

TITLE OF THE INVENTION
REMOTE SERVER, USER TERMINAL, METHODS OF CONTROLLING THE
SAME, PROGRAM, AND ADVERTISEMENT INFORMATION
DISTRIBUTION SYSTEM

BACKGROUND OF THE INVENTION

Field of the Invention

[0001] The present invention relates to a remote server, a user terminal, methods of controlling the same, a program, and an advertisement information distribution system.

Description of the Related Art

[0002] In a signboard installed on, for example, the wall surface of a building or in a digital signage (electronic signboard), it is difficult to acquire an advertisement effect by an advertisement message, that is, an advertisement message in which a viewer is interested and the degree of interest. For this reason, conventionally, the advertisement effect is estimated by measuring the number of passers who pass in front of a signboard regardless of whether or not a passer views the signboard.

[0003] Additionally, even if a passer views an advertisement and is interested in it, he/she can hardly obtain detailed information concerning the advertisement contents. In many cases, a passer who views an advertisement does not access the information source using a portable terminal or the like, and the effect of the advertisement cannot sufficiently be obtained.

[0004] For example, Japanese Patent Laid-Open No. 2004-157499 proposes a system that displays advertisement data on a display apparatus and transmits associated data to the portable terminal of a passer.

[0005] However, the above-described conventional technique has the following problem. For example, in the above-described conventional technique, advertisement data is distributed to all persons passing in front of the display apparatus that displays the advertisement data. However, operation information in the user terminal of the distribution destination is not collected, and it is therefore difficult to determine whether the user of the distribution destination is interested in the advertisement data or a part of the advertisement data in which the user is interested. Collecting operation information is very useful in evaluating the advertisement effect to the user who views the advertisement message.

[0006] In addition, the distance between a person who passes in front of the display apparatus of a digital signage and the display apparatus always changes. Hence, when wireless communication is performed between the display apparatus and the user terminal using a communication method having a predetermined communication range, the communication is disconnected at a high possibility in accordance with the distance between them. That is, to continuously obtain operation information even after distribution of advertisement data, the communication needs to be continued by switching the communication method as needed such that the communication can be performed even when the portable terminal that has received the advertisement data separates from the display apparatus.

SUMMARY OF THE INVENTION

[0007] The present invention enables realization of a mechanism that causes a passer to access, from a terminal held by the passer, information of an advertisement displayed on a signboard or a digital signage and suitably collects access data regardless of the distance between the passer and a display apparatus.

[0008] One aspect of the present invention provides a remote server that operates in cooperation with displayed contents of a display apparatus for displaying an advertisement, comprising: a first communication unit configured to perform short-range wireless communication when a user who holds a user terminal exists within a range of a predetermined region; a second communication unit configured to perform communication within a range wider than that of the first communication unit; a trigger unit configured to detect the user terminal located within the range of the predetermined region and transmit a trigger signal that activates, in the user terminal, an application configured to acquire detailed information of the displayed contents to the detected user terminal using the first communication unit; an operation information acquisition unit configured to acquire, from the user terminal, operation information of the user input via the application using one of the first communication unit and the second communication unit in accordance with a positional relationship between the remote server and the user terminal; and an advertisement information notification unit configured to transmit the detailed information in response to an advertisement request transmitted from the application using one of the first communication unit and the second communication unit in accordance with the positional relationship between the remote server and the user terminal.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] Fig. 1 is a view showing the arrangement of an advertisement information distribution system according to an embodiment;

[0010] Fig. 2 is a block diagram showing the arrangement of a remote server according to an embodiment;

[0011] Fig. 3 is a block diagram showing the arrangement of a portable terminal according to an embodiment;

[0012] Fig. 4A is an overall sequence chart of the system according to an embodiment;

[0013] Fig. 4B is an overall sequence chart of the system according to an embodiment;

[0014] Fig. 5A is a view showing an example of the initial screen of an application executed in the portable terminal according to an embodiment;

[0015] Fig. 5B is a view showing an example of the detailed information confirmation screen of the application executed in the portable terminal according to an embodiment;

[0016] Fig. 6A is a view showing an example of advertisement information stored in an advertisement information database according to an embodiment;

[0017] Fig. 6B is a view showing an example of operation information stored in an operation information database according to an embodiment;

[0018] Fig. 7A is a flowchart showing a processing procedure from the activation to the end of an application in the portable terminal according to an embodiment;

[0019] Fig. 7B is a flowchart showing a processing procedure of transmitting operation information by the application in the portable terminal according to an embodiment;

[0020] Fig. 7C is a flowchart showing a processing procedure of receiving detailed information of an advertisement by the application in the portable terminal according to an embodiment;

[0021] Fig. 8A is a flowchart showing a processing procedure from connection to disconnection of a user in the remote server according to an embodiment;

[0022] Fig. 8B is a flowchart showing a processing procedure of receiving operation information from the portable terminal by the remote server according to an embodiment; and

[0023] Fig. 8C is a flowchart showing a processing procedure of transmitting detailed information of an advertisement to the portable terminal by the remote server according to an embodiment.

DESCRIPTION OF THE EMBODIMENTS

[0024] Hereinafter, embodiments of the present invention will be described with reference to the accompanying drawings. It should be noted that the following embodiments are not intended to limit the scope of the appended claims, and that not all the combinations of features described in the embodiments are necessarily essential to the solving means of the present invention.

[0025] <Arrangement of Advertisement Information Distribution System>

An embodiment of the present invention will be described below. An example of the arrangement of an advertisement information distribution system according to this embodiment will be described first with reference to Fig. 1. Note that a system arrangement to be described below is merely an example applicable to the present invention, and is neither intended to limit the scope of the present invention nor intended to limit the number of components and their types. In addition, the functions of a server or the like to be described later may be distributed, or a plurality of servers may be implemented by one apparatus. In particular, a remote server 101, an operation information database 105, an advertisement information database 106, and an advertisement server 107 may be implemented by one information processing apparatus (server apparatus).

[0026] The advertisement information distribution system includes the remote server 101, a display apparatus 102, a portable terminal (user terminal) 103, the operation information database 105, the advertisement information database 106, and the advertisement server 107. The apparatuses are connected via a network 104 to be communicable with each other. The remote server 101 is a server

configured to totally control the system. The remote server 101 distributes, to the portable terminal 103, detailed information of an advertisement (to be referred to as detailed information hereinafter) in which the user of the portable terminal 103 is interested, and acquires data (to be referred to as operation information hereinafter) that the user inputs to the portable terminal 103 from the portable terminal 103, thereby acquiring information used to evaluate the effect of the advertisement. The display apparatus 102 is the display apparatus of a digital signage or the like installed on a building and displays an advertisement at a position associated with the remote server 101. Here, in a case in which the remote server 101 is installed in a place such as an intersection with many passers, the position associated with the remote server 101 is, for example, a position visible from a user at the intersection, such as an outer wall surface of a building located near the intersection. Note that the display apparatus 102 may be installed outdoors or may be installed indoors. For example, the display apparatus 102 and the remote server 101 may be installed in a private room such as a restroom or may be installed in a means of transportation such as a taxi, bus, train, or aircraft.

[0027] The operation information database 105 is a database that loads operation information of a user who holds the portable terminal 103, which is acquired from the portable terminal 103. Note that an example in which the operation information database 105 loads operation information concerning the portable terminal 103 is described here. However, the operation information database 105 also loads operation information of other portable terminals, as a matter of course. The advertisement information database 106 is a database that loads detailed information associated with an advertisement displayed on the display apparatus 102 or information of an access destination that can browse the detailed information. The advertisement server 107 is a server that registers an

advertisement in the display apparatus 102 (in a case in which the advertisement displayed on the display apparatus 102 can be changed), registers information associated with the advertisement in the advertisement information database 106, and notifies the remote server 101 that the advertisement information is registered. In this specification, information that is associated with an advertisement displayed on the display apparatus 102, notified from the remote server 101 to the portable terminal 103 at an early time, and includes access information to detailed information concerning the advertisement will be referred to as initial information, and the initial information and detailed information will collectively be referred to as advertisement information.

[0028] Note that each of the operation information database 105 and the advertisement information database 106 may include a plurality of databases. They may be provided inside the remote server 101 or the advertisement server 107, or at least one function of the operation information database 105 and the advertisement information database 106 may be implemented by one remote server 101 or one advertisement server 107. In addition, the remote server need only distribute associated advertisement information to one or more display apparatuses 102. A plurality of remote servers 101 may be arranged in correspondence with one display apparatus 102.

[0029] The portable terminal 103 is a device held by a user (passer), and is a portable terminal such as a personal computer or a smartphone used when the user is interested in advertisement contents displayed on the display apparatus 102 and acquires detailed information associated with the advertisement contents. The remote server 101 and the portable terminal 103 can perform short-range wireless communication and communication via a wide area network. When the portable terminal 103 approaches the remote server 101, communication is established via the short-range wireless communication, and operation information and

advertisement information are transmitted/received. To enable transmission/reception of operation information and advertisement information even in a case in which the user is a passer and leaves the communication range of the short-range wireless communication after the communication establishment, the portable terminal 103 switches to communication via the wide area network after disconnection of the short-range wireless communication, thereby continuing communication with the remote server 101.

[0030] In this system, first, the manager of the display apparatus 102 registers, in the advertisement server 107, an advertisement to be displayed on the display apparatus 102 and information associate with the advertisement. The advertisement server 107 sets the advertisement in the display apparatus 102 via the network 104 to cause the display apparatus 102 to display the advertisement, registers advertisement information in the advertisement information database 106, and notifies the remote server 101 that the advertisement is registered. Then, the remote server 101 that receives the notification from the advertisement server 107 accesses the advertisement information database 106, acquires information associated with the registered advertisement, and starts distributing the information to the portable terminal 103. This allows the portable terminal 103 to access the advertisement information via the remote server 101. For example, the user of the portable terminal 103 views the advertisement displayed on the display apparatus 102 during walking and is interested in it. To obtain advertisement information such as an advertisement video or a discount coupon, the user can access the remote server 101 by operating the portable terminal 103 and confirm the advertisement information on the screen of the portable terminal 103.

[0031] Operation information that the portable terminal 103 receives from the user is transmitted by the remote server 101 to the operation information database

105 and stored. The operation information may be used as a material to determine the effect of the advertisement displayed on the display apparatus 102 or may be used as a material to determine the effect of the display apparatus 102 itself.

[0032] Examples of the arrangements of the apparatuses included in the system according to this embodiment will be described next with reference to Figs. 2 and 3.

[0033] <Arrangement of Remote Server>

An example of the arrangement of the remote server 101 will be described first with reference to Fig. 2. The remote server 101 includes a control unit 201, a short-range wireless I/F 202, and a wide area network I/F 203. The components can exchange information via a bus (not shown). The control unit 201 further includes a trigger unit 211, an operation information acquisition unit 212, an advertisement information notification unit 213, and a switching unit 214.

[0034] The short-range wireless I/F 202 can be connected to the portable terminal via a LAN (short-range wireless communication). The short-range wireless communication is used by the remote server 101 to communicate with the portable terminal 103 using a position associated with the remote server 101 as a communication range. The short-range wireless communication need only be a communication method capable of performing communication within a predetermined range, for example, a wireless LAN (Wi-Fi) complying with the IEEE 802.11 standard, Bluetooth[®], NFC, or infrared communication. As for the communication range, for example, if the display apparatus 102 is installed on the roof of a building, a region including an intersection in front of the building is set as the range in which the user can view the display apparatus 102.

[0035] The wide area network I/F 203 is connected to the operation information database 105 and the advertisement information database 106 via a wide area

network. The wide area network is a method of wireless communication or wired communication having a communication range wider than the short-range wireless communication. For example, communication methods such as a cellular network such as LTE or LTE-A, satellite communication, and Ethernet[®] can be considered. It is considered that after the connection between the remote server 101 and the portable terminal 103 is established by short-range wireless communication, the user moves and leaves the communication range of the short-range wireless communication, and the portable terminal 103 transmits operation information to the remote server 101 using the wide area network. Hence, after the connection establishment, the switching unit 214 preferably switches the communication method in accordance with the communication state such as disconnection of the short-range wireless communication or the position state of the remote server 101 and the portable terminal (user terminal) 103 to transmit/receive advertisement information or operation information via the short-range wireless I/F 202 or the wide area network I/F 203.

[0036] The trigger unit 211 transmits a trigger signal, via the short-range wireless I/F 202, to the portable terminal 103 that communicates with the remote server 101. For example, if the portable terminal 103 is a smartphone, an application on the portable terminal 103 can be activated upon receiving the trigger signal. For example, when Wi-Fi, Bluetooth, or the like is used as the short-range wireless communication, the remote server 101 transmits a beacon signal in an access point mode, and a process (pairing or the like) in which the portable terminal 103 that receives the beacon signal establishes connection can be used as detection of the portable terminal 103. In addition, when the beacon signal is not used and, for example, NFC or the like is used as the short-range wireless communication, the short-range wireless I/F 202 of the remote server 101 may perform polling of a short-range wireless I/F 302 of the portable terminal 103

and implement detection of the portable terminal 103 and transmission of the trigger signal.

[0037] <Arrangement of Portable Terminal>

An example of the arrangement of the portable terminal 103 according to this embodiment will be described next with reference to Fig. 3. The portable terminal 103 includes a control unit 301, the short-range wireless I/F 302, a wide area network I/F 303, an output unit 304, and an input unit 305.

[0038] The control unit 301 further includes an application 310 and a trigger reception unit 311. The trigger reception unit 311 activates the application 310 upon receiving a trigger signal from the remote server 101. The application 310 further includes a switching unit 321, an advertisement information reception unit 322, and an operation information notification unit 323. After activation, the application 310 establishes communication with the remote server 101 via the short-range wireless I/F 302, transmits operation information of the user (user input) acquired via the input unit 305 to the remote server 101 via the short-range wireless I/F 302 or the wide area network I/F 303, and outputs, to the output unit 304, detailed information received from the remote server 101 via the short-range wireless I/F 302 or the wide area network I/F 303. The application 310 may be, for example, an application stored in a ROM or the like and loaded to a RAM or the like and thus executed by the control unit 301. Alternatively, the application 310 may be, for example, an application received from the remote server 101 together with the trigger signal every time the portable terminal 103 is connected to the remote server 101. In this case, the application 310 may act on, for example, a web browser.

[0039] The short-range wireless I/F 302 can be connected to the remote server 101 via a LAN. When moving out of the communication range of short-range wireless communication along with the movement of the user or the like, the

portable terminal 103 continues the communication by switching the communication method to communication via the wide area network I/F 303 by the switching unit 321. The wide area network I/F 303 can be connected to the remote server 101 via the network 104. Here, the switching unit 321 is included in the application 310. However, the switching unit 321 may be implemented by a form in which the switching unit 321 is included in the control unit 301 but not in the application 310 or a form in which the switching unit 321 is not included in the control unit 301.

[0040] Using the above-described switching unit 321, the advertisement information reception unit 322 and the operation information notification unit 323 control processing to be described below. The advertisement information reception unit 322 receives advertisement information such as detailed information from the remote server 101 and outputs the received detailed information to the output unit 304 using the short-range wireless I/F 302 or the wide area network I/F 303 in accordance with the distance between the remote server 101 and the portable terminal 103. In addition, the operation information notification unit 323 notifies the remote server 101 of operation information of the user acquired via the input unit 305 via the short-range wireless I/F 302 or the wide area network I/F 303 in accordance with the distance between the remote server 101 and the portable terminal 103.

[0041] The output unit 304 includes a display that displays information. The output unit 304 may also include a sound output function or a vibration function. The input unit 305 is a user interface that receives user input and may include a pointing device or hardware keys. Sound input may be possible. In addition, the input unit 305 may include, for example, a touch panel type input device that senses an operation on the display.

[0042] <Overall Sequence>

The overall sequence of the advertisement information distribution system according to this embodiment will be described next with reference to Figs. 4A and 4B. Note that a procedure performed when the portable terminal 103 receives a trigger signal and initial information from the remote server 101 and, after that, operation information or detailed information is transmitted/received between the remote server 101 and the portable terminal 103 will be described here. A description will be made here assuming that a wireless LAN complying with the IEEE 802.11 standard is used for short-range wireless communication. However, another short-range wireless communication method capable of performing communication within a predetermined region may be applied, as described above.

[0043] In step S401, the portable terminal 103 detects, via the short-range wireless I/F 302, a beacon transmitted from the remote server 101. Here, the beacon can be a beacon in the IEEE 802.11 standard and is broadcast periodically by the remote server 101. For example, when the user who holds the portable terminal 103 moves to a position where the display apparatus 102 is visible and enters a predetermined range in which short-range wireless communication with the remote server 101 can be performed, the portable terminal 103 can detect the beacon. In step S402, the portable terminal 103 transmits, via the short-range wireless I/F 302, a connection request to the remote server 101 that transmits the beacon. In step S403, the remote server 101 transmits a trigger signal that activates the application 310 for transmitting/receiving advertisement information and operation information to the portable terminal 103 via the short-range wireless I/F 202.

[0044] Note that here, the remote server 101 periodically transmits the beacon via the short-range wireless I/F 202 such that the portable terminal 103 can detect the remote server 101 via the short-range wireless I/F 302. However, the

portable terminal 103 may transmit the beacon via the short-range wireless I/F 302, and the remote server 101 may detect the portable terminal 103 via the short-range wireless I/F 202.

[0045] Upon receiving the trigger signal via the short-range wireless I/F 302 in step S403, the portable terminal 103 activates the application 310 in step S404 to transmit/receive advertisement information and operation information. The application 310 may be implemented by expanding a program stored in a ROM (Read Only Memory) (not shown) onto a RAM (Random Access Memory). Alternatively, the application 310 may be implemented by loading a program received from the remote server 101 onto a RAM (Random Access Memory). When the application 310 is activated in step S404, the application 310 transmits terminal information to the remote server 101 via the short-range wireless I/F 302 in step S405. Here, the terminal information may be information concerning the user, which is set in advance by the user, or may be information concerning the portable terminal 103 such as a serial number, a telephone number, and a MAC address.

[0046] In step S406, the remote server 101 transmits initial information to the portable terminal 103 via the short-range wireless I/F 202. The initial information is information to be displayed as an initial screen on the output unit 304 and includes, for example, a display apparatus name or characters, an image, or a moving image associated with the advertisement displayed on the display apparatus 102. In addition, the initial information includes an address and the like necessary to access the remote server 101 via the wide area network I/F 303. At least part of the initial information may be saved in advance in the portable terminal 103. Next, in step S408, the application 310 of the portable terminal 103 displays an initial screen on the output unit 304 using the received initial information.

[0047] An example of the initial screen will be described here with reference to Fig. 5A. The initial screen shown in Fig. 5A is a screen used by the user who is interested in an advertisement to acquire detailed information concerning the advertisement displayed on the display apparatus 102. The initial screen includes an advertisement list 501 and an action list 502. The advertisement list 501 includes the thumbnail image and characters of the advertisement displayed on the display apparatus 102, which are include in the initial information. As shown in Fig. 5A, when a plurality of advertisements are registered in the display apparatus 102, the plurality of advertisements may be displayed in the advertisement list 501. However, not all the advertisements registered in the display apparatus 102 need be displayed at once in the advertisement list 501, and the number of advertisements displayed in the advertisement list 501 can be one or more.

[0048] In the action list 502, a list of actions that can be performed for one advertisement of the advertisements displayed in the advertisement list 501 is displayed. For example, if detailed information of one of the advertisements displayed in the advertisement list 501 includes a moving image, an action of browsing the moving image may be included in the action list 502. Additionally, for example, if the advertisement displayed on the display apparatus 102 concerns a product, and the existence of a store in the vicinity is included in the detailed information, acquisition of information of the store may also be included in the action list 502. It is not intended to limit the scope of the present invention to the arrangement shown in Fig. 5A, and various actions for acquiring information associated with the advertisement may be included. In addition, the action list 502 may include a plurality of lists and, for example, the action list 502 may be displayed for each advertisement displayed in the advertisement list 501.

[0049] Referring back to Figs. 4A and 4B, in step S409, the application 310

receives an operation from the user via the input unit 305. For example, the application 310 may receive an operation on the advertisement list 501 to browse the action lists 502 of a plurality of advertisements or may receive an operation on the action list 502 to acquire detailed information of a specific advertisement.

For any operation, the application 310 acquires input to the input unit 305.

[0050] Upon receiving a user operation for acquiring detailed information on the action list 502 in step S410, in step S411, the application 310 transmits operation information input so far to the remote server 101 via the short-range wireless I/F 302. Hence, the portable terminal 103 preferably holds the history information of user operations received via the input unit 305 in a ROM (not shown) or the like. In step S412, the remote server 101 stores, in the operation information database 105, the operation information received via the short-range wireless I/F 202, and determines in step S413 that a detailed information request is included in the operation information. Next, in step S414, the remote server 101 functions as an advertisement information acquisition unit and communicates with the advertisement information database 106 via the wide area network I/F 203 to acquire the requested detailed information. In step S415, the remote server 101 receives the detailed information from the advertisement information database 106 via the wide area network I/F 203. In step S416, the remote server 101 transmits the detailed information acquired from the advertisement information database 106 to the portable terminal 103 via the short-range wireless I/F 202. In step S417, the application 310 of the portable terminal 103 updates the screen output to the output unit 304 using the detailed information received via the short-range wireless I/F 302. Note that the remote server 101 transmits the detailed information itself to the portable terminal 103 here. However, access information such as a URL needed to browse the detailed information may be transmitted to the portable terminal 103. In this case, the portable terminal 103

acquires the detailed information by accessing another server using the access information. This can reduce the information amount transmitted by the remote server 101 and reduce the load on the remote server 101 and can also improve the response speed to the user operation.

[0051] An example of a screen after screen updating is performed using detailed information will be described here with reference to Fig. 5B. The screen shown in Fig. 5B is a screen displayed when the application 310 receives an operation for browsing an advertisement video in Fig. 5A. In an embodiment, a moving image player 511 is overlaid on the advertisement list 501 or the action list 502. Here, the detailed information received by the portable terminal 103 may be a moving image itself or may be an address used to view a streaming moving image. If the detailed information is an address used to view a streaming moving image, the advertisement information database 106 may have a function as a streaming server that provides the streaming moving image. Alternatively, a streaming server may be prepared independently, or a streaming moving image may be provided using a streaming service.

[0052] Referring back to Figs. 4A and 4B, in step S418, the application 310 receives a user operation via the input unit 305. For example, the application 310 can receive an operation of viewing an advertisement video or an operation of selecting another advertisement on the advertisement list 501 shown in Fig. 5B. In any case, the application 310 acquires input to the input unit 305. Next, in step S419, the application 310 receives a user operation of acquiring detailed information. After that, in step S420, the portable terminal 103 transmits operation information to the remote server 101 via the short-range wireless I/F 302. Here, however, a case in which the transmission fails in step S420 due to disconnection of the short-range wireless communication will be described. If the transmission to the remote server 101 fails a plurality of times, or a response

from the remote server 101 cannot be received for a predetermined time or more, the short-range wireless I/F 302 may determine that the connection with the remote server 101 by the short-range wireless communication is disconnected. When the short-range wireless I/F 302 determines the disconnection, in step S421, the application 310 receives an out-of-range notification from the short-range wireless I/F 302. A case in which the short-range wireless I/F 302 determines the disconnection has been described here. However, the short-range wireless I/F 302 may notify a transmission failure or a response time to the control unit 301, and the control unit 301 may determine the disconnection.

[0053] Next, in step S422, the application 310 switches the communication unit from the short-range wireless I/F 302 to the wide area network I/F 303 and transmits the operation information to the remote server 101 via the wide area network I/F 303. Here, the application 310 preferably executes the same step as step S405 of transmitting terminal information to the remote server 101 again via the wide area network I/F 303. The remote server 101 that receives the operation information via the wide area network I/F 203 switches the connection method to the portable terminal 103 and, in steps S423 to S426, executes the same operation as in steps S412 to S415 via the wide area network I/F 203. In step S427, the remote server 101 transmits detailed information to the portable terminal 103 via the wide area network I/F 203. In step S428, the application 310 of the portable terminal 103 updates the screen using the received detailed information.

[0054] Next, in step S429, the application 310 receives a user operation for instructing an end via the input unit 305. In this case, in step S431, the application 310 transmits operation information to the remote server 101 via the wide area network I/F 303. In step S432, the remote server 101 loads the received operation information into the operation information database 105. In step S433, the application 310 receives a response from the remote server 101 via

the wide area network I/F 303. After that, in step S434, the application 310 is ended, and the sequence is ended. In addition, the application 310 may save the pieces of operation information in a ROM or the like. When the application 310 is activated again and connected to the same or another remote server 101, some of the pieces of operation information may be transmitted. This can improve the response speed to the end instruction of the application.

[0055] <Advertisement Information>

An example of advertisement information stored in the advertisement information database 106 will be described next with reference to Fig. 6A. In an embodiment, the advertisement information includes a remote server ID 601, an advertisement ID 602, an initial information address 603, an advertisement address 604, a coupon address 605, and a store information address 606. The remote server ID 601 is a unique identifier (ID) held by the remote server 101. It is preferable that which display apparatus 102 corresponds to the remote server 101 having the certain remote server ID 601 can be determined. The advertisement ID 602 is an ID linked with an advertisement distributed by the remote server 101. It is only necessary to uniquely specify an advertisement by the advertisement ID 602 or the combination of the remote server ID 601 and the advertisement ID 602. The initial information address 603 is information transmitted as initial information and displayed on the initial screen of the application 310 of the portable terminal 103 or the address thereof. The advertisement address 604 is the information source (a video, a web page, or the like) of an advertisement included in detailed information or the address thereof. The coupon address 605 is a coupon (an image, a web page, or the like) included in detailed information or the address thereof. The store information address 606 is location information or a web page representing the store of merchandise associated with an advertisement, which is included in detailed information or the

address thereof. The detailed information need only be information that the user who is interested in the advertisement wants to acquire, and can include, for example, the address of an online shopping site or a link that enables download of another application.

[0056] <Operation Information>

Operation information will be described next. The operation information generated by the application 310 using an input from the input unit 305 may include information representing what kind of operation has been performed for which advertisement. As an example, the operation information includes a user ID, a remote server ID, a date/time, an advertisement ID, and an operation type. Here, the remote server ID and the advertisement ID can have the same forms as the remote server ID and the advertisement ID in the advertisement information database 106. The user ID is terminal information, an ID generated from the terminal information, or an ID held by the application. The date/time is a date/time when the application 310 has acquired an operation via the input unit 305. The operation type need only be an operation performed via the input unit 305 by the user who is interested in an advertisement, for example, "selection of an advertisement" on the advertisement list 501 which is used to switch the advertisement to browse the action list 502 or "detailed information acquisition" on the action list 502 which is used to acquire detailed information.

[0057] In an embodiment, the operation information saved in the operation information database 105 may be information obtained by processing, by the portable terminal 103, the remote server 101, or the operation information database 105, the operation information acquired by the application 310 via the input unit 305.

[0058] An example of operation information stored in the operation information

database 105 will be described here with reference to Fig. 6B. In an embodiment, the operation information includes a user ID 611, a connection server ID 612, a start date/time 613, an end date/time 614, a browsed advertisement ID 615, and an detailed information advertisement ID 616, which correspond to a user operation that has occurred within a predetermined period. The start date/time 613 is, for example, a date/time immediately after the application 310 is activated and connected to the remote server 101. The end date/time 614 is, for example, a time at which the application 310 has received an ending operation via the input unit 305 or a time at which timeout of the application 310 has occurred. The browsed advertisement ID 615 is, for example, the advertisement ID 602 of an advertisement whose action list is displayed in the action list 502 shown in Fig. 5A. The detailed information advertisement ID 616 is, for example, an advertisement ID for which an operation of acquiring detailed information is received in the action list 502 shown in Fig. 5A. In an embodiment, the operation information may include location information acquired by a satellite positioning system (not shown) such as a global positioning system (GPS) provided in the portable terminal.

[0059] <Processing Procedure of Portable Terminal>

The processing procedure of the portable terminal 103 will be described next with reference to Figs. 7A to 7C. The processing to be described below is executed when, for example, the control unit 301 of the portable terminal 103 reads out a control program preinstalled in a ROM or the like to a RAM or the like and executes it.

[0060] In step S701, the control unit 301 waits until the remote server 101 is detected within a predetermined region range. This determination is done by receiving a signal such as a beacon transmitted from the remote server 101. When the portable terminal 103 detects the remote server 101 via the short-range

wireless I/F 302 in step S701, the control unit 301 establishes connection with the remote server 101 by controlling the short-range wireless I/F 302 in step S702.

In step S703, the control unit 301 receives a trigger signal from the remote server 101 via the short-range wireless I/F 302 and activates the application 310. As described above, in steps S701 to S703, only connection with the remote server 101 via the short-range wireless I/F 302 and activation of the application 310 need to be performed. A modification in which, for example, the beacon itself which is transmitted from the remote server 101 via the short-range wireless I/F 202 is handled as a trigger signal is also possible.

[0061] In step S704, the application 310 receives initial information including information necessary for the establishment of connection with the remote server 101 and information concerning the advertisement displayed on the display apparatus 102 from the remote server 101 via the wide area network I/F 303.

The information necessary for the connection establishment, which is included in the initial information, may be the address of the remote server 101. In step S705, the application 310 displays an initial screen on the output unit 304 using the initial information received via the short-range wireless I/F 302. The present invention is not limited to this and, for example, the initial information may be acquired from the advertisement information database 106 or another server via the wide area network I/F 303, or the initial information may be saved in the ROM of the portable terminal 103 or the like and read out at the time of activation of the application 310.

[0062] Next, in step S706, the application 310 determines whether the remote server 101 exists within a predetermined region range in which short-range wireless communication with the portable terminal 103 is possible. If the application 310 determines that the remote server 101 exists within the predetermined region range, the application 310 advances to step S708 without

switching the communication to continuously perform subsequent transmission/reception via the short-range wireless I/F 302. Otherwise, in step S707, the application 310 controls the switching unit 321 to perform connection with the remote server 101 via the wide area network I/F 303, and advances to step S708.

[0063] In step S708, the application 310 transmits operation information via the short-range wireless I/F 302 or the wide area network I/F 303. A detailed processing procedure of operation information transmission will be described here with reference to Fig. 7B. In step S7081, the application 310 acquires operation information via the input unit 305 only for a predetermined time. Next, in step S7082, the application 310 determines whether a detailed information acquisition request exists in the acquired operation information or whether a predetermined time has elapsed from the start of the operation. Upon determining that a detailed information acquisition request exists, or a predetermined time has elapsed, the application 310 advances to step S7083 to transmit the operation information to the remote server 101 via the short-range wireless I/F 302 or the wide area network I/F 303. Otherwise, the application 310 ends step S708 and advances to step S709.

[0064] In step S709, the application 310 receives detailed information via the short-range wireless I/F 302 or the wide area network I/F 303. A detailed processing procedure of step S709 will be described here with reference to Fig. 7C. In step S7091, the application 310 determines whether detailed information is received from the remote server 101 via the short-range wireless I/F 302 or the wide area network I/F 303. Upon determining in step S7082 that a detailed information acquisition request is not transmitted, the application 310 ends the processing of step S709 without executing the processing of step S7092 to be described later. On the other hand, upon determining that a detailed information

acquisition request is transmitted, the process advances to step S7092, and the application 310 updates the screen output to the output unit 304 using the detailed information received via the short-range wireless I/F 302 or the wide area network I/F 303, and ends the processing of step S709.

[0065] Next, the process advances to step S710, and the application 310 determines whether an operation via the input unit 305 is received by the application 310 within a predetermined period. If an operation is received, the application 310 returns to step S706. On the other hand, if an operation is not received within the predetermined period (timeout), the application 310 ends the processing of step S710 and ends the overall processing.

[0066] <Processing Procedure of Remote Server>

The processing procedure of the remote server 101 will be described next with reference to Figs. 8A to 8C. The processing to be described below is executed when, for example, the control unit 201 of the remote server 101 reads out a control program preinstalled advance in a ROM or the like to a RAM or the like and executes it.

[0067] In step S801, the remote server 101 waits until connection via short-range wireless communication is established from the portable terminal 103. This determination is done by the remote server 101 while transmitting a broadcast signal such as a beacon. When the remote server 101 detects connection from the portable terminal 103 via the short-range wireless I/F 202 in step S801, in step S802, the trigger unit 211 transmits a trigger signal to the portable terminal 103 to activate the application 310 of the portable terminal 103. Here, if the portable terminal 103 is configured to transmit a beacon, the remote server 101 may detect the beacon and transmit a connection request to the portable terminal 103.

[0068] In step S803, the remote server 101 transmits initial information

including information necessary for communication via the wide area network I/F 203 and information concerning the advertisement displayed on the display apparatus 102 to the portable terminal 103 via the short-range wireless I/F 202.

[0069] Next, in step S804, the control unit 201 determines whether connection from the portable terminal 103 via the wide area network I/F 303 exists. Upon determining that connection from the portable terminal 103 does not exist, the control unit 201 advances to step S806 without switching the communication to continuously perform subsequent transmission/reception via the short-range wireless I/F 202. On the other hand, upon determining that connection exists, in step S805, the control unit 201 establishes connection with the portable terminal 103 via the wide area network I/F 203 by controlling the switching unit 214, and advances to step S806.

[0070] In step S806, the control unit 201 receives operation information via the short-range wireless I/F 202 or the wide area network I/F 203 and saves it. For example, if the portable terminal 103 is located within the range of a predetermined region from the remote server 101, transmission/reception of the operation information is performed using the short-range wireless I/F 202. If the portable terminal 103 is located out of the range of the predetermined region, transmission/reception of the operation information is performed via the wide area network I/F 203.

[0071] A detailed processing procedure of reception and saving of operation information in step S806 will be described here with reference to Fig. 8B. In step S8061, the control unit 201 receives the operation information from the portable terminal 103 via the short-range wireless I/F 202 or the wide area network I/F 203. Next, in step S8062, the control unit 201 determines whether a detailed information acquisition request exists in the received operation information. Upon determining that a detailed information acquisition request

exists, the control unit 201 advances to step S8063 to acquire detailed information for the detailed information request from the advertisement information database 106 via the wide area network I/F 203 and advances to step S8064. Otherwise, the control unit 201 advances to step S8064 without executing the processing of step S8063. In step S8064, the control unit 201 transmits the operation information received from the portable terminal 103 to the operation information database 105 and ends the flowchart of Fig. 8B. After that, the control unit 201 ends step S806 and advances to step S807.

[0072] In step S807, the control unit 201 transmits detailed information via the short-range wireless I/F 202 or the wide area network I/F 203. A detailed processing procedure of step S807 will be described here with reference to Fig. 8C. In step S8071, the control unit 201 determines whether detailed information is received from the advertisement information database via the wide area network I/F 203. Upon determining in step S8071 that detailed information is not received, the control unit 201 ends the processing of step S8072 to be described later. On the other hand, upon determining that detailed information is received, the process advances to step S8072. The control unit 201 transmits the detailed information to the portable terminal 103 via the short-range wireless I/F 202 or the wide area network I/F 203, ends the flowchart of Fig. 8C, and advances to step S808.

[0073] Next, in step S808, the control unit 201 determines whether operation information is received from the portable terminal 103 within a predetermined period. If operation information is received, the control unit 201 returns to step S804. On the other hand, if operation information is not received from the portable terminal within a predetermined period (timeout), the control unit 201 ends the processing of step S808 and ends the overall processing.

[0074] As described above, the advertisement information distribution system

according to this embodiment includes a display apparatus configured to display an advertisement, a portable terminal used by a user who views the display apparatus, a remote server configured to totally control the system, an advertisement information database configured to store advertisement information to be distributed to the user, and an operation information database configured to store an action taken by the user for the advertisement. In addition, the remote server performs first communication for performing short-range wireless communication when a user who holds a user terminal exists within the range of a predetermined region and second communication for performing communication within a range wider than the first communication. Furthermore, the remote server detects the user terminal located within the range of the predetermined region and transmits a trigger signal that activates, in the user terminal, an application configured to acquire detailed information of displayed contents to the detected user terminal using the first communication. After that, the remote server acquires, from the user terminal, operation information of the user input via the application or transmits detailed information in response to an advertisement request transmitted from the application using the first communication or the second communication in accordance with the positional relationship between the remote server and the user terminal. This allows the user to access, from the portable terminal, the detailed information of the advertisement displayed on the display apparatus and suitable collect access data (operation information) regardless of the distance between the user and the display apparatus. For example, in a state in which a passer at an intersection or the like has, in his/her field of view, the advertisement of a digital signage installed on the roof of a building in the vicinity, it is possible to access the portable terminal of the passer to activate a predetermined program and provide information in cooperation with the advertisement. Additionally, after that, the communication method is

switched in accordance with the positions of the passer and the remote server, thereby collecting information such as advertisement information in which the passer is interested.

[0075] <Modification>

The present invention is not limited to the above-described embodiment, and various changes and modification can be made. For example, the remote server 101 may include an output unit such that information that the user is going to acquire, such as the display apparatus 102 corresponding to the remote server 101, an advertisement (the summary of the displayed contents of the display apparatus 102), or a beacon or information concerning the remote server 101 to be connected to the user is output to the user such as a passer perceivably by a visual or auditory sense. Accordingly, the display apparatus 102 cooperated with the remote server 101 to be connected to the portable terminal can be notified to the user, and additionally, an advertisement effect by the remote server 101 can also be expected.

[0076] In addition, after activated by the trigger signal, the application of the portable terminal may switch the communication method from the short-range wireless I/F to the wide area network I/F and perform transmission of terminal information and the remote server ID, reception of initial information and detailed information, and transmission of operation information. This can avoid lowering of the response speed of the application caused by disconnection.

[0077] Additionally, in the above embodiment, an arrangement in which the remote server 101 communicates with the portable terminal 103 via one of short-range wireless communication (first communication unit) and communication by a wide area network (second communication unit) has been described. However, the present invention is not limited to this. For example, the remote server 101 may communicate with the portable terminal 103 via short-range wireless

communication, and another server, for example, the advertisement server 107 may communicate with the portable terminal 103 via communication by the wide area network. Hence, transmission/reception of operation information or detailed information of an advertisement may be performed between the portable terminal 103 and the advertisement server 107. This can reduce the load on the remote server 101, and operation information of the accessed portable terminal and the like can be collected at once via the remote server arranged for a plurality of display apparatuses.

WHAT IS CLAIMED IS:

1. A remote server that operates in cooperation with displayed contents of a display apparatus for displaying an advertisement, comprising:

a first communication unit configured to perform short-range wireless communication when a user who holds a user terminal exists within a range of a predetermined region;

a second communication unit configured to perform communication within a range wider than that of the first communication unit;

a trigger unit configured to detect the user terminal located within the range of the predetermined region and transmit a trigger signal that activates, in the user terminal, an application configured to acquire detailed information of the displayed contents to the detected user terminal using the first communication unit;

an operation information acquisition unit configured to acquire, from the user terminal, operation information of the user input via the application using one of the first communication unit and the second communication unit in accordance with a positional relationship between the remote server and the user terminal; and

an advertisement information notification unit configured to transmit the detailed information in response to an advertisement request transmitted from the application using one of the first communication unit and the second communication unit in accordance with the positional relationship between the remote server and the user terminal.

2. The server according to claim 1, wherein the range of the predetermined region is a range of a region in which the user who holds the user terminal can view the advertisement displayed on the display apparatus.

3. The server according to claim 1 or 2, wherein the trigger unit further transmits information necessary to establish communication by the second

communication unit between the remote server and the user terminal to the user terminal using the first communication unit.

4. The server according to any one of claims 1 to 3, further comprising an advertisement information acquisition unit connected, using the second communication unit, to an advertisement information database configured to hold advertisement information displayed on the display apparatus, and configured to acquire at least one of the advertisement information and the detailed information from the advertisement information database.

5. The server according to any one of claims 1 to 4, wherein the operation information acquisition unit is connected, using the second communication unit, to an operation information database configured to store the operation information and saves the operation information acquired from the user terminal in the operation information database.

6. The server according to any one of claims 1 to 5, further comprising a display unit configured to display a summary of the displayed contents displayed on the display apparatus.

7. The server according to claim 6, wherein the display unit further displays information necessary to establish communication by the first communication unit.

8. The server according to any one of claims 1 to 7, further comprising a sound output unit configured to output sound corresponding to the displayed contents displayed on the display apparatus.

9. The server according to any one of claims 1 to 8, wherein the trigger unit further transmits advertisement information associated with the displayed contents to the user terminal using the first communication unit.

10. A user terminal that is connected to a remote server that operates in cooperation with displayed contents of a display apparatus for displaying an advertisement and acquires information, comprising:

- an output unit configured to notify advertisement information to a user;
- an input unit configured to receive a user input;
- a first communication unit configured to perform short-range wireless communication with the remote server within a range of a predetermined region associated with the remote server;

- a second communication unit configured to perform communication within a range wider than that of the first communication unit;

- an activation unit configured to activate an application connected to the remote server using the first communication unit and configured to acquire detailed information in cooperation with the displayed contents in response to a received trigger signal;

- an operation information notification unit configured to acquire operation information of the user via the input unit and notify the acquired operation information to the remote server using one of the first communication unit and the second communication unit in accordance with a positional relationship with the remote server; and

- an advertisement information reception unit configured to receive the detailed information transmitted from the remote server using one of the first communication unit and the second communication unit in accordance with the positional relationship with the remote server.

11. A method of controlling a remote server that includes a first communication unit configured to perform short-range wireless communication when a user who holds a user terminal exists within a range of a predetermined region, and a second communication unit configured to perform communication within a range wider than that of the first communication unit and operates in cooperation with displayed contents of a display apparatus for displaying an advertisement, comprising:

detecting the user terminal located within the range of the predetermined region and transmitting a trigger signal that activates, in the user terminal, an application configured to acquire detailed information of the displayed contents to the detected user terminal using the first communication unit;

acquiring, from the user terminal, operation information of the user input via the application using one of the first communication unit and the second communication unit in accordance with a positional relationship between the remote server and the user terminal; and

transmitting the detailed information in response to an advertisement request transmitted from the application using one of the first communication unit and the second communication unit in accordance with the positional relationship between the remote server and the user terminal.

12. A method of controlling a user terminal that includes an output unit configured to notify advertisement information to a user, an input unit configured to receive a user input, a first communication unit configured to perform short-range wireless communication with the remote server within a range of a predetermined region associated with the remote server, a second communication unit configured to perform communication within a range wider than that of the first communication unit, is connected to the remote server that operates in cooperation with displayed contents of a display apparatus for displaying an advertisement, and acquires detailed information, comprising:

activating an application connected to the remote server using the first communication unit and configured to acquire detailed information in cooperation with the displayed contents in response to a received trigger signal;

acquiring operation information of the user via the input unit and notifying the acquired operation information to the remote server using one of the first communication unit and the second communication unit in accordance with a

positional relationship with the remote server; and

receiving the detailed information transmitted from the remote server using one of the first communication unit and the second communication unit in accordance with the positional relationship with the remote server.

13. A program for causing a computer to execute steps in a method of controlling a remote server that includes a first communication unit configured to perform short-range wireless communication when a user who holds a user terminal exists within a range of a predetermined region, and a second communication unit configured to perform communication within a range wider than that of the first communication unit and operates in cooperation with displayed contents of a display apparatus for displaying an advertisement, comprising:

detecting the user terminal located within the range of the predetermined region and transmitting a trigger signal that activates, in the user terminal, an application configured to acquire detailed information of the displayed contents to the detected user terminal using the first communication unit;

acquiring, from the user terminal, operation information of the user input via the application using one of the first communication unit and the second communication unit in accordance with a positional relationship between the remote server and the user terminal; and

transmitting the detailed information in response to an advertisement request transmitted from the application using one of the first communication unit and the second communication unit in accordance with the positional relationship between the remote server and the user terminal.

14. A program that operates in a user terminal that includes an output unit configured to notify advertisement information to a user, an input unit configured to receive a user input, a first communication unit configured to perform short-

range wireless communication with the remote server within a range of a predetermined region associated with the remote server, a second communication unit configured to perform communication within a range wider than that of the first communication unit, is connected to the remote server that operates in cooperation with displayed contents of a display apparatus for displaying an advertisement, and acquires detailed information, comprising:

- activating an application connected to the remote server using the first communication unit and configured to acquire detailed information in cooperation with the displayed contents in response to a received trigger signal;

- acquiring operation information of the user via the input unit and notifying the acquired operation information to the remote server using one of the first communication unit and the second communication unit in accordance with a positional relationship with the remote server; and

- receiving the detailed information transmitted from the remote server using one of the first communication unit and the second communication unit in accordance with the positional relationship with the remote server.

15. An advertisement information distribution system including a display apparatus for displaying an advertisement, a remote server that operates in cooperation with displayed contents of the display apparatus, and a user terminal that is connected to the remote server and acquires information, and configured to distribute information in cooperation with the displayed contents of the display apparatus,

- wherein the remote server comprises:

- a first communication unit configured to perform short-range wireless communication when a user who holds the user terminal exists within a range of a predetermined region;

- a second communication unit configured to perform communication

within a range wider than that of the first communication unit;

a trigger unit configured to detect the user terminal located within the range of the predetermined region and transmit a trigger signal that activates, in the user terminal, an application configured to acquire detailed information of the displayed contents to the detected user terminal using the first communication unit;

an operation information acquisition unit configured to acquire, from the user terminal, operation information of the user input via the application using one of the first communication unit and the second communication unit in accordance with a positional relationship between the remote server and the user terminal; and

an advertisement information notification unit configured to transmit the detailed information in response to an advertisement request transmitted from the application using one of the first communication unit and the second communication unit in accordance with the positional relationship between the remote server and the user terminal, and

the user terminal comprises:

an output unit configured to notify advertisement information to the user;

an input unit configured to receive a user input;

a third communication unit configured to perform short-range wireless communication with the remote server within a range of a predetermined region associated with the remote server;

a fourth communication unit configured to perform communication within a range wider than that of the third communication unit;

an activation unit configured to activate an application connected to the remote server using the third communication unit and configured to acquire the detailed information in cooperation with the displayed contents in response to the received trigger signal;

an operation information notification unit configured to acquire the operation information of the user via the input unit and notify the acquired operation information to the remote server using one of the third communication unit and the fourth communication unit in accordance with a positional relationship with the remote server; and

an advertisement information reception unit configured to receive the detailed information transmitted from the remote server using one of the third communication unit and the fourth communication unit in accordance with the positional relationship with the remote server.