IMAGE CAPTURING SYSTEM

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001]

This application is based upon and claims the benefit of priority from the prior Japanese Patent Applications No. 2012-111738, filed on May 15, 2012, the entire contents of which are incorporated herein by reference.

FIELD OF THE INVENTION

[0002]

The present invention is related to an image capturing system, by which an image is captured, data of the captured image is sent to a server, and then the data of the captured image is transmitted to a user by downloading to the user's terminal device. In particular, the present invention is related to an image capturing system in which the data of captured image can be downloaded from the server after the server transmits download information for downloading the data of the captured image to the user's terminal device.

BACKGROUND OF THE INVENTION

[0003]

An image capturing-printing device known as a device such as a photography seal device, a print seal device, or a sticker photograph device is arranged in a game center, etc. This image capturing-printing device includes a function for taking (capturing) a photograph of a user and a function for printing the image which has been modified with the captured image by graffiti, etc. by the user. At this time, the user inserts coins or notes equivalent to the cost of taking a photograph, graffiti, and printing the image into a slot provided at a side of the image capturing-printing device.

[0004]

In recent years, an image capturing system is also known for a system including a function for transmitting an image captured by the image capturing-printing device to a server, which is then accessed by the user to download the image, in addition to a printing function.

SUMMARY OF THE INVENTION

PROBLEMS TO BE SOLVED BY THE INVENTION

[0005]

In this type of image capturing system, when data of a captured image is transmitted to the server, a password set by the user or the user's personal data such as a combination of a date of birth and a telephone number is input to the image capturing-printing device. In addition, when the user accesses the server, the user's data such as a password input to the image capturing-printing device is transmitted to the server and after the server confirms a match of the data such as a password or the user's personal data, the data of the captured image can be obtained by downloading to the user's terminal device from the server.

[0006]

Therefore, if the user forgets his/her password or personal data, which has been input to the image capturing-printing device, the image can no longer be downloaded and if the password or the personal data is guessed by a third party, the image may be downloaded by someone else. As a result, users feel uneasy in using such image capturing-printing devices and as a result, use of such devices will not increase.

[0007]

Thus, the present invention provides an image capturing system by which a user can download the data of the captured image without such concern.

MEANS FOR SOLVING THE PROBLEM

[0008]

An image capturing system related to one embodiment of the present invention includes a capturing device and a server device. The capturing device includes a capturing part configured to capture an image of a user having a terminal device, a notification destination data acquisition part configured to obtain notification destination data from the terminal device; and a transmitting part configured to transmit the notification destination data obtained from the notification destination data acquisition part and data of the captured image to the server device. The server device including a receiving part configured to receive the notification destination data and the data of the captured image, which is transmitted from the capturing device; an image storage part configured to store the data of the captured image, which is received by the receiving part; a download data transmitting part configured to transmit download data for

downloading the data of the captured image, which is stored in the image storage part, to a notification destination, which is indicated by the notification destination data, which is received by the receiving part; and a download part configured to download the data of the captured image, which is specified by the download data, when the download data is received.

AN EFFECT OF THE INVENTION

[0009]

According to the present invention, it is possible for the user to download the image even if the user loses his/her password, and it is possible to prevent the image being downloaded by a third party This is because the user inputs his/her notification destination data to the capturing device and the image capturing device transmits the notification destination data, which is input, and an image to the server device, and then the server device transmits data for downloading the image only to the user by using the notification destination data, which the server has received.

BRIEF EXPLANATION OF THE DRAWINGS

[0010]

Fig. 1 is a functional block diagram of an image capturing system related to one embodiment of the present invention.

Fig. 2 is a functional block diagram of a capturing device related to one embodiment of the present invention.

Fig. 3 is a functional block diagram of a capturing part of the capturing device related to one embodiment of the present invention.

Fig. 4 is a diagram for explaining main image and modifications of a background capturing part related to one embodiment of the present invention.

Fig. 5 is a functional block diagram of an image storage part related to one embodiment of the present invention.

Fig. 6 is a diagram for explaining various forms of first image data and second image data related to one embodiment of the present invention.

Fig. 7 is a functional block diagram of a capturing modification part of the capturing device related to one embodiment of the present invention.

Fig. 8 is a functional block diagram of a notification destination acquisition part of the capturing device related to one embodiment of the present invention.

Fig. 9 is a functional block diagram of a transmitting part of the capturing device related to one embodiment of the present invention.

Fig. 10 is a flowchart of processes in the capturing device related to one embodiment of the present invention.

Fig. 11 is a functional block diagram of a server device related to one embodiment of the present invention.

Fig. 12 is a functional block diagram of an image data receiving part of the server device related to one embodiment of the present invention.

Fig. 13 is a functional block diagram of an image storage part of the server device related to one embodiment of the present invention.

Fig. 14 is a functional block diagram of a download data transmitting part of the server device related to one embodiment of the present invention.

Fig. 15 is a functional block diagram of a download part of the server device related to one embodiment of the present invention.

Fig. 16 is a flowchart of processes in the server device related to one embodiment of the present invention.

Fig. 17 is a functional block diagram of a terminal device related to one embodiment of the present invention.

Fig. 18 is a flowchart of processes in the terminal device related to one embodiment of the present invention.

Fig. 19 is a sequence diagram of processes in the image capturing system related to one embodiment of the present invention.

EMBODIMENTS FOR REALZING THE INVENTION

[0011]

Embodiments for realizing the present invention are explained below. Furthermore, the present invention is not limited to the embodiments explained below and can be realized by various modifications.

[0012]

Fig. 1 shows a functional block diagram of an image capturing system related to one embodiment of the present invention. The image capturing system 100 includes a capturing device 101, a server device 102, and a terminal device 103. The capturing device 101 and the server device 102 are connected via a first communication network, and the server device 102 and the terminal device 102 are connected via a second communication network. The first communication network may be a public communication network such as

the Internet or a communication network via a dedicated line. In addition, in order to simplify the capturing device 101, a communication network used for mobile telephones may be used as the first communication network. The second communication network may also be a communication network such as the Internet, which may be the same network as the first communication network. If the terminal device 103 is a mobile telephone, the second communication network may be communication network used for mobile phones, or a communication network which uses a public/private wireless LAN.

[0013]

The capturing device 101 captures an image of a user. In other words, the capturing device 101 takes a photograph of a user. In addition, as explained below, the capturing device 101 can also perform modifications of image data captured by the capturing device 101. For example, the user can write a letter into the photograph, draw a line, add a picture to the photograph, etc. In addition, the capturing device 101 obtains notification destination data from the user and transmits the notification destination data, which is obtained, and the data of the captured image (the data of the photograph taken), which may be modified by the user, to the server device 102. Here, one example of the notification destination data is an e-mail address of the user. The capturing device 101 may also generate an ID with respect to the data of the captured image and transmit this ID with the notification destination data and image data to the server 102. Furthermore, in the case where the capturing device 101 includes a function for printing the image data, the generated ID may be stamped when printing the image data. In this way, image data can be downloaded using the stamped ID in the case where the user has made an error when imputing the notification destination data, or even in the case where an e-mail address, which is one type of the notification destination data as explained above, has changed.

[0014]

The notification destination data represents the notification destination of data for downloading the data of the captured image to the terminal device 103. The notification destination data may be data by which a message is transmitted to the user, who uses the terminal device 103, using a service provided by a communication network such as the internet. For example, an e-mail address of the user, as explained above, may be used as the notification destination data. In addition, a user ID used in an SNS (Social Network System), a user ID used in

a smartphone call application, or a mobile telephone number used in an SMS (Short Message Service) may be used as the notification destination data. It is preferred that the notification destination data is used for what is known as a push delivery of a message to the user by the server 102. That is, by using the notification destination data, a message is transmitted unilaterally from the server 102 to the user. In particular, it is preferred that the user is not required to access the server 102 in order to receive the message, which has been transmitted unilaterally from the server 102 to the user.

[0015]

The server device 102 receives the image data (the data of the captured image), which is transmitted from the capturing device 101, together with the notification destination data and stores the image data in a storage device. At this time, the server 102 may correlate the image data with the notification destination data and may store both in the storage device. In addition, the server device 102 receives a request from the terminal device 103 to download the image data and transmits the image data, which may be stored being correlated with the notification destination data, to the terminal device 103.

[0016]

The terminal device 103 transmits the notification destination data indirectly to the server 102. For example, the terminal device 103 may transmit the notification destination data to the capturing device 101 using a function such as infrared communication and the capturing device 101 transmits the notification destination data to the server 102. In addition, the notification destination data may be displayed in a character format or in a barcode format on the screen of the terminal device 103 and the capturing device 101 may obtain the displayed notification destination data by capturing an image of the notification destination data, which is displayed by the terminal device 103. In addition, the user of the terminal device 103 may input the notification destination data using one or more of a keyboard, a mouse, a touch panel, an electronic pen, etc., which are arranged in the capturing device 101.

[0017]

The terminal device 103 receives the image data stored in the server 102 and stores the image data in its memory. In addition, the terminal device 103 may start up an application if necessary which can modify the image data stored in its memory.

[0018]

The structure and flowchart of processes of the capturing device 101, the server device 102, and the terminal device 103 are explained in detail below.
[0019]

Fig. 2 shows a functional block diagram of the capturing device 101. As is shown in Fig. 2 (A), the capturing device 101 includes a capturing part 201, an image storage part 202, a notification destination data acquisition part 204, and a transmitting part 205. Alternatively, as is shown in Fig. 2 (B), the capturing device 101 may also include an image modification part 204. Furthermore, as explained below, the capturing part 201 and the notification destination data acquisition part 204 may also be configured to share the camera of the capturing part 201.
[0020]

The capturing part 201 captures an image and generates data of the captured image (image data). The image may include an image of the user, who operates or uses the capturing device 101. As a result, the capturing part 201 converts the image entered into an optical system to an image data using a camera, which includes a capturing element such as a CCD element. Furthermore, as explained below, a background section is specified with reference to the image data and in order to be able to separate the part of the user in the image data from the background section, a background color may be selected using a curtain of a specific color for example and the user may be imaged in a position between the curtain and the camera. Furthermore, data of the captured image with the background section removed is referred to below as a main image.
[0021]

Fig. 3 shows an example of a functional block diagram of the capturing part 201. The capturing part 201 includes a camera part 301. The camera part 301 is configured with a camera which includes an optical system and captures elements described above. An image is formed on the capturing elements by the optical system and image data is obtained when the capturing elements by converting the formed image into an electrical signal. In addition, the capturing part 201 may also be arranged with a background specification part 302. The background specification part 302 specifies a background area from the captured image. In this way, it is possible to distinguish a main image which is the part of the image of a person such as the user of the capturing device 101 and the background part of the image. Specifying the background

part is performed by calculating the part having a specific color, which may be the color of a curtain, etc. For example, the background is specified as the part of the image data where a certain color is continuous from the exterior edge towards the interior part of the image data.

[0022]

Fig. 4 shows an example of the processes performed by the background specification part 302. Image data 401 is assumed to be obtained by the camera part 301. At this time, the background specification part 302 specifies the background part 403 of the image data 401. In this way, it is possible to separate the background part 403 from the main image 402. That is, it is possible to separate (1) image data 404 (background image data) of the background part image 405 with the main image part 406 removed and (2) image data 407 (main image) of the main image part 408 with the background part image 409 removed. Furthermore, in Fig. 4, the oblique line section (hatching section) may be a transparent color for example and in the case where another image overlaps a lower layer, the part of the image on the lower layer may be displayed in the oblique line section.

[0023]

The image storage part 202 stores image data obtained by the capturing part 201. For example, the image data is temporarily recorded in a memory element and stored in the image storage part 202. In addition, the image data storage part 202 may provide a work area for processes performed by the image modification part 203 explained next. The image storage part 202 is preferred to store image data in an area in which image data obtained by the capturing part 201 is stored and a different work area for the processes performed by the image modification part 203. Alternatively, it is preferred that image data is stored in an area in which main image data is stored and a different area in which background image data is stored.

[0024]

Fig. 5 shows a functional block diagram of the image storage part 202. The image storage part 202 includes a main image data storage part 501. In addition, the image storage part 202 may also include a background image data storage part 502. The capturing part includes the background specification part 302 in the case where the image storage part 202 includes the background image data storage part 502. In this case, the background specification part 302 specifies the background part of an image with respect to the data of image

captured by the capturing part 201. In this way, it is possible to store the data of the image in an area in which main image is stored and a different area in which background image is stored.

[0025]

Furthermore, the present invention is not limited to an embodiment in which main image is stored in an area and background image is stored in a different area. Fig. 6 shows various forms of image data stored in the image storage part 202. In the first form, captured image is first image data, that is, image data of an image captured by the capturing part 201, and second image data is image data of a modified image.

[0026]

Here, if a modification by using the image modification part 203 explained herein is performed with respect to background image data as shown in the image data 410 in Fig. 4, the image data of a modified image becomes image data 413, which is obtained by synthesizing the image data 410 and image data 407. It is possible to obtain main image by calculating the difference between captured image data and the modified image data. When the main image is obtained, a part of the modification is displayed below the layer of the main image by overlapping and displaying the main image on a layer above the modified image. Therefore the main image is not covered with the modified image and it is easy to see the main image without a disturbance by the modified image.

[0027]

In a second form, the first image data is the main image and the second image data is the modified image. For example, the first image data is the image data 407 and the second image data is the image data 413.

[0028]

In a third form, the first image data is the modified image and the second image data is the modified background image. For example, the first image data is the image data 413 and the second image data is the image data 410. It is possible to obtain the main image data 407 by calculating the difference of the image data 410 from the image data 413.

[0029]

In a fourth form, the first image data is the main image and the second image data is the modified background image. For example, the first image data is the image data 407 and the second image data is the image data 410.

[0030]

Next, the case where the capturing device 101 includes the image modification part 203 is explained. The image modification part 203 applies modifications to the background image data of the background section of the image data, which is captured by the capturing part 201.

[0031]

Modification is performed by displaying image data on a display and using one or more of an electronic pen, a mouse, etc. and/or by detecting the touch of a human finger on a touch panel in the case where the display section is a touch panel, adding lines or graffiti to the background section or selecting or arranging a certain part of the image and applying a stamp etc. It is possible to make it appear that modification has been applied below the main image and touch a human character in the main image as is shown by the arrow in the image data 413 of Fig. 4 by applying modifications to the background section.

[0032]

Furthermore, the imagine device 101 may also be arranged with (1) a first mode whereby a modification is applied to the background section but not applied to the main image as described above, and (2) a second mode whereby it is possible to apply a modification to the background section and also the main image. In this case, it is possible for a user to configure the capturing device 101 so that a user can select a mode. In addition, the user may select a mode in the case where the user wins over the capturing device 101 by a game playing such as a JANKEN (a Japanese play with paper, scissors, and stone by hands) or the capturing device 101 may generate a random number and select a mode in the case where the user loses.

[0033]

Fig. 7 shows a functional block diagram of the image modification part 203. The image modification part 203 includes an operation detection part 701, an image display part 702, and an operation performing part 703. The image display part 702 displays image data obtained by the capturing part 201. For example, the image display part 702 includes a liquid crystal display etc. with control circuits and a control program if necessary. The operation detection part 701 detects an operation with respect to the image data displayed. As explained above, the operation detection part 701 detects an operation by the user using one or more of an electronic pen, a mouse, a touch panel, etc. For example, operations such as drawing of a line, selecting a part of an image,

arranging a part of an image, deleting a part of an image, etc. are detected. The operation performing part 703 adds a modification corresponding to an operation detected by the operation detection part 701 with respect to the image data stored in the image storage part 202. A result of the image data after adding the modification corresponding to an operation by the operation performing part 703 is also displayed on the display part 702.

[0034]

The notification destination data acquisition part 204 acquires notification destination data from the user. This notification destination data is used for notifying the user of the terminal device 103 the fact that the data of the captured image is received by the server device 102, that the user can download the data of the captured image from the server device 102, etc.

[0035]

Fig. 8 shows a functional block diagram of the notification destination data acquisition part 204 in one embodiment of the present invention. The notification destination data acquisition part 204 includes a notification destination data reading part 801 and a notification destination data transmitting part 802. The notification destination data reading part 801 reads and obtains notification destination data. For example, when notification destination data is transmitted from the terminal device 103 using infrared light, etc., the notification destination data is received and notification destination data is decoded. In addition, in the case where the terminal device 103 displays notification destination data on its display, the display may be captured using the camera part 301 of the capturing part 201, characters may be recognized or a barcode may be decoded and the notification destination data is obtained. In addition, notification destination data may be transmitted to the capturing device 101 by the terminal device 103 using a device of Near Field Communication. In addition, in the case where the capturing device 101 is arranged with the image modification part 203, the notification destination data input using one or more of an electronic pen, touch panel, etc. may be read.

[0036]

In addition, barcode data which represents a URL maybe displayed on the display of the capturing device 101. Here, a URL represents an address of a web page for inputting notification destination data (an e-mail address for example). The barcode data displayed on the display of the image device 101 is captured by the camera of the terminal device 103, decoded, the terminal

device 103 accesses a web page represented by the URL, etc. and the notification destination data may be input by operating the terminal device 103.

[0037]

The notification destination data transmitting part 802 transfers the notification destination data read by the notification destination data reading part 801 to the transmitting part 205.

[0038]

The transmitting part 205 transmits the image data, which is captured by the capturing part 201 and stored in the image storage part 202, together with notification destination data, which is transferred from the notification destination data acquisition part 204. Furthermore, the transmitting part 205 may add to the image data captured by the capturing part 201 and transmit image data after a modification by the image modification part 203. In this way, it is possible to obtain main image by calculating a difference. Furthermore, the present invention is not limited to a structure where the transmitting part 205 transmits the image data, which is modified by the image modification part 203, and image data, which is captured by the capturing part 201, to the server 102. For example, by transmitting first image data and second image data in Fig. 6 with notification destination data, it is possible to transmit image data in a form where the image data modified by the image modification part 203 and main image data can be separated.

[0039]

Fig. 10 is an example of a flowchart for explaining the flow of processes of the capturing device 101. In the process in step S1001, the capturing part 201 captures an image and data of the captured image is obtained. In the process in step S1002, the data of the captured image obtained in step S1001 is stored by the image storage part 202. In addition, in the case where the capturing device 101 is arranged with the image modification part 203, the image modification part 203 can modify the data of captured image stored in step S1002. In the process in step S1003, notification destination data is acquired by the notification destination data acquisition part 204. In the process in step S1004, the transmitting part 205 transmits the notification destination data and the data of captured image, which may include the data of modified captured image. Furthermore, the order of steps S1001, step 1002 and step S1003 may be reversed.

[0040]

Furthermore, the capturing device 101 can be realized by operating a program which performs the processes in the flowchart in Fig. 10 in a computer, in which a CPU, a memory, a secondary storage device, a network interface, etc. are mutually connected via a bus. For example, image data obtained by the capturing part 201 is stored in the secondary storage device. In the case where the capturing device is arranged with the image modification part 203, a program for performing the processes of the image modification part 203 is executed by the CPU, and the image is modified with the memory used as a work area. In addition, notification destination data is obtained by communication with the terminal device 103 using the network interface and the notification destination data and the data of captured image are transmitted using the network interface.

[0041]

Of course, the capturing device 101 may be formed by combining only dedicated LSIs, for example. In addition, the capturing device 101 can be formed by combining and engaging a plurality of computers comprised from each of the components described above.

[0042]

Fig. 11 shows an example of a functional block diagram of the server device 102. The server devoice 102 includes an image data receiving part 1101, an image storage part 1102, a download data transmitting part 1103 and a download part 1104.

[0043]

The image data receiving part 1101 receives notification destination data and image data, which are transmitted from the capturing device 101.

[0044]

Fig. 12 shows an example of a functional block diagram of the image data receiving part 1101. The image data receiving part 1101 includes a notification destination data attached image data receiving part 1201, a notification destination data separation part 1202, and an image data separation part 1203.

[0045]

The notification destination data attached image data receiving part 1201 receives notification destination data and image data, which are transmitted from the capturing device 101, and transfers the received notification destination data and image data to the notification destination data separation part 1202 and the image data separation part 1203. For example, the

notification destination data attached image data receiving part 1201 stores the notification destination data and the image data, which are received, in a certain address area in the memory included in the server device 102 and transfers the address to the notification destination data separation part 1202 and the image data separation part 1203.

[0046]

The notification destination data separation part 1202 separates the notification destination data, which is received from the notification destination data attached image data receiving part 1201, from the image data and transfers the notification destination data to the image storage part 1102.

[0047]

The image data separation part 1203 separates the image data, which is received from the notification destination data attached image data receiving part 1201, from the notification destination data and transfers the image data to the image storage part 1102.

[0048]

The image storage part 1102 stores the image data, which is transferred from the image data receiving part 1101, to a storage device or a memory in the server device 102. In addition, in the case where there is request to download the image data from the terminal device 103, a read operation of the image data is also performed in order to obtain the image data, which is stored in the storage device.

[0049]

Fig. 13 shows an example of a functional block diagram of the image storage part 1102. The image storage part 1102 includes a table 1301, a registration part 1302, an image data storage part 1303, and an image acquisition part 1304.

[0050]

The table 1301 is a data structure for storing image data. Although not essential for realizing the present invention, in Fig. 13, the table 1301 is given as an example in the case where it is possible to correlate and store the notification destination data with the first and second image data. For example, a@b.kr as notification destination data and 012345.jpg as a name of file containing the first image data and 678910.jpg as a name of file containing the second image data are stored in one row. In this way, the image data stored in 012345.jpg and image data stored in 678910.jpg are correlated with the notification destination

data a@b.kr.

[0051]

The registration part 1302 registers the image data, which is transferred from the image data receiving part 1101. In addition, download data for downloading registered image data is generated so that the download data can be transmitted to a notification destination, which is represented by notification destination data, which is transferred from the image data receiving part 1101.

[0052]

The download data is data for identifying a file name such as an URL (uniform resource locator) for example. Here, a file name is the name of a file which contains image data. This type of file as stated above is arranged in the image storage part 1102 or within the server device 102 or in a storage device which can be accessed from the server device 102. Because the notification destination data represents a notification destination which can be transmitted using a 'PUSH' delivery as described above, the download data can be unilaterally transmitted without access to the server 103 by a user of the terminal device 103 and the user of the terminal device 103 does not need to perform user registration.

[0053]

The name of a file in which image data is stored may be without modification in the download data or may include notification destination data. The notification destination data may also be encrypted. In this way it is possible to authenticate the terminal device 103 which transmits a download request including the download data.

[0054]

In the case where image data is correlated with notification destination data and stored in the image storage part 1102 as is shown in Fig. 13, if the notification destination data is included in the download data, it is possible to download all of the image data correlated with the notification destination data included in the download data. In this way, a download page which displays a list of image data correlated with the notification destination data is generated in the server device 102 which can be displayed on the terminal device. That is, when the server device 102 receives download data, the notification destination data included in the download data is extracted, a file name of the image data correlated with the notification destination data in the table 1301 is obtained, and is possible to generate a web page which displays a clickable file name or a web

page which displays an image stored in the file indicated by the file name which is obtained. In addition, it is possible to prevent a download of the same images by displaying in this web page whether each image data has been downloaded or not. In addition, in the case where data has been leaked and image data has been downloaded by a third party, it is possible to take appropriate action by being able to detect whether data has been leaked.

[0055]

The image data storage part 1303 stores image data, which is transferred from the image data receiving part 1101, and provides a file name to the data. The registration part 1302 obtains the file name of each image data stored by the image data storage part 1303, correlated with notification destination data and stores in table 1301. In addition, the registration part 1302 obtains a file name, specifies registered image data and generates download data for downloading the image data.

[0056]

When download data is provided, the image acquisition part 1304 judges whether image data specified by the download data exists and if image data exists the image acquisition part 1304 obtains that image data. The obtained image data is transferred to the download part 1104.

[0057]

The download data transmitting part 1103 transmits the download data, which is transferred from the registration part 1302, to a notification destination, which is represented by the notification destination data. By using only notification destination data for transmitting data related to downloading, it is possible to prevent leaks of notification destination data to a third party and leaks of image data.

[0058]

Fig. 14 shows an example of a functional block diagram of the download data transmitting part 1103. The download data transmitting part 1103 includes a download data acquisition part 1401 and a download data notification part 1402. The download data acquisition part 1401 obtains download data for downloading image data to the notification destination, which is represented by the notification destination data, from the registration part 1302 when the registration part 1302 stores image data in the image storage part 1102. The download data notification part 1402 transmits the download data to the notification destination, which is represented by the notification destination data.

[0059]

Fig. 15 shows an example of a functional block diagram of the download part 1104. The download part 1104 includes a download request receiving part 1501, an image data acquisition part 1502, and an acquired image data transmitting part 15033. The download request receiving part 1501 receives a download request which includes download data from a terminal device and the image data acquisition part 1502 obtains the image data. The image data acquisition part 1502 obtains the image data from the image acquisition part 1304, etc. The acquired image data transmitting part 1503 transmits the image data obtained by the image data acquisition part 1502 to the terminal device 103.

[0060]

Fig. 16 is a flowchart for explaining the flow of processes in the server device 102 related to the present embodiment. Fig. 16 (A) shows the flow of processes when the notification destination data and the image data transmitted from the capturing device 101 are received, and Fig. 16 (B) shows the flow of processes when a download request is received from the terminal device 103.

[0061]

In step S1601, the notification destination data attached image data is received by the image data receiving part 1101. In step S1602, notification destination data and image data, which are separated from the notification destination data attached image data are stored in the image storage part 1102. In step S1603, download data is obtained and the download data is transmitted to the notification destination represented by the notification destination data.

[0062]

In the process in step S1604, the download request transmitted from the terminal device 103 is received by the download request receiving part 1501. In the process in step S1605, image data requested by the download request is obtained from the image storage part 1102. In the process in step S1606, the image date is returned to the terminal device 103 by the download part 1104.

[0063]

The server device 102 can be realized by operating a program which performs the processes in the flowchart in Fig. 16 in a computer in which a CPU, a memory, a secondary storage device, a network interface, etc. are mutually connected via a bus. For example, the notification destination data and the image data are received by the network interface, stored in the memory, and separated into notification destination data and image data. Next, the image

data is stored in a database formed in the secondary memory device. In addition, the download data for downloading the image data is obtained and the download data is transmitted by the network interface to the notification destination, which is represented by the notification destination data. When a download request is received by the network interface from the terminal device 103, the image data is obtained and the image data is returned to the terminal device 103 by the network interface.

[0064]

Fig. 17 shows an example of a functional block diagram of the terminal device 103. The terminal device 103 includes a download start part 1701, a download request transmitting part 1702, an image data receiving part 1703 and an image memory 1704. The terminal device 103 can also include a terminal modification part 1705.

[0065]

The download start part 1701 receives the download data and configured to download image data to the terminal device 103. For example, in the case where download data is received by the terminal device 103 as an URL included in an e-mail, the e-mail is displayed and the URL can be clicked. If the URL is clicked, the download request transmitting part 1702 transmits the URL as a download request to the server 102 and the image data receiving part 1703 receives the image data returned from the server device 102. The image memory 1704 receives the image data, which is received from the server device 102.

[0066]

The terminal modification part 1705 modifies in the terminal device 103 side the image data, which is received from the server device 102 and is stored in the image memory 1704, and may also include the same or a part of the function of the image modification part 203 in the capturing device 101. That is, the terminal modification part 1705 may modify image data, which is received from the server device 102. In this case, a white colored or transparent layer may be arranged below the main image and the white colored layer is modified. In this way, it is possible to perform different modifications to those performed in the capturing device 101 in the terminal device 103. That is, it is possible to perform modifications that appear to have been performed on a background.

[0067]

Fig. 18 is an example of a flowchart for explaining the flow of processes

in the terminal device 103. In the process in step S1801, a download command is received from the download start part 1701. The download command can also be obtained when a user clicks a URL, etc. In the process in step S1802, a download request is transmitted form the download request transmitting part 1702. In the process in step S1803, image data is received by the image data receiving part 1703. In step S1804, the image data received in step S1803 is stored in the image memory.

[0068]

The image device 103 can be realized by a personal computer or a mobile terminal. Specifically, in the case where the terminal device 103 is realized by a mobile terminal, the terminal modification part 1705 may be realized by an application which runs in the terminal device 103.

[0069]

Fig. 19 is an example of the sequence of processes in the image capturing system related to one embodiment of the present invention. In step S1901, the notification destination data is transmitted to the capturing device 101 from the terminal device 103. In step S1902, notification destination data and image data are transmitted to the server device 102 from the capturing device 101. In step S1903, the download data is transmitted to the terminal device 103 from the server device 102. In step S1904, a download request is transmitted from the terminal device 103. In step S1905, the image data is transmitted to the terminal device 103 from the server device 102 according to the download data which is transmitted and the image data is downloaded to the terminal device.

EXPLANATION OF THE REFERENCE SYMBOLS

[0070]

100 image capturing system
101 capturing device
102 server device
103 terminal device

What is claimed is:

1. An image capturing system comprising a capturing device and a server device;

the capturing device including:

a capturing part configured to capture an image of a user having a terminal device;

a notification destination data acquisition part configured to obtain notification destination data from the terminal device; and

a transmitting part configured to transmit the notification destination data obtained from the notification destination data acquisition part and data of the captured image to the server device;

the server device including

a receiving part configured to receive the notification destination data and the data of the captured image transmitted from the capturing device;

an image storage part configured to store the data of the captured image received by the receiving part;

a download data transmitting part configured to transmit download data for returning, by the specific server device, the data of the captured image stored in the image storage part to a notification destination indicated by the notification destination data received by the receiving part; and

a download part configured to return the data of the captured image specified by the download data when a download request including the download data is received by the server device.

2. The image capturing system according to claim 1, wherein the notification destination data represents an address to which the server device unilaterally transmits the download data.

3. The image capturing system according to claim 1, wherein the notification destination data is data for transmitting a message to the user having the terminal device via a service provided via the Internet.

4. The image capturing system according to any one of claim 1 to claim 3, wherein the notification destination data is transmitted from the terminal device and received by the server device.

5.The image capturing system according to claim 4, wherein the notification destination data is displayed on a display of the terminal device, the image capturing device receives the notification destination data when the notification destination data displayed on the display is captured by the capturing part.