shoe Shop" **603** from the server **602**, the first electronic device **601** may identify the current location of the first electronic device **601** and the location of "Shoe Shop" **603** and identify whether the first electronic device **601** and "Shoe Shop" **603** are proximate to each other. In this case, the first electronic device **601** may identify whether it is proximate to "Shoe Shop" **603** using a method of discovering "Shoe Shop" **603** included in the event information about "Shoe Shop" **603**. For example, the first electronic device **601** may identify whether it is proximate to "Shoe Shop" **603** based on whether Wi-Fi AP information is detected as proposed as the method of discovering "Shoe Shop" **603**.

[0133] If the first electronic device **601** and "Shoe Shop" **603** are identified to be proximate to each other, the first electronic device **601** may display content (e.g., marketing content) **640** included in the event information about "Shoe Shop" **603** through the display of the first electronic device **601**. According to an embodiment, the first electronic device **601** may output item lists or price lists as content.

[0134] FIG. **7** is a flowchart illustrating a method of providing proximity-based information through an electronic device according to various embodiments of the present invention.

[0135] The entity of performing the method may be a processor of an electronic device (e.g., the electronic device **101** or **201**) including a communication interface (e.g., the communication interface **170** or the communication module **220**), a memory (e.g., the memory **130** or **230**), and the processor (e.g., the processor **120** or **210**).

[0136] Referring to FIG. **7**, in operation **710**, according to an embodiment, the processor may obtain at least one piece of context information from one or more programs executed on the electronic device. The one or more programs may be a program installed on the electronic device or running on the electronic device. The processor may obtain at least one piece of data generated while executing the one or more programs, as context information. The processor may obtain at least one piece of data, as context information, stored in the memory of the electronic device, in relation to the one or more programs.

[0137] According to an embodiment, the processor may use a preset condition in obtaining the context information from the one or more programs. For example, the processor may identify whether to obtain content, as context information, invoked through one or more programs, based on, e.g., the frequency of the content being invoked through one or more programs, time continuously used after invoked, or whether it has been set as a favorite page. If a first webpage is invoked a preset number of times through a web browser program, the first webpage is invoked and then output for a preset time or longer, or the first webpage is set as a favorite page, the processor may obtain the whole or part of the first webpage, as context information. If a first keyword is identified a preset number of times or a first item is clicked on a preset number of times while a commerce application or social media service application is running, the processor may obtain the first keyword or the first item as context information.

[0138] In operation **720**, according to an embodiment, the processor may identify first location information corresponding to the context information. For example, the processor may identify that the current location of the electronic device when the context information is obtained is the first location information. The processor may identify at least one location corresponding to the context information, as the first location information. If the keyword "Eiffel Tower" as context information is obtained, the processor may identify the address of "Eiffel Tower" in Paris as first location information or the address of an "Eiffel Tower" restaurant in the city where the electronic device is located as first location information. According to an embodiment, the processor may use the context information in identifying at least one location corresponding to the context information as the first location information. For example, in a case where plenty of information related to Paris, France is among the pieces of context information obtained, the processor may identify the address of "Eiffel Tower" in Paris as the first location information. In a case where there is much information related to the restaurant and city where the electronic device is located among the pieces of information obtained, the processor may identify the address of the "Eiffel Tower" restaurant in the city where the electronic device is in, as the first location information.

[0139] In operation **730**, according to an embodiment, the processor may transmit, to a server, first data including at least one of the first location information and the context information through a communication interface. According to an embodiment, the processor may transmit, periodically or in real-time, the first data to the server. The processor may transmit the first data to the server only when a preset condition is met. For example, in a case where a preset number of pieces of context information or first location information which are identical to each other are stored in the memory of the electronic device, the processor may transmit the first data to the server.

[0140] In operation **740**, according to an embodiment, the processor may receive, from the server, first point-of-interest (POI) event information corresponding to the transmitted first data. The received first point-of-interest (POI) event information may include information about the user (e.g., an advertiser) related to at least one of the first location information and the context information included in the first data. For example, in a case where "Eiffel Tower" as context information is transmitted to the server, the received first

point-of-interest (POI) event information may include information related to the user (e.g., an advertiser) of "Eiffel Tower" in Paris or information related to the user (e.g., an advertiser) of the restaurant "Eiffel Tower".

[0141] In operation **750**, according to an embodiment, the processor may store the received first point-of-interest (POI) event information in the memory of the electronic device. The first point-of-interest (POI) event information stored in the memory of the electronic device may be used to identify whether the electronic device and the first point-of-interest (POI) are proximate to each other. Meanwhile, in a case where the first point-of-interest (POI) event information stored in the memory is used or is not used for a preset time, the first point-of-interest (POI) event information may be deleted from the memory of the electronic device.

[0142] Operations **710** to **750** are provided for the purposes of describing embodiments of the present invention, and operations **710** to **750** are not necessarily performed sequentially nor are all of the operations performed. For example, only some of the operations may be performed according to settings.

[0143] FIG. **8** is a flowchart illustrating a method of providing proximity-based information through a server according to various embodiments of the present invention.

[0144] The entity of performing the method may be a processor of a server including a communication interface (e.g., the communication interface **170** or the communication module **220**), a memory (e.g., the memory **130** or **230**), and the processor (e.g., the processor **120** or **210**).

[0145] Referring to FIG. **8**, in operation **80**, according to an embodiment, the processor of the server may obtain point-of-interest (POI) information from one or more first electronic devices and store the obtained point-of-interest (POI) information in the memory of the server. Here, the one or more first electronic devices may be the entity which provides point-of-interest (POI) information and may mean an electronic device which may access the server in response to a user (e.g., an advertiser)'s command and generate, register, and modify at least one piece of point-of-interest (POI) information.

[0146] In operation **820**, according to an embodiment, the processor of the server may receive, from a second electronic device, data including at least one of context information related to the second electronic device and first location information corresponding to the context information.

[0147] In operation **830**, according to an embodiment, the processor of the server may identify the point-of-interest (POI) corresponding to the received data among the pieces of point-of-interest (POI) information stored in the memory of the server. For example, the processor may identify the point-of-interest (POI) information related to the context information received from the second electronic device among the pieces of point-of-interest (POI) information stored in the memory of the processor. Or, the processor may identify the point-of-interest (POI) information related to the first location information received from the second electronic device among the pieces of point-of-interest (POI) information stored in the memory of the processor.

[0148] In operation **840**, according to an embodiment, the processor of the server may generate point-of-interest (POI) event information using the received data and the identified point-of-interest (POI) information. Here, point-of-interest (POI) event information may mean information generated to provide customized information to the second electronic device. To that end, the processor may identify the information related to the data received from the second electronic device among the pieces of point-of-interest (POI) information stored in the memory of the server and generate the point-of-interest (POI) event information using the identified information. For example, the point-of-interest (POI) event information may include the whole or part of the point-of-interest (POI) information.

[0149] In operation **850**, according to an embodiment, the processor of the server may transmit the generated point-of-interest (POI) event information to the second electronic device. The processor may generate a plurality of pieces of point-of-interest (POI) event information based on the received data and may transmit at least one of the plurality of pieces of point-of-interest (POI) event information generated to the second electronic device. According to another embodiment, the processor may transmit only some pieces of point-of-interest (POI) event information which have high priority among the plurality of pieces of point-of-interest (POI) event information generated to the second electronic device.

[0150] Operations **810** to **850** are provided for the purposes of describing embodiments of the present invention, and operations **810** to **850** are not necessarily performed sequentially nor are all of the operations performed. For example, only some of the operations may be performed according to settings.

[0151] FIG. **9** is a flowchart illustrating a method of registering proximity-based information in a server using an electronic device according to various embodiments of the present invention.

[0152] The entity of performing the method may be a processor of an electronic device (e.g., the electronic device **101** or **201**) including a communication interface (e.g., the communication interface **170** or the communication module **220**), a memory (e.g., the memory **130** or **230**), and the processor (e.g., the processor **120** or **210**).

[0153] Referring to FIG. **9**, in operation **910**, according to an embodiment, the processor may access a database managing module of a server through the communication interface. For example, the processor may access at least one server in response to a user (e.g., an advertiser)'s command. According to an embodiment, at least one server may be configured to permit access of only pre-registered electronic devices. In this case, the processor may be the processor included in an electronic device pre-registered in the at least one server.

[0154] In operation **920**, according to an embodiment, the processor may register point-of-interest (POI) information in the server using the database managing module of the server. To register point-of-interest (POI) information related to the user (e.g., an advertiser) in the server, the processor may access the database managing module of the server and generate at least one piece of point-of-interest (POI) information through the database managing module. Here, the database managing module may mean a program that the user (e.g., an advertiser) may use to manage the point-of-interest (POI), such as generating or modifying point-of-interest (POI) information.

[0155] In operation **930**, according to an embodiment, the processor may update the registered point-of-interest (POI) information. The present invention may update the point-of-interest (POI) information registered in the server based

on at least one input or data received through the electronic device. The operation of updating the point-of-interest (POI) information registered in the server may be performed periodically as preset.

[0156] In operation **940**, according to an embodiment, in a case where content included in the point-of-interest (POI) information is used, the processor may receive whether the content is used or not from the server. For example, in a case where the content included in the point-of-interest (POI) information is identified to have been used, the server may provide the relevant information to the electronic device. The processor may provide the user with information related to use of the content by outputting the received information in a preset form.

[0157] Operations **910** to **940** are provided for the purposes of describing embodiments of the present invention, and operations **910** to **940** are not necessarily performed sequentially nor are all of the operations performed. For example, only some of the operations may be performed according to settings.

[0158] FIG. **10** is a block diagram illustrating components included in electronic devices and the relationship between the components according to various embodiments of the present invention. Referring to FIG. **10**, according to an embodiment of the present invention, a system may include a first electronic device **1001**, at least one server **1002**, a second electronic device **1003**, and at least one content provider device **1004**.

[0159] According to an embodiment, the second electronic device **1003**, as a terminal device (e.g., smartphone, tablet, laptop PC, or desktop PC), may transmit and receive data to/from the server **402** through various communication interfaces (e.g., **170**). The second electronic device **1003** may register point-of-interest (POI) information in the server **1002** in response to a user (e.g., an advertiser)'s command.

[0160] According to an embodiment, at least one server **1002** may include a DB managing module **1060** capable of managing point-of-interest (POI) information received from the second electronic device **1003**. The DB managing module **1060** may generate various forms of point-of-interest (POI) recognition information corresponding to the point-of-interest (POI) based on the point-of-interest (POI) information received from the second electronic device **1003**. Here, the point-of-interest (POI) recognition information may be a kind of identifier and may be included and provided in part of content for advertising the point-of-interest (POI). The point-of-interest (POI) recognition information may be used to identify, e.g., who posted the point-of-interest (POI)-advertising content, how frequent the content has been exposed, and to whom the content has been exposed. The point-of-interest (POI) recognition information generated by the DB managing module **1060** may be stored in a point-of-interest (POI) recognition information DB **1070** of the server **1002**. Meanwhile, a content provider DB **1080** of the server **1002** may store information about the content provider advertising the point-of-interest (POI) by disclosing point-of-interest (POI)-related information in various forms. For example, the content provider DB **1080** may store content provider (CP) IDs per content provider.

[0161] According to an embodiment, the content provider device **1004**, as a terminal device (e.g., smartphone, tablet, laptop PC, or desktop PC), may transmit and receive data to/from the server **402** through various communication interfaces (e.g., **170**). The content provider device **1004** may access the server **1002** and register content provider-related information. The content provider device **1004** may obtain the CP ID from the server **1002**, corresponding to the registration. Here, the CP ID may be at least one identifier capable of identifying the content provider device **1004** and may be generated by the server **1002** when the content provider device **1004** first accesses the server **1002**.

[0162] According to an embodiment, the content provider device **1004** may post the point-of-interest (POI)-related information in various spaces, e.g., a webpage **1041**, a blog **1042**, or a social media service homepage **1043**, over the network, in response to the content provider's command. Meanwhile, the content provider device **1004** may receive, from the server **1002**, the point-of-interest (POI)-related information which is to be posted to the webpage **1041**, blog **1042**, or social media service homepage **1042**. At this time, the content provider device **1004** may additionally receive the point-of-interest (POI) recognition information and the CP ID and may post the point-of-interest (POI) recognition information and the CP ID along with the point-of-interest (POI)-related information in various spaces over the network.

[0163] According to an embodiment, the first electronic device **1001** may mean an electronic device which may communicate data with the server **1002** via a short-range wireless communication interface, such as WLAN, or a wireless cellular interface, such as 3GPP or LTE, as a mobile electronic device, such as smartphone, tablet, or laptop PC.

[0164] According to an embodiment, the first electronic device **1001** may include a point-of-interest (POI) recognition information identifying module **1010** capable of identifying the point-of-interest (POI) recognition information from one or more programs **1011**, **1012**, and **1013** installed on the first electronic device **1001** or running on the first electronic device **1001**. The point-of-interest (POI) recognition information may be identified through the point-of-interest (POI) recognition information identifying module **1010** and be used as a condition for measuring the level of interest in the point-of-interest (POI) of the user of the first electronic device **1001** or providing the point-of-interest (POI)-related content to the user of the first electronic device **1001**. The point-of-interest (POI) recognition information may be provided when the first electronic device **1001** accesses the webpage **1041**, blog **1042**, or social media service homepage **1043** posting the point-of-interest (POI)-related information. According to an embodiment, the point-of-interest (POI) recognition information may be provided in an HTML, code, QR code, or various program source codes and may be identified by the point-of-interest (POI) recognition information identifying module **1010**.

[0165] According to an embodiment, in a case where the point-of-interest (POI) recognition information is identified by one or more programs **1011**, **1012**, and **1013**, the point-of-interest (POI) recognition information identifying module **1010** of the first electronic device **1001** may obtain the identified point-of-interest (POI) recognition information and the CP ID of the content provider device **1004** which has provided the identified point-of-interest (POI) recognition information. For example, in a case where first point-of-interest (POI) recognition information is identified in the webpage **1041** generated by a first content provider device, the point-of-interest (POI) recognition information identifying module **1010** may obtain a first point-of-interest (POI)

recognition information and a first CP ID of a first content provider. In a case where the first point-of-interest (POI) recognition information is identified in the blog **1042** generated by a second content provider device, the point-of-interest (POI) recognition information identifying module **1010** may obtain the first point-of-interest (POI) recognition information and a second CP ID of a second content provider. In a case where the first point-of-interest (POI) recognition information is identified in the social media service homepage **1043** generated by a third content provider device, the point-of-interest (POI) recognition information identifying module **1010** may obtain the first point-of-interest (POI) recognition information and a third CP ID of a third content provider.

[0166] According to an embodiment, in a case where particular point-of-interest (POI) recognition information is identified a preset number of times within a preset time, the first electronic device **1001** may obtain point-of-interest (POI) event information about a particular point-of-interest (POI) from the server **1002**. For example, in a case where the first point-of-interest (POI) recognition information is identified a preset number of times within a preset time, the first electronic device **1001** may transmit the first point-of-interest (POI) recognition information to the server **1002** and may obtain, from the server **1002**, the first point-of-interest (POI) event information corresponding thereto. Meanwhile, the first electronic device **1001** may transmit, to the server **1002**, the CP ID of the content provider, who has provided the first point-of-interest (POI) recognition information, together with the first point-of-interest (POI) recognition information. According to the above embodiment, the first electronic device **1001** may transmit a first CP ID, a second CP ID, and a third CP ID along with the first point-of-interest (POI) recognition information.

[0167] According to an embodiment, receiving at least one CP ID from the first electronic device **1001**, the server **1002** may identify the proportion of contribution to advertisement per content provider device based on the received CP ID. For example, in a case where the first CP ID is received five times, the second CP ID is received three times, and the third CP ID is received two times, the server **1002** may identify that the proportion of contribution of the first content provider device, the proportion of contribution of the second content provider device, and the proportion of contribution of the third content provider device are 50%, 30%, and 20%, respectively, as the proportions of contribution to advertisement of the content corresponding to the first point-of-interest (POI) recognition information. The operator of the server **1002** may receive an advertisement handling fee from the user (e.g., an advertiser) of the second electronic device **1003** and provide an advertisement fee to the operator of the content provider device **1004** based on the calculated proportion of contribution.

[0168] According to an embodiment, receiving the point-of-interest (POI) event information from the server **1002**, the first electronic device **1001** may store the received point-of-interest (POI) event information in the memory of the first electronic device **1001**. According to an embodiment, the proximity identifying module **1020** of the first electronic device **1001** may identify whether the first electronic device **1001** and the point-of-interest (POI) are proximate to each other using the current location of the first electronic device **1001** and the point-of-interest (POI) event information stored in the memory. If the first electronic device **1001** and the point-of-interest (POI) are identified to be proximate to each other, the proximity identifying module **1020** may transfer a result of the proximity identification to the notification module **1030**. Upon identifying that the first electronic device **1001** and the point-of-interest (POI) are proximate to each other, the notification module **1030** of the first electronic device **1001** may output content included in the point-of-interest (POI) event information.

[0169] FIGS. **11**A to **11**C are views illustrating a method of providing proximity-based information using content according to various embodiments of the present invention.

[0170] Referring to FIG. **11**A, a content provider device **1104** may access at least one server **1102** in response to a content provider's command. The content provider device **1104** may register information about the content provider in the server **1102** and, corresponding thereto, obtain a content provider ID (hereinafter, CP ID) from the server **1102**. Meanwhile, the content provider information registered in the server **1102** may be stored in a content provider DB **1180** of the server **1102**.

[0171] According to an embodiment, the server **1102** may obtain point-of-interest (POI) information from the user (e.g., an advertiser) of the point-of-interest (POI). Further, the server **1102** may generate various forms of point-of-interest (POI) recognition information corresponding to the point-of-interest (POI) using the obtained point-of-interest (POI) information. The generated point-of-interest (POI) recognition information may be stored in a point-of-interest (POI) recognition information DB **1170** of the server **1102**. The point-of-interest (POI) recognition information DB **1170** may store point-of-interest (POI) event information **1120** including, e.g., content related to the point-of-interest (POI), the location of the point-of-interest (POI), and the user (e.g., an advertiser) of the point-of-interest (POI). For example, the point-of-interest (POI) recognition information DB **1170** may store the latitude/longitude indicating the address of AAA mart, WiFi_BSSID_A, which is information about a Wi-Fi AP **1125** available upon discovering AAA mart, and URI_A, as content related to AAA mart.

[0172] According to an embodiment, the controller device **1104** may obtain at least one piece of information related to the point-of-interest (POI) from the server **1102**. The content provider device **1104** may post at least one piece of information related to the point-of-interest (POI) in various spaces, e.g., a webpage, a blog, or a social media service homepage, over the network. For example, the content provider device **1104** may post the information related to AAA mart, as obtained from the server **1102**, through the blog **1115** and post the point-of-interest (POI) recognition information **1110** obtained from the server **1102** through the blog **1115**. Meanwhile, at least one electronic device accessing the blog **1115** may obtain point-of-interest (POI) recognition information posted on the blog **1115**. The content provider device **1104** may be configured to automatically transmit the point-of-interest (POI) recognition information to the electronic device which has connected to the blog **1115**.

[0173] According to an embodiment, the point-of-interest (POI) recognition information may be provided in an HTML code, QR code, or various program source codes. For example, the point-of-interest (POI) recognition information provided in HTML code may be included in part of HTML code constituting the blog. The point-of-interest (POI) recognition information **1110** may visually be displayed along

with at least one piece of information related to the point-of-interest (POI). However, in a case where the point-of-interest (POI) recognition information **1110** is provided in HTML code, it may not be displayed visually.

[0174] Referring to FIG. **11**B, the first electronic device **1101** may access the blog **1115** generated by the content provider device **1104** through at least one program installed on the first electronic device **1101**. For example, the first electronic device **1101** may search for AAA mart using a search application and, in response to the user's command, access the blog **1115** generated by the content provider device **1104** among the results of search.

[0175] According to an embodiment, the blog **1115** generated by the content provider device **1104** may post information related to AAA mart. The first electronic device **1101** may obtain point-of-interest (POI) recognition information **1110** included in the blog **1115** while simultaneously displaying the AAA mart-related information posted on the blog **1115** through the display of the first electronic device **1101**. The first electronic device **1101** may store the obtained point-of-interest (POI) recognition information **1110** in the memory of the first electronic device **1101**. Meanwhile, the first electronic device **1101** may obtain the CP ID of the content provider, who has provided the point-of-interest (POI) recognition information **1110**, along with the point-of-interest (POI) recognition information **1110**.

[0176] According to an embodiment, in a case where the number of pieces of point-of-interest (POI) recognition information **1130** stored in the memory exceeds a preset number, the first electronic device **1101** may transmit the point-of-interest (POI) recognition information **1130** stored in the memory to the server **1102**. In this case, the first electronic device **1101** may transmit together the CP ID of the content provider who has provided the point-of-interest (POI) recognition information **1130**. In a case where the first electronic device **1101** obtains the point-of-interest (POI) recognition information **1130** from the plurality of content providers, the number of CP IDs transmitted to the server **1102** may be one or more.

[0177] Receiving the point-of-interest (POI) recognition information **1130** and at least one CP ID from the first electronic device **1101**, the server **1102** may generate point-of-interest (POI) event information and transmit the point-of-interest (POI) event information to the first electronic device **1101**.

[0178] Referring to FIG. **11**C, the first electronic device **1101** may store the point-of-interest (POI) event information **1135** received from the server **1102** in the memory of the first electronic device **1101**. The received point-of-interest (POI) event information **1135** may include at least one of location information about the point-of-interest (POI), a discovery method of the point-of-interest (POI), content related to the point-of-interest (POI), and a recommendation index for the point-of-interest (POI). For example, according to the above embodiment, the memory of the first electronic device **1101** may store location information about AAA mart **1103**, a discovery method of AAA mart **1103**, and content related to AAA mart **1103**.

[0179] According to an embodiment, the first electronic device **1101** may identify whether the first electronic device **1101** and AAA mart **1103** are proximate to each other using the discovery method of AAA mart **1103** stored in the memory of the first electronic device **1101**. For example, in a case where a method of using information about a Wi-Fi AP **1125** installed in AAA mart **1103** is proposed as the method of discovering AAA mart **1103**, the first electronic device **1101** may identify whether information about the Wi-Fi AP **1125** is detected from around the first electronic device **1101**. If the first electronic device **1101** enters an area **1150** where the information about the Wi-Fi AP **1125** may be detected and WiFi_BSSID_A, which is the information about the Wi-Fi AP **1125**, is identified by the first electronic device **1101**, the first electronic device **1101** may identify that the first electronic device **1101** and AAA mart **1103** are proximate to each other.

[0180] According to an embodiment, if identified to be proximate to AAA mart **1103**, the first electronic device **1101** may output the content related to AAA mart **1103**, which is stored in the memory of the first electronic device **1101**, through at least one component of the first electronic device **1101**. For example, a coupon **1145** of AAA mart **1103**, as the content related to AAA mart **1103**, may be output through an SMS application **1140** of the first electronic device **1101**.

[0181] FIG. **12** is a flowchart illustrating a method of generating and providing content available for proximity-based marketing according to various embodiments of the present invention.

[0182] The entity of performing the method may be a processor of an electronic device (e.g., the electronic device **101** or **201**) including a communication interface (e.g., the communication interface **170** or the communication module **220**), a memory (e.g., the memory **130** or **230**), and the processor (e.g., the processor **120** or **210**). Here, electronic device may mean a content provider device (e.g., **1004**).

[0183] Referring to FIG. **12**, in operation **1210**, according to an embodiment, the processor may register content provider information in a server. The electronic device may access at least one server in response to the content provider's command and transmit at least one of the pieces of content provider information according to a procedure as requested by the server.

[0184] In operation **1220**, according to an embodiment, the processor may receive a content provider ID and point-of-interest (POI) recognition information for providing content from the server. For example, if the content provider information is registered in the server, the server may generate the content provider ID corresponding to the content provider and transmit the content provider ID to the electronic device. The point-of-interest (POI) recognition information may be a kind of identifier and may be included and provided in part of content for advertising the point-of-interest (POI). The point-of-interest (POI) recognition information may be used to identify, e.g., who posted the point-of-interest (POI)-advertising content, how frequent the content has been exposed, and to whom the content has been exposed.

[0185] In operation **1230**, according to an embodiment, the processor may be configured to allow the received point-of-interest (POI) recognition information and content provider ID to be provided through at least one program. For example, upon posting the point-of-interest (POI)-related information received from the server in at least one network space, the processor may be configured to allow the received point-of-interest (POI) recognition information and content provider ID to be provided along with the posted information. For example, the processor may be configured to include the point-of-interest (POI) recognition information provided in an HTML code form, in HTML code constitut-

ing the webpage and, when the webpage is invoked, allow the point-of-interest (POI) recognition information to be provided together.

[0186] In operation **1240**, according to an embodiment, the processor may transmit point-of-interest (POI) recognition information and content provider ID when at least one program is executed. For example, in a case where at least one program configured to provide point-of-interest (POI) recognition information and content provider ID is invoked by an external electronic device, the processor may transmit the point-of-interest (POI) recognition information and content provider ID to the external electronic device.

[0187] Operations **1210** to **1240** are provided for the purposes of describing embodiments of the present invention, and operations **1210** to **1240** are not necessarily performed sequentially nor are all of the operations performed. For example, only some of the operations may be performed according to settings.

[0188] FIG. **13** is a block diagram illustrating a program module according to various embodiments of the present invention. According to an embodiment of the present disclosure, the program module **1310** (e.g., the program **140**) may include an operating system (OS) controlling resources related to the electronic device (e.g., the electronic device **101**) and/or various applications (e.g., the application processor **147**) driven on the operating system. The operating system may include, e.g., Android™ iOS™, Windows™, Symbian™, Tizen™, or Bada™.

[0189] Referring to FIG. **13**, the program module **1310** may include a kernel **1320** (e.g., the kernel **141**), middleware **1330** (e.g., the middleware **143**), an API **1360** (e.g., the API **145**), and/or an application **1370** (e.g., the application program **147**). At least a part of the program module **1310** may be preloaded on the electronic device or may be downloaded from an external electronic device (e.g., the electronic devices **102** and **104** or server **106**).

[0190] The kernel **1320** may include, e.g., a system resource manager **1321** or a device driver **1323**. The system resource manager **1321** may perform control, allocation, or recovery of system resources. According to an embodiment of the present disclosure, the system resource manager **1321** may include a process managing unit, a memory managing unit, or a file system managing unit. The device driver **1323** may include, e.g., a display driver, a camera driver, a Bluetooth driver, a shared memory driver, a USB driver, a keypad driver, a Wi-Fi driver, an audio driver, or an inter-process communication (IPC) driver.

[0191] The middleware **1330** may provide various functions to the application **1370** through the API **1360** so that the application **1370** may use limited system resources in the electronic device or provide functions jointly required by applications **1370**. According to an embodiment of the present invention, the middleware **1330** may include at least one of a runtime library **1335**, an application manager **1341**, a window manager **1342**, a multimedia manager **1343**, a resource manager **1344**, a power manager **1345**, a database manager **1346**, a package manager **1347**, a connectivity manager **1348**, a notification manager **1349**, a location manager **1350**, a graphic manager **1351**, or a security manager **1352**.

[0192] The runtime library **1335** may include a library module used by a compiler in order to add a new function through a programming language while, e.g., the application **1370** is being executed. The runtime library **1335** may perform input/output management, memory management, or arithmetic function processing.

[0193] The application manager **1341**, for example, may manage the life cycle of the application **1370**. The window manager **1342** may manage GUI resources used on the screen. The multimedia manager **1343** may grasp formats necessary to play media files and use a codec appropriate for a format to perform encoding or decoding on media files. The resource manager **1344** may manage the source code or memory space of the application **1370**. The power manager **1345** may manage, e.g., the capacity, temperature, or power of the battery and identify and provide power information necessary for the operation of the electronic device using a corresponding piece of information of such. According to an embodiment of the present invention, the power manager **1345** may interwork with a basic input/output system (BIOS). The database manager **1346** may generate, search, or vary a database to be used in the applications **1370**. The package manager **1347** may manage installation or update of an application that is distributed in the form of a package file. The connectivity manager **1348** may manage, e.g., wireless connectivity. The notification manager **1349** may provide an event, e.g., arrival message, appointment, or proximity alert, to the user. The location manager **1350** may manage, e.g., locational information on the electronic device. The graphic manager **1351** may manage, e.g., graphic effects to be offered to the user and their related user interface. The security manager **1352**, for example, may provide system security or user authentication. According to an embodiment of the present invention, the middleware **1330** may include a telephony manager for managing the voice or video call function of the electronic device or a middleware module able to form a combination of the functions of the above-described elements. According to an embodiment of the present invention, the middleware **1330** may provide a module specified according to the type of the operating system. The middleware **1330** may dynamically omit some existing components or add new components.

[0194] The API **1360** may be a set of, e.g., API programming functions and may have different configurations depending on operating systems. For example, in the case of Android or iOS, one API set may be provided per platform, and in the case of Tizen, two or more API sets may be offered per platform.

[0195] The application **1370** may include an application that may provide, e.g., a home **1371**, a dialer **1372**, an SMS/MMS **1373**, an instant message (IM) **1374**, a browser **1375**, a camera **1376**, an alarm **1377**, a contact **1378**, a voice dial **1379**, an email **1380**, a calendar **1381**, a media player **1382**, an album **1383**, or a clock **1384**, health-care (e.g., measuring the degree of workout or blood sugar), or provision of environmental information (e.g., provision of air pressure, moisture, or temperature information). According to an embodiment of the present invention, the application **1370** may include an information exchanging application supporting information exchange between the electronic device and an external electronic device. Examples of the information exchange application may include, but is not limited to, a notification relay application for transferring specific information to the external electronic device or a device management application for managing the external electronic device. For example, the notification relay application may transfer notification information generated by other applications of the electronic device to the external

electronic device or receive notification information from the external electronic device and provide the received notification information to the user. For example, the device management application may install, delete, or update a function (e.g., turn-on/turn-off the external electronic device (or some elements) or adjust the brightness (or resolution) of the display) of the external electronic device communicating with the electronic device or an application operating on the external electronic device. According to an embodiment of the present invention, the application **1370** may include an application (e.g., a health-care application of a mobile medical device) designated according to an attribute of the external electronic device. According to an embodiment of the present invention, the application **1370** may include an application received from the external electronic device. At least a portion of the program module **1310** may be implemented (e.g., executed) in software, firmware, hardware (e.g., the processor **210**), or a combination of at least two or more thereof and may include a module, program, routine, command set, or process for performing one or more functions.

[0196] According to various embodiments of the present invention, a method of providing proximity-based information may comprise obtaining first context information from one or more programs executed on an electronic device, identifying first location information corresponding to the first context information, transmitting first data including at least one of the first context information and the first location information to a server through a communication interface of the electronic device, receiving, from the server, point-of-interest event information corresponding to the transmitted first data, and storing the received point-of-interest event information in a memory of the electronic device.

[0197] According to various embodiments of the present invention, in the method of providing proximity-based information, the first context information may include at least one of second data extracted from the one or more programs and at least one keyword received through an input interface provided in the electronic device.

[0198] According to various embodiments of the present invention, in the method of providing proximity-based information, the second data extracted from the one or more programs may include at least one of a keyword extracted from content provided through the one or more programs and a cookie for the one or more programs.

[0199] According to various embodiments of the present invention, in the method of providing proximity-based information, the first location information may include at least one of location information related to the first context information and location information about the electronic device identified when the first context information is obtained.

[0200] According to various embodiments of the present invention, in the method of providing proximity-based information, the point-of-interest event information may include at least one of location information about a point-of-interest, a method of discovering the point-of-interest, content related to the point-of-interest, and a recommendation index for the point-of-interest.

[0201] According to various embodiments of the present invention, the method of providing proximity-based information may comprise identify second location information corresponding to a current location of the electronic device, identify whether the electronic device is proximate to the point-of-interest based on the identified second location information and the first point-of-interest event information, and in a case where the electronic device is identified to be proximate to the point-of-interest at a preset distance, output content related to the point-of-interest.

[0202] According to various embodiments of the present invention, in the method of providing proximity-based information, identifying whether the electronic device is proximate to the point-of-interest may further include identifying whether the electronic device is proximate to the point-of-interest based on a method of discovering the point-of-interest included in the point-of-interest event information.

[0203] According to various embodiments of the present invention, in the method of providing proximity-based information, outputting the content may further include outputting the content using at least one method of displaying a user interface, outputting a sound signal, generating a vibration, or executing at least one program of the electronic device.

[0204] According to various embodiments of the present invention, there may be provided a computer-readable recording medium storing a program for executing a method of providing proximity-based information, the method comprising obtaining first context information from one or more programs executed on an electronic device, identifying first location information corresponding to the first context information, transmitting first data including at least one of the first context information and the first location information to a server through a communication interface of the electronic device, receiving, from the server, point-of-interest event information corresponding to the transmitted first data, and storing the received point-of-interest event information in a memory of the electronic device.

[0205] As used herein, the term "module" includes a unit configured in hardware, software, or firmware and may interchangeably be used with other terms, e.g., "logic," "logic block," "part," or "circuit." The module may be a single integral part or a minimum unit or part of performing one or more functions. The module may be implemented mechanically or electronically and may include, e.g., an application-specific integrated circuit (ASIC) chip, field-programmable gate arrays (FPGAs), or programmable logic device that has been known or is to be developed in the future as performing some operations.

[0206] According to an embodiment of the present invention, at least a part of the device (e.g., modules or their functions) or method (e.g., operations) may be implemented as instructions stored in a computer-readable storage medium (e.g., the memory **130**), e.g., in the form of a program module. The instructions, when executed by a processor (e.g., the processor **120**), may enable the processor to carry out a corresponding function. The computer-readable medium may include, e.g., a hard disk, a floppy disc, a magnetic medium (e.g., magnetic tape), an optical recording medium (e.g., CD-ROM, DVD, magnetic-optical medium (e.g., floptical disk), or an embedded memory. The instruction may include a code created by a compiler or a code executable by an interpreter. Modules or programming modules in accordance with various embodiments of the present disclosure may include at least one or more of the aforementioned components, omit some of them, or further include other additional components. Operations performed by modules, programming modules or other components in accordance with various embodiments of the present disclo-

sure may be carried out sequentially, in parallel, repeatedly or heuristically, or at least some operations may be executed in a different order or omitted or other operations may be added.

[0207] Each of the aforementioned components of the electronic device may include one or more parts, and a name of the part may vary with a type of the electronic device. The electronic device in accordance with various embodiments of the present disclosure may include at least one of the aforementioned components, omit some of them, or include other additional component(s). Some of the components may be combined into an entity, but the entity may perform the same functions as the components may do.

[0208] The embodiments disclosed herein are proposed for description and understanding of the disclosed technology and does not limit the scope of the disclosure. Accordingly, the scope of the disclosure should be interpreted as including all changes or various embodiments based on the technical spirit of the disclosure.

1. An electronic device providing proximity-based information, comprising:

a communication interface;

a memory; and

a processor electrically connected with the communication interface and the memory, wherein the processor is configured to obtain first context information from one or more programs executed on the electronic device, identify first location information corresponding to the first context information, transmit first data including at least one of the first context information and the first location information to a server through the communication interface, receive, from the server, first point-of-interest event information corresponding to the transmitted first data, and store the received first point-of-interest event information in the memory.

2. The electronic device of claim **1**, wherein the first context information includes at least one of second data extracted from the one or more programs and at least one keyword received through an input interface provided in the electronic device.

3. The electronic device of claim **2**, wherein the second data extracted from the one or more programs includes at least one of a keyword extracted from content provided through the one or more programs and a cookie for the one or more programs.

4. The electronic device of claim **1**, wherein the first location information includes at least one of location information related to the first context information and location information about the electronic device identified when the first context information is obtained.

5. The electronic device of claim **1**, wherein the first point-of-interest event information includes at least one of location information about a point-of-interest, a method of discovering the point-of-interest, content related to the point-of-interest, and a recommendation index for the point-of-interest.

6. The electronic device of claim **1**, wherein the processor is configured to identify second location information corresponding to a current location of the electronic device, identify whether the electronic device is proximate to the point-of-interest based on the identified second location information and the first point-of-interest event information, and in a case where the electronic device is identified to be proximate to the point-of-interest at a preset distance, output content related to the point-of-interest.

7. The electronic device of claim **1**, wherein the processor is configured to in a case where recognition information about the point-of-interest is identified from the obtained first context information, store the recognition information and an identifier of an object, which has provided the recognition information, in the memory, transmit third data including identifiers of all objects, which have provided the recognition information, and the recognition information, in response to the number of pieces of the recognition information stored in the memory exceeding a preset number, receive, from the server, second point-of-interest event information corresponding to the transmitted third data, and store the received second point-of-interest event information in the memory.

8. The electronic device of claim **7**, wherein the processor is configured to identify second location information corresponding to a current location of the electronic device, identify whether the electronic device is proximate to the point-of-interest based on the identified second location information and the second point-of-interest event information, and in a case where the electronic device is identified to be proximate to the point-of-interest at a preset distance, output content related to the point-of-interest.

9. A method of providing proximity-based information, the method comprising:

obtaining first context information from one or more programs executed on an electronic device;

identifying first location information corresponding to the first context information;

transmitting first data including at least one of the first context information and the first location information to a server through a communication interface of the electronic device;

receiving, from the server, point-of-interest event information corresponding to the transmitted first data; and

storing the received point-of-interest event information in a memory of the electronic device.

10. The method of claim **9**, wherein the first context information includes at least one of second data extracted from the one or more programs and at least one keyword received through an input interface provided in the electronic device.

11. The method of claim **10**, wherein the second data extracted from the one or more programs includes at least one of a keyword extracted from content provided through the one or more programs and a cookie for the one or more programs.

12. The method of claim **9**, wherein the first location information includes at least one of location information related to the first context information and location information about the electronic device identified when the first context information is obtained.

13. The method of claim **9**, wherein the point-of-interest event information includes at least one of location information about a point-of-interest, a method of discovering the point-of-interest, content related to the point-of-interest, and a recommendation index for the point-of-interest.

14. A server providing proximity-based information, comprising:

a communication interface;

a memory; and

a processor electrically connected with the communication interface and the memory, wherein the processor is configured to obtain at least one piece of point-of-interest information from one or more first electronic devices through the communication interface and store the at least one piece of point-of-interest information in the memory, receive, from a second electronic device through the communication interface, data including at least one of first context information related to the second electronic device and first location information corresponding to the first context information, identify point-of-interest information corresponding to the received data from among the at least one piece of point-of-interest information stored in the memory, generate at least one piece of point-of-interest event information using the received data and the identified point-of-interest information, and transmit the generated point-of-interest event information to the second electronic device.

15. The server of claim **14**, wherein the processor is configured to receive at least one piece of feedback information from the second electronic device which has identified proximity to a point-of-interest based on the transmitted point-of-interest information and update the at least one piece of point-of-interest information stored in the memory using the received at least one piece of feedback information.

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