MATCHING SYSTEM

FIELD

An embodiment of the present invention relate to a matching system which matches a content viewed by a user with a terminal carried by the user.

BACKGROUND

Advertisers expect to provide users having viewed a particular content with an advertisement associated with the content. For example, an advertiser provides mobile terminals or the like of users having viewed a particular content on televisions or the like with an advertisement related to the content.

Conventionally, for example, the advertiser receives information on the content viewed by users from televisions connected to the Internet. Furthermore, the advertiser uses IP addresses to link televisions used by users with mobile terminals carried by the users. The advertiser delivers an advertisement related to a content watched on the televisions, to mobile terminals linked with the televisions.

However, for such a system, the user needs to have a television with the above-described function, disadvantageously inhibiting a volume from being made for matching between an act of having viewed the content and the mobile terminal.

SUMMARY

To solve the above-described problem, a matching

system which effectively matches a content viewed by a user with a terminal carried by the user is provided.

According to one embodiment, a matching system matching a terminal with a content, comprises a storage unit, a first transmission processing unit, a first reception processing unit, a content identification unit and a matching unit. The storage unit is configured to store a start date and time for a content including a sound. The first transmission processing unit is configured to transmit a notification causing a terminal to start acquisition of a sound outside the terminal, to the terminal at a timing based on the start date and time. The first reception processing unit is configured to receive sound information indicative of the outside sound from the terminal. The content identification unit is configured to identify a content based on the sound information. The matching unit is configured to match the identified content with the terminal. The first transmission processing unit is configured to transmit the notification to the terminal registered with a group associated with the content.

According to the embodiment, the matching system can effectively match the content viewed by the user with the user terminal carried by the user.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram illustrating a configuration example of a matching system according to an embodiment.

FIG. 2 is a block diagram illustrating a configuration

example of a user terminal according to the embodiment.

FIG. 3 is a block diagram illustrating a configuration example of an application server according to the embodiment.

FIG. 4 is a block diagram illustrating a configuration example of a DMP server according to the embodiment.

FIG. 5 is a sequence diagram illustrating an operation example of the matching system according to the embodiment.

FIG. 6 is a sequence diagram illustrating another operation example of the matching system according to the embodiment.

FIG. 7 is a flowchart illustrating an operation example of the user terminal according to the embodiment.

FIG. 8 is a flowchart illustrating an operation example of the application server according to the embodiment.

FIG. 9 is a flowchart illustrating an operation example of the DMP server according to the embodiment.

DETAILED DESCRIPTION

In general, according to one embodiment, a matching system matching a terminal with a content, comprises a storage unit, a first transmission processing unit, a first reception processing unit, a content identification unit and a matching unit. The storage unit is configured to store a start date and time for a content including a sound. The first transmission processing unit is configured to transmit a notification causing a terminal to start

acquisition of a sound outside the terminal, to the terminal at a timing based on the start date and time. The first reception processing unit is configured to receive sound information indicative of the outside sound from the terminal. The content identification unit is configured to identify a content based on the sound information. The matching unit is configured to match the identified content with the terminal. The first transmission processing unit is configured to transmit the notification to the terminal registered with a group associated with the content.

An embodiment will be described below with reference to the drawings.

FIG. 1 is a diagram illustrating a configuration example of the matching system 100.

The matching system 100 matches a user terminal 1 (terminal) carried by a user with a content viewed by the user. Furthermore, the matching system delivers an advertisement associated with the content to the user terminal 1.

As illustrated in FIG. 1, the matching system 100 comprises the user terminal 1, an ACR server 2, an application server 3, a DMP server 4, and a content provision apparatus 6. The matching system 100 connects the user terminal 1, the ACR server 2, the application server 3, and the DMP server 4 together through a communication network such as the Internet. The matching system 100 may connect the content provision apparatus 6 and the

communication network 5 together.

The user terminal 1 is a terminal carried by the user. The user terminal 1 executes various applications in accordance with the user's operations. The user terminal 1 executes a matching application configured to implement an operation need for matching. The operation of the matching application will be described below. A function implemented by the matching application may be executed as a function of a predetermined application. For example, the function implemented by the matching application may be implemented as a function of another application which transmits and receives messages and the like.

The user terminal 1 may be, for example, a desktop PC, a notebook PC, a tablet PC, smartphone, or a wearable terminal. The configuration of the user terminal 1 is not limited to a particular configuration.

The ACR server 2 implements automatic content recognition. Based on sound information indicative of a sound, the ACR server 2 identifies a content corresponding to a sound indicated by the sound information. That is, the ACR server 2 identifies a content based on the sound of the content. For example, the ACR server 2 identifies a television program based on sound information indicative of the sound of the television program. The sound information may be information of a recorded sound or information indicative of features of the sound. A method for identifying the configuration or content of sound

information is not limited to a particular method.

The application server 3 provides services needed for matching in corporation with the application server 3. Functions implemented by the application server 3 will be described below. The application server 3 may cooperate with a predetermined application incorporating the function of the matching application in providing predetermined services to users.

The DMP (Data Management Platform) server 4 matches a content viewed by the user with the user terminal 1 carried by the user. Furthermore, the DMP server 4 delivers an advertisement to the user terminal 1 based on the matching. Functions implemented by the DMP server 4 will be described below in detail.

The communication network 5 communicatively connects the user terminal 1, the ACR server 2, the application server 3, and the DMP server 4 together. The communication network 5 is, for example, the Internet. The user terminal 1, the ACR server 2, the application server 3, and the DMP server 4 access the communication network 5 in a wired or wireless manner.

The content provision apparatus 6 provides contents including sounds. For example, the user carrying the user terminal 1 can enjoy contents including sounds and provided by the content provision apparatus 6. The content provision apparatus 6 may provide contents including sounds or contents including sounds and videos. The contents provided

by the content provision apparatus 6 may be contents including other elements. The contents provided by the content provision apparatus 6 are not limited to a particular configuration.

The contents are, for example, television programs, radio programs, or programs delivered on the Internet. For example, the content provision apparatus 6 is a television, a radio, or an Internet terminal.

The matching system 100 may further comprise an advertisement server which delivers an advertisement to the user terminal 1 based on matching. In this case, the DMP server 4 may omit delivery of an advertisement to the user terminal 1.

Furthermore, any two or all of the ACR server 2, the application server 3, or the DMP server 4 may be implemented as one server.

Now, a configuration example of the user terminal 1 will be described.

FIG. 2 is a block diagram illustrating the configuration example of the user terminal 1.

In the configuration example illustrated in FIG. 2, the user terminal 1 comprises a CPU 11, a ROM 12, a RAM 13, an NVM 14, a communication unit 15, an operation unit 16, a display unit 17, and a microphone 18 as basic components. The units are connected together via a data bus. The user terminal 1 may comprise components other than the components as illustrated in FIG. 2 or omit particular

components as needed.

The CPU 11 has a function to control operations of the user terminal 1 as a whole. The CPU 11 may comprise an internal cache and various interfaces. The CPU 11 implements various processes by executing programs (codes) stored in the internal memory, the ROM 12, or the NVM 14. The CPU 11 is, for example, a processor.

Some of the functions implemented by the CPU 11 by executing programs may be implemented by hardware circuits. In this case, the CPU 11 controls the functions executed by the hardware circuits.

The ROM 12 is a nonvolatile memory in which controlling programs and control data are pre-stored. The controlling programs and control data stored in the ROM 12 are pre-incorporated according to a specification of the user terminal 1. The ROM 12 stores, for example, programs controlling a circuit board of the user terminal 1 (for example, a BIOS).

The RAM 13 is a volatile memory. The RAM 13 temporarily stores data being processed by the CPU 11. The RAM 13 stores various applications based on commands from the CPU 11. The RAM 13 may store data needed to execute the application programs and the results of execution of the application programs.

The NVM 14 is a nonvolatile memory to which data can be written and in which data can be rewritten. The NVM 14 comprises, for example, a hard disk, an SSD, an EEPROM

(registered trade mark), or a flash memory. The NVM 14 stores controlling programs, applications, and various data according to operational purposes of the user terminal 1.

The NVM 14 comprises a storage area 14a in which terminal IDs are stored. The terminal ID will be described below.

The communication unit 15 is an interface configured to transmit and receive data to and from the ACR server 2, the application server 3, the DMP server 4, or the like through the communication network 5. The communication unit 15 is, for example, an interface which supports LAN connections.

Various operational instructions are input to the operation unit 16 by an operator of the user terminal 1. The operation unit 16 transmits data of an operational instruction input by the operator to the CPU 11. The operation unit 16 is, for example, a keyboard, ten keys, and a touch panel.

The display unit 17 is a display apparatus which displays various types of information under the control of the CPU 11. The display unit 17 is, for example, a liquid crystal monitor. If the operation unit 16 comprises a touch panel or the like, the display unit 17 may be formed integrally with the operation unit 16.

The microphone 18 acquires a sound outside the user terminal 1. The microphone 18 is activated based on a signal from the CPU 11. The microphone 18 converts the

acquired outside sound into an electric signal and transmits the electric signal to the CPU 11.

Now, the terminal ID will be described.

The terminal ID is an ID which identifies the user terminal 1. The terminal ID is, for example, a number, a character string, a symbol, or any combination thereof. The terminal ID may be stored at the time of manufacture of the user terminal 1. Alternatively, the terminal ID may be generated as needed.

For example, the terminal ID may be an IDFA (Identification For Advertisers) or an advertising ID. Alternatively, the terminal ID may be an ID generated for each user terminal by the matching application. Alternatively, the terminal ID may be an ID issued by the application server 3. Alternatively, the terminal ID may be the user's name, mail address, or predetermined login ID.

The configuration of the terminal ID is not limited to a particular configuration.

Now, a configuration example of the application server 3 will be described.

FIG. 3 is a block diagram illustrating a configuration example of the application server 3.

In the configuration example illustrated in FIG. 3, the application server 3 comprises a CPU 31, a ROM 32, a RAM 33, an NVM 34, a communication unit 35, an operation unit 36, and a display unit 37 as basic components. The units are connected together via the data bus. The

application server 3 may comprise components other than the components as illustrated in FIG. 3 or omit particular components as needed.

The CPU 31 has a function to control operations of the application server 3 as a whole.

The ROM 32 is a nonvolatile memory in which controlling programs and control data are pre-stored. The RAM 33 is a volatile memory.

The NVM 34 is a nonvolatile memory to which data can be written and in which data can be rewritten. The NVM 34 comprises a storage area 34a in which terminal IDs registered with groups associated with contents are stored and a storage area 34b in which the start date and time for each of the contents is stored.

The communication unit 35 is an interface configured to transmit and receive data to and from the user terminal 1, the DMP server 4, or the like through the communication network 5.

Various operational instructions are input to the operation unit 36 by an operator of the application server 3.

The display unit 37 is a display apparatus which displays various types of information under the control of the CPU 31.

Now, a configuration example of the DMP server 4 will be described.

FIG. 4 is a block diagram illustrating a configuration

example of the DMP server 4.

In the configuration example illustrated in FIG. 4, the DMP server 4 comprises a CPU 41, a ROM 42, a RAM 43, an NVM 44, a communication unit 45, an operation unit 46, and a display unit 47 as basic components. The units are connected together via the data bus. The DMP server 4 may comprise components other than the components as illustrated in FIG. 4 or omit particular components as needed.

The CPU 41 has a function to control operations of the DMP server 4 as a whole.

The ROM 42 is a nonvolatile memory in which controlling programs and control data are pre-stored. The RAM 43 is a volatile memory.

The NVM 44 is a nonvolatile memory to which data can be written and in which data can be rewritten. The NVM 44 comprises a storage area 44a in which terminal IDs registered with groups associated with contents are stored.

The communication unit 45 is an interface configured to transmit and receive data to and from the user terminal 1, the application server 3, or the like through the communication network 5.

Various operational instructions are input to the operation unit 46 by an operator of the DMP server 4. The display unit 47 is a display apparatus which displays various types of information under the control of the CPU 41.

Now, the functions implemented by the CPU 31 of the application server 3 will be described.

The CPU 31 of the application server 3 has a function to form a group of the user terminals 1 associated with a predetermined content. That is, the CPU 31 forms groups associated with contents and registers the user terminals 1 with each of the groups. For example, the CPU 31 stores, in the storage area 34a, the terminal IDs of the user terminals 1 registered with the groups associated with the contents.

For example, the CPU 31 may form a group associated with one content or form a group associated with a plurality of contents. For example, the CPU 31 may form a group associated with a predetermined television program or form a group associated with at least several contents provided by a predetermined television station. Alternatively, the CPU 31 may form a group in association with features of a content. For example, the CPU 31 may form a group associated with a person appearing in a content or the subject of the content (for example, a target area or the subject of the program). The configuration of groups formed by the CPU 31 is not limited to a particular configuration.

Furthermore, the CPU 31 registers the terminal ID of the user terminal 1 with a group based on a registration application from the user terminal 1. For example, the CPU 31 receives a registration application for applying for

registration with a predetermined group, from the user terminal 1. The registration application includes the terminal ID of the user terminal 1. In accordance with the registration application, the CPU 31 stores the terminal ID included in the registration application in the storage area 34a as a terminal ID registered with the predetermined group. For example, the registration application may be application for bookmark registration needed for the user terminal 1 to be provided with information associated with the content.

Furthermore, the CPU 31 has a function to transmit registration information indicative of the terminal ID and the group with which the terminal ID has been registered. The CPU 31 may transmit the registration information to the DMP server 4 each time the terminal ID is registered with the group. Additionally, the CPU 31 may transmit the registration information to the DMP server 4 at predetermined time intervals.

Furthermore, the CPU 31 has a function to transmit an acquisition start notification which allows acquisition of the outside sound to be started, to a notification destination (for example, an address) of the user terminal 1 registered with the group (first transmission processing unit). The acquisition start notification also indicates that delivery of the content is to be started.

The CPU 31 stores, in the storage area 34b, the date and time when the content provision apparatus 6 starts

provision of the content. For example, the CPU 31 stores the start date and time in the storage area 34b based on the operator's operation.

Based on the start date and time for the predetermined content, the CPU 31 transmits the acquisition start notification to the user terminal 1 registered with the group associated with the predetermined content. That is, the CPU 31 transmits the acquisition start notification to the user terminal 1 indicated by the terminal ID in the group in the storage area 34a. If the content is associated with a plurality of groups, the application server 3 transmits the acquisition start notification to the user terminal 1 indicated by the terminal ID in each group. For example, the CPU 31 transmits the acquisition start notification via push delivery.

The CPU 31 may transmit the acquisition start notification in time for the start date and time for the content or before the start date and time for the content. For example, the CPU 31 may transmit the acquisition start notification at a set date and time several seconds to several minutes before the start date and time for the content.

Now, the functions implemented by the CPU 11 of the user terminal 1 will be described.

The CPU 11 of the user terminal 1 has a function to transmit an application for registration with a group associated with a content. For example, the CPU 11 accepts

an operation for registration with a particular group from the user through the operation unit 16. For example, the CPU 11 accepts the operation by detecting touch with an icon displayed on the display unit 17.

Based on an operation from the user, the CPU 11 generates a registration application including the terminal ID and information identifying the group. The CPU 11 performs transmission to the generated registration application through the communication unit 15.

Furthermore, the CPU 11 has a function to receive, from the application server 3, the acquisition start notification which allows acquisition of the outside sound to be started (second reception processing unit). For example, the CPU 11 receives the acquisition start notification from the application server 3 through the communication unit 15 as a push notification.

Additionally, the CPU 11 has a function to provide an operational guidance which prompts the user to start acquisition of the outside sound (guidance presentation unit). For example, the CPU 11 displays, on the display unit 17, a message which prompts the user to launch the matching application. The matching application acquires the outside sound as described below.

Upon receiving the acquisition start notification, the CPU 11 may display, on the display unit 17, a start guidance indicating that delivery of the content is to be started. The CPU 11 provides a start guidance indicating

that the content is to be started, in accordance with the acquisition start notification. For example, the CPU 11 displays, on the display unit 17, a message indicating that the content is to be started. The operational guidance and the start guidance may be the same guidance.

Furthermore, the CPU 11 has a function to start acquisition of the outside sound in accordance with the start operation of starting acquisition of the outside sound (sound acquisition unit). For example, the CPU 11 detects touch with the operational guidance to launch the matching application. The CPU 11 activates the microphone 18 in accordance with the matching application. The CPU 11 acquires the sound outside the user terminal 1 using the microphone 18 in accordance with the matching application.

Furthermore, the CPU 11 has a function to transmit a determination application including sound information indicative of the sound and the terminal ID, to the ACR server 2 (second transmission processing unit). The determination application allows the ACR server 2 to determine the content corresponding to the sound indicated by the sound information.

For example, the CPU 11 generates sound information from the outside sound acquired through the microphone 18. For example, the CPU 11 extracts features of the outside sound and generates sound information using the extracted features. The CPU 11 generates a determination application including the generated sound information and the terminal

ID indicative of the CPU 11. The CPU 11 transmits the generated determination application to the ACR server 2 through the communication unit 15.

The CPU 11 may transmit the determination application to the ACR server 2 via the application server 3. For example, the CPU 11 transmits the determination application to the application server 3. The application server 3 transmits the received determination application to the ACR server 2.

Furthermore, the CPU 11 may transmit the sound information to the terminal ID to the application server 3. The application server 3 may generate a determination application from the sound information and the terminal ID and transmit the determination application to the ACR server 2.

Additionally, the CPU 11 has a function to present an advertisement from the DMP server 4. For example, the CPU 11 receives the advertisement from the DMP server 4. The CPU 11 displays the received advertisement on the display unit 17 or the like. For example, the CPU 11 may display the advertisement in accordance with the matching application. For example, the CPU 11 may display the advertisement on a screen of the matching application. In addition, the CPU 10 may display the advertisement on another application such as a browser.

The CPU 11 may receive the advertisement via the application server 3. For example, the DMP server 4

transmits the advertisement to the application server 3. The application server 3 transmits the received advertisement to the user terminal 1.

Now, the functions implemented by the ACR server 2 will be described.

The ACR server 2 implements a function to identify, based on the determination application, the content corresponding to the sound indicated by the sound information included in the determination application. For example, the ACR server 2 receives the determination application from the user terminal 1 (or the application server 3) (first reception processing unit). The ACR server 2 identifies the content based on the sound information included in the determination application (content determination unit). The ACR server 2 transmits, to the DMP server 4, a determination result including content information indicative of the identified content and the terminal ID included in the terminal ID.

Now, the functions implemented by the CPU 41 of the DMP server 4 will be described.

The CPU 41 of the DMP server 4 stores terminal IDs registered with groups associated with contents, in the storage area 44a for each group based on the registration information received from the application server 3. For example, the DMP server 4 stores the terminal ID indicated by the registration information in the storage area 44a as a terminal ID registered with the group indicated by the

registration information.

Furthermore, the CPU 41 has a function to match the content with the terminal ID based on the determination result from the ACR server 2 (matching unit). The determination result includes the content information indicative of the content and the terminal ID of the user terminal 1 carried by the user having viewed the content.

That is, the CPU 41 identifies the user terminal 1 having viewed the content associated with the group, among the user terminals 1 registered with the group. For example, the CPU 41 receives the determination result from the ACR server 2. The CPU 41 retrieves the terminal ID in the determination result from the group associated with the content indicated by the content information in the determination result. The CPU 41 matches the content with the terminal ID discovered in the group. For example, the CPU 41 stores the terminal ID discovered in the group in the storage area 44a as the terminal ID of the user terminal 1 carried by the user having viewed the content.

Furthermore, the CPU 41 has a function to identify the user terminal 1 registered with the group associated with the content and having failed to be matched with the content. That is, the CPU 41 identifies the user terminal 1 belonging to the group associated with the content but not having viewed the content. For example, the CPU 41 identifies the user terminal 1 having failed to be matched with the content by the time when the delivery of the

content ends, as a user terminal 1 not having viewed the content. For example, the CPU 41 stores the terminal ID of the user terminal 1 having failed to be matched with the content, in the storage area 44a as the terminal ID of the user terminal 1 not having viewed the content.

Furthermore, the CPU 41 has a function to deliver an advertisement to the user terminal 1 indicated by the terminal ID registered with the group. For example, the CPU 41 delivers the advertisement associated with the content corresponding to the group, to the user terminal 1.

For example, the CPU 41 delivers a first advertisement to the user terminal 1 matched with the content (first advertisement delivery unit). For example, the CPU 41 delivers an advertisement associated with an act of having viewed the content as the first advertisement. For example, the CPU 41 may deliver the advertisement to the user terminal 1 as a privilege for the act of having viewed the content. Additionally, the CPU 41 may deliver an advertisement related to a product or a service appearing in the content.

For example, the CPU 41 delivers a second advertisement different from the first advertisement to the user terminal 1 registered with the group and having failed to be matched with the content (second advertisement delivery unit). For example, the CPU 41 delivers an advertisement associated with a failure to view the content, as the second advertisement. For example, the CPU

41 may deliver a guidance for redelivery of the content or the like to the user terminal 1 as the advertisement. In addition, the CPU 41 may deliver brief description of the content to the user terminal 1.

The advertisement delivered to the user terminal 1 by the CPU 41 is not limited to a particular configuration.

Furthermore, the DMP server 4 may deliver the advertisement while the content is being delivered. Alternatively, the DMP server 4 may deliver the advertisement simultaneously with the end of the act of having viewed the content. Alternatively, the DMP server 4 may deliver the advertisement a predetermined period after the end of the act of having viewed the content.

Now, an operation example of the matching system 100 will be described.

FIG. 5 is a sequence diagram illustrating the operation example of the matching system 100. In the example illustrated in FIG. 5, the user views the content using the content provision apparatus 6 in accordance with the start guidance. Additionally, the user inputs an operation of starting acquisition of the outside sound to the user terminal 1 in accordance with the operational guidance.

First, the user terminal 1 receives a registering operation of registering the user terminal 1 with a predetermined group, from the user (S11). Upon receiving the registering operation, the user terminal 1 transmits a

registration application to the application server 3 in accordance with the registering operation (S12).

The application server 3 receives the registration application. Upon receiving the registration application, the application server 3 transmits the registration information to the DMP server 4 (S13). The DMP server 4 receives the registration information. Upon receiving the registration information, the DMP server 4 stores, in accordance with the registration information, the terminal ID included in the registration information in the storage area 44a as a terminal ID registered with the group.

Upon transmitting the registration information to the DMP server 4, the application server 3 waits based on the start date and time for the content corresponding to the predetermined group. Based on the start date and time, the application server 3 determines that a start notification timing for the content has been reached (S15).

Upon determining that the start notification timing for the content has been reached, the application server 3 transmits the acquisition start notification which causes the user terminal 1 to start acquisition of the outside sound, to the user terminal 1 (S16). For example, the start notification timing for the content may be the start date and time for the content, a date and time before the start date and time for the content (a set date and time several seconds to several minutes before the start date and time), or a date and time after the start date and time

for the content (a set date and time several seconds to several minutes after the start date and time).

The user terminal 1 receives the acquisition start notification from the application server 3. Upon receiving the acquisition start notification, the user terminal 1 displays the start guidance and the operational guidance in accordance with the acquisition start notification (S17). Here, the user views the content using the content provision apparatus 6. Furthermore, the user inputs an operation of causing the user terminal 1 to start acquisition of the outside sound, to the user terminal 1.

Upon receiving the operation of causing the user terminal 1 to start acquisition of the outside sound, the user terminal 1 acquires the outside sound using the microphone 18 (S18). Upon acquiring the outside sound for a predetermined period, the CPU 11 generates sound information. Upon generating the sound information, the CPU 11 transmits a determination application including the sound information and the terminal ID to the ACR server 2 (S19).

The ACR server 2 receives the determination application. Upon receiving the determination application, the ACR server 2 identifies the content corresponding to the sound indicated by the sound information based on the sound information included in the determination application (S20). Upon identifying the content, the ACR server 2 transmits a determination result including content

information identifying the content and the terminal ID provided in the determination application to the DMP server 4 (S21).

Based on the determination result, the DMP server 4 matches the content indicated by the content information in the determination result with the user terminal 1 indicated by the terminal ID in the determination result (S22). Upon matching the content with the user terminal 1, the DMP server 4 delivers an advertisement associated with the act of having viewed the content to the user terminal 1 matched with the content (S23).

The user terminal 1 receives the advertisement. Upon receiving the advertisement, the user terminal 1 presents the advertisement (S24).

When the user terminal 1 presents the advertisement, the matching system 100 ends the operation.

Now, another operation example of the matching system 100 will be described.

FIG. 6 is a sequence diagram illustrating the another operation example of the matching system 100. Here, the user is assumed to receive the start guidance but not to input the operation of starting acquisition of the outside sound to the user terminal 1.

S11 to S17 are as described above and description of these steps is omitted.

The user terminal 1 displays the start guidance and the operational guidance (S17). Here, the user does not

input the operation of starting acquisition of the outside sound to the user terminal 1.

Upon failing to have received the determination result during a predetermined period, the DMP server 4 identifies the user terminal 1 registered with the group associated with the content and not matched with the content (S25). Here, the DMP server 4 identifies the terminal ID of the user terminal 1 as a terminal ID not matched with the content.

Upon identifying the user terminal 1 not matched with the content, the DMP server 4 transmits an advertisement associated with a failure to view the content to the user terminal 1 (S26).

The user terminal 1 receives the advertisement. Upon receiving the advertisement, the user terminal 1 presents the received advertisement (S27).

When the user terminal 1 presents the advertisement, the matching system 100 ends the operation.

Now, an operation example of the user terminal 1 will be described.

FIG. 7 is a flowchart illustrating the operation example of the user terminal 1.

The flowchart illustrated in FIG. 7 describes operations subsequent to S15.

First, the CPU 11 of the user terminal 1 determines whether an acquisition start notification has been received from the application server 3 through the communication

unit 15 (S31). Upon determining that the acquisition start notification has not been received (S31, NO), the CPU 11 returns to S31.

Upon determining that the acquisition start notification has been received (S31, YES), the CPU 11 displays the start guidance and the operational guidance on the display unit 17 in accordance with the received acquisition start notification (S32).

Upon displaying the start guidance and the operational guidance on the display unit 17, the CPU 11 determines whether a launch operation of launching the matching application (that is, an operation of starting acquisition of the outside sound) has been accepted (S33).

Upon determining that the launch operation has been accepted (S33, YES), the CPU 11 launches the matching application (S34). Upon launching the matching application, the CPU 11 activates the microphone 18 in accordance with the matching application (S35). Upon activating the microphone 18, the CPU 11 acquires the outside sound in accordance with the matching application (S36). Upon acquiring the outside sound, the CPU 11 transmits a determination application including the terminal ID and the sound information indicative of the outside sound, to the ACR server 2 through the communication unit 15 (S37).

Upon transmitting the determination application, the CPU 11 determines whether an advertisement has been received from the DMP server 4 through the communication

unit 15 (S38). Upon determining that no advertisement has been received (S38, NO), the CPU 11 returns to S38.

Upon determining that an advertisement has been received (S38, YES), the CPU 11 presents the received advertisement (S39).

Upon determining that the launch operation has not been accepted (for example, upon determining that the launch operation has failed to be accepted during the predetermined period) (S33, NO), the CPU 11 proceeds to S38.

Upon presenting the received advertisement, the CPU 11 ends the operation.

Now, an operation example of the application server 3 will be described.

FIG. 8 is a flowchart illustrating the operation example of the application server 3.

First, the CPU 31 of the application server 3 determines whether an application for registration with a group has been received through the communication unit 35 (S41). Upon determining that the registration application has not been received (S41, NO), the CPU 31 returns to S41.

Upon determining that the registration application has been received (S41, YES), the CPU 31 registers the user terminal 1 with the group in accordance with the registration application (S42).

Upon registering the user terminal 1 with the group, the CPU 31 determines whether a start notification timing

for the content associated with the group has been reached (S43). Upon determining that the start notification timing for the content has not been reached (S43, NO), the CPU 31 returns to S43.

Upon determining that the start notification timing for the content has been reached (S43, YES), the CPU 31 transmits the acquisition start notification which causes the user terminal 1 to start acquisition of the outside sound, to the user terminal 1 through the communication unit 35 (S44).

Upon transmitting the acquisition start notification, the CPU 31 ends the operation.

Now, an operation example of the DMP server 4 will be described.

FIG. 9 is a flowchart illustrating the operation example of the DMP server 4.

First, the CPU 41 of the DMP server 4 determines whether the delivery of the content has been ended (S51). Upon determining that the delivery of the content has been ended (S51, NO), the CPU 41 determines whether a determination result has been received from the ACR server 2 through the communication unit (S52).

Upon determining that the determination result has been received (S52, YES), the CPU 41 determines whether the terminal ID included in the determination result is registered with the group associated with the content indicated by the content information included in the

determination result (S53).

Upon determining that the terminal ID is registered (S53, YES), the CPU 41 matches the content corresponding to the group with the user terminal 1 indicated by the terminal ID (S54).

Upon determining that the determination result has not been received (S52, NO), upon determining that the terminal ID is not registered (S53, NO), or upon matching the content with the user terminal 1 (S54), the CPU 41 returns to S51.

Upon determining that the delivery of the content has ended (S51, YES), the CPU 41 identifies the user terminal 1 registered with the group associated with the content and not matched with the content (S55).

Upon identifying the user terminal 1 not matched with the content, the CPU 41 delivers an advertisement related to the act of having viewed the content to the user terminal 1 matched with the content (S56). Upon delivering the content related to the act of having viewed the content, the CPU 41 delivers an advertisement related to a failure to view the content to the user terminal 1 not matched with the content (S57).

Upon delivering the advertisement related to a failure to view the content, the CPU 41 ends the operation.

The CPU 41 may deliver the advertisement related to the act of having viewed the content to the user terminal 1 matched with the content while the content is being

delivered. Alternatively, the CPU 41 may deliver the advertisement related to the act of having viewed the content to the user terminal 1 matched with the content a plurality of times. Alternatively, the CPU 41 may deliver the advertisement related to a failure to view the content to the user terminal 1 indicated by the terminal ID not matched with the content.

The matching system configured as described above can prompt the user of the user terminal registered with the group associated with the predetermined content to start acquisition of the outside sound at the timing when the content is started. Thus, the matching system can acquire the sound around the user terminal at the timing when the content is started to determine whether the user is viewing the content.

As a result, the matching system can identify the user terminal carried by the user having viewed the content, among the user terminals registered with the group associated with the content. Therefore, the matching system can effectively match the content viewed by the user with the user terminal carried by the user. Hence, the matching system can deliver a retargeting advertisement to the user terminal carried by the user having viewed the content.

Furthermore, the matching system can identify the user terminal carried by the user not having viewed the content, among the user terminals registered with the group. Therefore, the matching system can deliver the appropriate

advertisement to the user terminal carried by the user not having viewed the content.

The present invention is not limited to the above-described embodiments and may be variously modified in an implementation stage without departing from the spirits of the invention. Furthermore, the embodiments may be combined together as needed, and in that case, combined results are obtained. Moreover, the embodiments include various stages of inventions, and various inventions may be extracted by combining a plurality of the disclosed constituent requirements together. For example, even when some of all the constituent requirements illustrated in the embodiments are deleted, the problems described in TECHNICAL PROBLEM may be solved. If the effects described in ADVANTAGEOUS EFFECTS are produced, the configuration from which these constituent requirements have been deleted may be extracted as an invention.

CLAIMS

1. A matching system matching a terminal with a content, the matching system comprising:

a first transmission processing unit configured to transmit a notification causing a terminal to start acquisition of a sound outside the terminal, to the terminal at a timing based on the start date and time for starting providing a content including a sound;

a first reception processing unit configured to receive sound information indicative of the outside sound from the terminal;

a content identification unit configured to identify a content based on the sound information; and

a matching unit configured to match the identified content with the terminal.

2. The matching system according to claim 1, wherein

the first transmission processing unit is configured to transmit the notification to a terminal registered with a group associated with the content.

3. The matching system according to claim 1 or 2, further comprising:

a first advertisement delivery unit configured to deliver a first advertisement to a terminal matched with the content.

4. The matching system according to claim 3, wherein

the first advertisement is an advertisement associated with an act of having viewed the content.

5. The matching system according to claim 2, further comprising:

a second advertisement delivery unit configured to deliver a second advertisement to a terminal registered with the group and not matched with the content.

6. The matching system according to claim 5, wherein

the second advertisement is an advertisement associated with a failure to view the content.

7. The matching system according to any one of claims 1 to 5, comprising the terminal, wherein

the terminal comprises:

a microphone configured to acquire an outside sound;

a second reception processing unit configured to receive the notification;

a guidance presentation unit configured to present an operational guidance causing acquisition of an outside sound to be started in accordance with the notification;

an operation unit configured to receive an input of a start operation of starting acquisition of an outside sound;

a sound acquisition unit configured to acquire an outside sound through the microphone in accordance with the start operation; and

a second transmission processing unit configured to transmit sound information indicative of the outside sound.

8. The matching system according to any one of claims 1 to 6, wherein

the first transmission processing unit is configured to transmit the notification by push notification.

9. The matching system according to any one of claims 1 to 7, wherein

the content is a television program.