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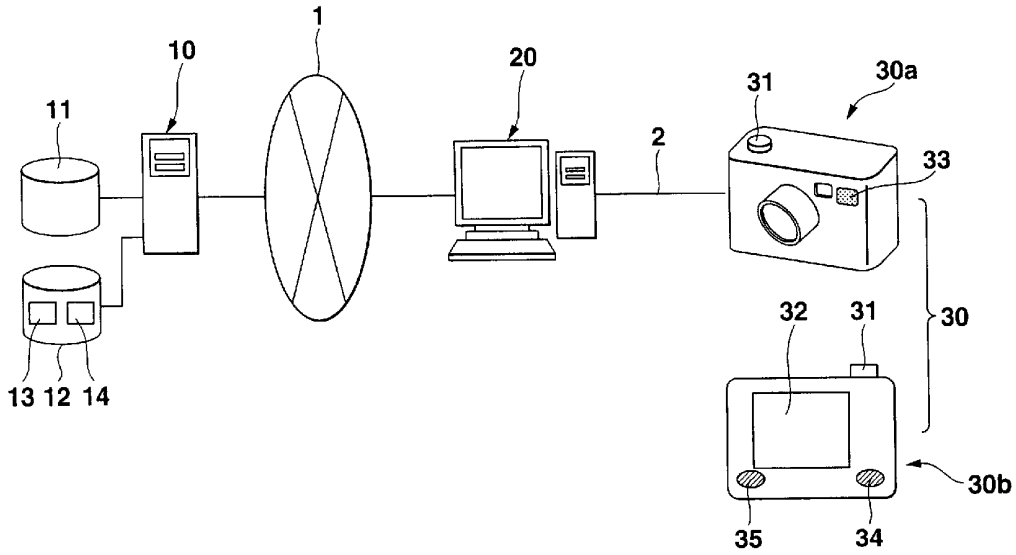
(54) Title: SHOOTING CONDITION PROVIDING APPARATUS, SHOOTING CONDITION SETTING SYSTEM, AND SHOOTING CONDITION PROVIDING METHOD



(57) Abstract: Anyone using a camera device can set proper shooting conditions according to shooting result while imaging the shooting result. A plurality of sample images and shooting condition data such as shutter speed of each sample image or diaphragm value are stored in a data file 12 of an image server 10. A personal computer 20 browses images that the image server 10 has, and download a required image (during downloading, the image server 10 adds shooting condition data to the required image data, and generates a sample transmission image. The personal computer 20 stores the received sample image, transmits the image to the user's camera 30, and records it.). The camera 30 sets the same shooting conditions as those during shooting of the sample image based on the shooting condition data added to the sample image when predetermined key operation is made while the sample image is displayed.

WO 02/21823 A1

D E S C R I P T I O N

SHOOTING CONDITION PROVIDING APPARATUS, SHOOTING CONDITION SETTING SYSTEM, AND SHOOTING CONDITION PROVIDING METHOD

Technical Field

Conventionally, in an electronic still camera, for example, it is general that a variety of shooting conditions at the apparatus side such as shutter speed or collimator value are automatically set by selecting a shooting mode provided in advance.

Background Art

In addition, in recent years, shooting conditions such as shutter speed can be manually set according to an operator's preference, and the contents of the set shooting conditions are preset, whereby the same shooting conditions can be set during next shooting.

However, even if the operator can set the shooting conditions manually according to one's preference, as described above or even if it is possible to reuse the shooting conditions preset in advance, the contents of setting the shooting conditions are numeric values or technical terms, and thus, the result of shooting under the conditions of setting cannot be easily imaged.

Because of this, for a general operator, it is difficult to set shooting conditions for the shooting result that is coincident with an image while the operator images the shooting result, i.e., shot image.

Therefore, there has been a problem that it is impossible to know whether or not the set shooting conditions are coincident with an image until actual shooting has been carried out.

Disclosure of Invention

According to one preferred aspect of the present invention, there is provided a shooting condition providing apparatus (image server 10), comprising: a storage section (data file 12) configured to store images shot by shooting and shooting condition setting information indicating shooting conditions corresponding to the images; and a transmission section (communication section 15) configured to transmit the images and shooting condition setting information stored in the storage section to the camera device.

With such a configuration, in a camera device that is a transmission destination associated with the image and shooting condition setting information, a user can set shooting conditions after reviewing an image produced as a result of shooting.

According to another preferred aspect of the present invention, there is provided a reduction section (reduction section 17) configured to reduce the images stored in the storage section to a predetermined size, and the transmission section transmits the images reduced by the reduction section to the camera device.

With such a configuration, a time required for

image transmission is reduced.

According to another preferred aspect of the present invention, the predetermined size is directed to a size according to image display capacity that a display section of the camera device has.

With such a configuration, a camera device that is a transmission destination associated with image and shooting condition setting information can display received image as it is.

According to another preferred aspect of the present invention, the storage section is provided with reduced images corresponding to the images; and the transmission section transmits the reduced images to the camera device.

With such a configuration, a time required for image transmission is reduced, and a camera device can display the received image as it is.

According to another preferred aspect of the present invention, there are provided an information adding section (information adding section 18) configured to add the shooting condition setting information stored in the storage section to the corresponding images thereto, wherein images obtained when shooting condition setting information is added by this information adding section are transmitted to the camera device by means of the transmission section.

According to another preferred aspect of the

present invention, there are provided: a receiving section (communication section 15) configured to receive specific information for specifying any of a plurality of images stored in the storage section from the camera device; and a control section configured to cause the transmission section to transmit a plurality of images stored in the storage section to the camera device, followed by transmitting to the camera device the shooting condition setting information that corresponds to the images specified according to the specific information received by the receiving section.

With such a configuration, only required shooting conditions can be provided to a camera device user.

According to another preferred aspect of the present invention, there are provided an accounting processing section (server control section 16) configured to carry out accounting processing for a user of the camera device, as the transmission section transmits the shooting condition setting information to the camera device.

With such a configuration, the shooting condition setting information can be provided with charge without forcing the camera device user to make wasteful payment.

According to another preferred aspect of the present invention, the images stored in the storage section include images uploaded by the camera device.

According to another preferred aspect of the

present invention, there are provided a shooting condition receiving terminal (personal computer 20) configured to receive images and shooting condition setting information transmitted from a shooting condition providing unit; and a camera device main body (electronic still camera 30) capable of communicating with the shooting condition receiving terminal, and configured to shoot and record object images, the camera device main body comprising: a terminal side storage section (flash memory 53) configured to store the image and shooting condition setting information received via the shooting condition receiving terminal; a display section (TFT type liquid crystal monitor 32) configured to display the image stored in the terminal side storage section; and a setting section (CPU 42) configured to set shooting conditions during shooting based on the shooting condition setting information stored in the terminal side storage section.

With such a configuration, a variety of data can be easily provided to an image server.

According to another preferred aspect of the present invention, there are provided a shooting condition setting system comprising: a shooting condition providing unit and a camera device, the shooting condition providing unit comprising: a storage section (data file 12) configured to store images shot by shooting and shooting condition setting information

indicating shooting conditions corresponding to the images; and a transmission section (communication section 15) configured to transmit the images and shooting condition setting information stored in the storage section, and wherein the camera device comprises: a receiving section (communication section 19) configured to receive the image and shooting condition setting information transmitted from the shooting condition providing unit; a terminal side (flash memory 53) storage section configured to store the image and shooting condition setting information received by this receiving section; a display section (TFT type liquid crystal monitor 32) configured to display the image stored in the terminal side storage section; and a setting section (CPU 42) configured to set the shooting conditions during shooting based on the shooting condition setting information stored in the terminal side storage section according to a user request.

In such a configuration, the camera device displays the image received from the shooting condition providing apparatus, and sets the shooting conditions in which the shooting result of an image similar to the displayed image can be obtained based on the shooting condition setting information received from the shooting condition providing apparatus.

Therefore, the camera device user can set the

shooting conditions after reviewing an image produced as a result of shooting.

According to another preferred aspect of the present invention, the shooting condition providing unit comprises a reduction section (reduction section 17) configured to reduce the images stored in the storage section to a predetermined size, and the transmission section transmits the image reduced by the reduction section to the camera device.

With such a configuration, a time required for image transmission/receiving is reduced.

According to another preferred aspect of the present invention, the predetermined size is directed to a size according to the image display capacity that a display section of the camera device has.

With such a configuration, the camera device can display the received image as it is.

According to another preferred aspect of the present invention, the shooting condition providing unit is provided with the reduced images corresponding to the images; and the transmission section transmits the reduced image to the camera device.

With such a configuration, a time required for image transmission is reduced, and the camera device can display the received image as it is.

According to another preferred aspect of the present invention, the shooting condition providing

unit comprises an information adding section (information adding section 18) configured to add the shooting condition setting information stored in the storage section to the corresponding image thereto, wherein the images obtained when the shooting condition setting information is added by the information adding section are transmitted to the camera device by means of the transmission section, and the setting section of the camera device sets the shooting conditions shown in the shooting condition setting information added to the received image by means of the receiving section as the shooting conditions during shooting.

According another preferred aspect of the present invention, the shooting condition providing unit comprises: a receiving section (communication section 15) configured to receive specific information for specifying any of a plurality of images stored in the storage section from the camera device; and a control section (server control section 16) configured to cause the transmission section to transmit a plurality of images stored in the storage section to the camera device, followed by transmitting the shooting condition setting information that corresponds to the images specified according to the specific information received by the receiving section, wherein the camera device comprises: a selection section (control section 21) configured to select any of a plurality of images

transmitted from the shooting condition providing apparatus; and a transmission section (communication section 19) configured to transmit specific information for specifying the image selected by the selection section to the shooting condition providing unit.

With such a configuration, the camera device user can acquire only the required shooting conditions.

According to another preferred aspect of the present invention, the shooting condition providing unit comprises an accounting processing section (server control section 16) configured to carry out accounting processing for the camera device user, as the transmission section transmits the shooting condition setting information to the camera device.

With such a configuration, the shooting condition setting information can be provided with charge without forcing the camera device user to make wasteful payment.

According to another preferred aspect of the present invention, the camera device comprises the shooting condition receiving terminal having the receiving section; and a camera device main body capable of communicating with the shooting condition receiving terminal, and configured to shoot and record object images, wherein the camera device main body comprises: a terminal side storage section (flash memory 53) configured to store the image and shooting condition setting information received via the shooting

condition receiving terminal; a display section (TFT type liquid crystal monitor 32) configured to display the image stored in the terminal side storage section; and a setting section (CPU 42) configured to set the shooting conditions during shooting based on the shooting condition setting information stored in the terminal side storage section.

According to another preferred aspect of the present invention, the image stored in the storage section of the shooting condition providing unit includes the images uploaded by the camera device.

With such a configuration, a variety of data can be easily provided to an image server.

According to another preferred aspect of the present invention, there is provided a method of providing shooting condition setting information to a camera device for setting shooting conditions during shooting based on the shooting condition setting information, the method comprises: a preparation process for storing shooting condition setting information indicating images shot by shooting and shooting conditions set during shooting of the images; a selection process for displaying a plurality of stored images for a user of the camera device, and causing the user to select desired images; a readout process for reading out shooting condition setting information stored corresponding to the selected

images; and transmission process for transmitting to the camera device the read out shooting condition setting information and selected images to be associated with each other.

With such a method, the shooting conditions according to the shooting result of one's desired image can be provided to the camera device user, whereas the user can set the shooting conditions after reviewing an image produced as a result of shooting.

Brief Description of Drawings

FIG. 1 is a system configuration diagram showing a first embodiment of the present invention;

FIG. 2 is a block diagram depicting an internal function of an image server;

FIG. 3 is a conceptual view showing a configuration of an image data file;

FIG. 4 is a conceptual view showing a configuration of a set file;

FIG. 5 is a block diagram depicting an internal function of a personal computer;

FIG. 6 is a block diagram depicting an electronic still camera;

FIG. 7 is a block diagram depicting an internal function of a CPU 42;

FIG. 8 is a conceptual view showing a data recording region of a flash memory;

FIG. 9 is a flow chart showing an operation of a

personal computer and an image server;

FIG. 10 is a view showing an example of an image ordering screen;

FIG. 11 is a conceptual view showing a configuration of sample image data;

FIG. 12 is a flow chart showing an operation of an electronic still camera;

FIG. 13 is a system configuration diagram showing a second embodiment of the present invention;

FIG. 14 is a conceptual view showing a configuration of an image data file according to the second embodiment of the present invention;

FIG. 15 is a flow chart showing an operation of a personal computer and an image server according to the second embodiment of the present invention;

FIG. 16 is a conceptual view showing a configuration of sample image data according to the second embodiment of the present invention;

FIG. 17 is a flow chart showing an operation in an image recording mode of an electronic still camera according to a third embodiment of the present invention;

FIG. 18 is a schematic view showing a configuration of image file data stored in an image recording mode by the electronic still camera according to the third embodiment of the present invention;

FIG. 19 is a flow chart showing an operation

concerning data transfer between an electronic still camera and a personal computer according to the third embodiment of the present invention; and

FIG. 20 is a flow chart showing an operation concerning uploading of an image file from a personal computer to an image server according to the third embodiment of the present invention.

Best Mode for Carrying Out of the Invention

Hereinafter, one embodiment of the present invention will be described with reference to the accompanying drawings.

(First Embodiment)

FIG. 1 is a configuration diagram of a shooting condition setting system according to a first embodiment of the present invention. This system comprises: an image server 10 connected via an existing network 1 such as public line network or Internet; a general-purpose personal computer 20; and an electronic still camera 30 interconnected to the personal computer 20 via a cable 2 (for example, predetermined link cable or UBS cable).

The image server 10 is a shooting condition providing apparatus of the present invention. This server comprises: a program file 11 and a data file 12 having a communication function, a file transfer function and the like in accordance with predetermined protocols and storing programs for achieving functions;

a server control section 16 for controlling the apparatus based on the programs, as shown in FIG. 2; and a communication section 15 enabling communication with another device via the network 1. The server control section 16 comprises a reduction section 17 for reducing an image according to device type; and an information adding section 18 for adding shooting condition data to image data.

The data file 12 is a storage section in the image server 10. This data file is actually a predetermined storage region of a storage section such as hard disk, and is composed of an image data file 13 shown in FIG. 3 and a set file 14 shown in FIG. 4.

The image data file 13, as shown in FIG. 3, is composed of: a device type name data 13a for specifying an electronic still camera (for example, device type name consisting of alphanumeric letters or the like); image data 13b of a plurality of images shot in advance by using the electronic still camera; and shooting condition data 13c indicating the conditions of setting the shooting conditions set in the electronic still camera during shooting of each of these images. The image data 13b may be general image data compressed in accordance with a JPEG scheme or the like or may be image data available for use in a specific electronic still camera.

More specifically, the shooting condition data 13c

are shooting condition setting parameters in the electronic still camera. The setting parameters are, for example, shown below although these parameters differ depending on electronic still camera type. That is, a variety of setting parameters include: whether or not to use auto focus function; focus length (such as ∞ or macro); shutter speed; collimator value; EV shift value caused by exposure control function; type of exposure control function (usually, scene at night); light measuring scheme (such as center emphasized or multiple); type of light source defined as a reference using auto white balance function (such as solar light or fluorescent light); type of color emphasized by color adjustment function; whether or not to carry out sharpness processing caused by image quality adjustment function; and degree of sharpness if such processing is carried out.

In addition, the set file 14, as shown in FIG. 4, is composed of device type name data 14a for specifying an electronic still camera and transmission image size data 14b indicating an image size suitable to image display capacity in electronic still camera of each type. The image size suitable to image display capacity in the electronic still camera of each type denotes an image size (resolution) that each electronic still camera can display in its state. The image size may be a maximum image size (for example,

800 × 600 pixels), may be a preview image size whose size is smaller than the maximum size (for example, 800 × 600 pixels), or may be thumb nail image size (for example, 320 × 240 pixels) whose size is further smaller than the preview size.

The personal computer 20 comprises a shooting condition receiving terminal of the present invention. As shown in FIG. 5, this personal computer includes: a communication section 19 such as modem for carrying out communication or file downloading in accordance with predetermined protocols between the control section 2 for carrying out control of the personal computer 20 and the image server 10; and a storage section 22 such as hard disk. The storage section 22 stores a communication program or predetermined link programs for exchanging image data or the like with the electronic still camera 30. The personal computer 20 that is a shooting condition receiving terminal may be installed at a place other than at home, for example, at a convenience store or at any other shop where the electronic still camera 30 is commercially available for sale.

The electronic still camera 30 is a camera device main body that configures a camera device of the present invention together with the personal computer 20. In FIG. 1, reference numeral 30a is a diagonal front view, and reference numeral 30b is a rear view.

Reference numeral 31 denotes a shutter key; reference numeral 32 denotes a TFT type liquid crystal monitor; reference numeral 33 denotes a strobe; reference numeral 34 denotes a mode switch key used for variety of operating modes; and reference numeral 35 denotes "+" and "-" keys used for a variety of setting operations.

FIG. 6 is a schematic block diagram depicting an electrical configuration of an electronic still camera 30. The electronic still camera 30 primarily comprises an image processing section 42c having an image processing function for converting the image shot by a CCD 41 that is a charged coupled device into encode data based on predetermined standards such as JPEG; and a CPU 42 having a control section 42a for controlling the CPU 42 and a RAM 42b that functions as a working memory. FIG. 7 is a functional block diagram depicting the inside of the CPU 42.

On the light receiving face of the CCD 41, an optical image of an object is formed through a fixed lens 43, a focus lens 44, and a collimator 45. The focus lens 44 is held on a drive mechanism 46 composed of an AF motor or the like, and a drive signal outputted by an AF driver 47 based on a control signal from the CPU 42 is supplied to the drive mechanism 46, thereby moving the drive mechanism forward and backward on an optic axis. The collimator 45 is driven by means

of a drive signal generated by a drive section 48 based on the control signal from the CPU 42, and adjusts the light quantity of an object image incident to the CCD 41.

In addition, a TG (Timing Generator) 49 for generating a timing signal is connected to the CPU 42, and a CCD drive section 50 (vertical direction driver) drives the CCD 41 based on the timing signal generated by the TG 49. Concurrently, an analog image shooting signal according to the luminance of an object image is outputted by means of the CCD 41, and the outputted signal is delivered to a unit section 51. The unit section 51 comprises: a CDS for holding an image shooting signal outputted from the CCD 41; a gain control amplifier (AGC) that is an analog amplifier to which the shooting signal is supplied from the CDS; and an A/D converter (AD) for converting the image shooting signal amplified and controlled by the gain control amplifier into image data. An output signal of the CCD 41 is sampled by adjusting a black level, and the sampled digital signal is delivered to the CPU 42. The delivered digital signal (image shooting signal) is temporarily stored in a DRAM 52, and a variety of image processing operations are applied to the signal by means of the CPU 42. Finally, an image file consisting of compressed video image signal is stored in a removable flash memory (FLASH) 53.

The flash memory 53 is a terminal side storage section of the present invention. As shown in FIG. 8, in the flash memory 53, a shot image recording region 53a for recording compressed image data after shot from the CCD 41 together with shooting operation and a sample image recording region 53b having recorded therein sample image data 140 described later are allocated.

Further, to the CPU 42, there are connected a ROM 54, a power circuit 55, an operating key section 56 including a variety of switches shown in FIG. 1; the TFT liquid crystal monitor 32; the strobe 33; and a communication interface 57. The ROM 54 is a program ROM having an operating program of the CPU 42 recorded therein. The ROM 54 stores various data such as program AE data configuring a program diagram that shows a combination between the collimator value (F) and shutter speed that correspond to proper exposure value (EV) during image shooting. The CPU 42 functions as a setting section of the present invention by operating the built-in RAM 42b as a working memory in accordance with the operating program. In addition, the CPU 42 provides gain settings or the like such as charge accumulation time of CCD 41 in accordance with the program diagram; degree of opening of the collimator 45; or gain control amplifier (AGC) gain settings of the unit section 51. The charge

accumulation time set by the CPU 42 is supplied as a shutter pulse to the CCD drive section 50 via the TG 49. In accordance with the setting, the CCD drive section 50 drives the CCD 41, whereby the charge accumulation time, i.e., exposure time (shutter speed) is controlled. In addition, the operating program stored in the ROM 54 includes a program concerning auto focus control, and the CPU 42 drives the focus lens 46, and carries out focusing based on such program.

The program data or the like stored in the ROM 54 may be fixedly provided if the contents of recording can be held or may be recorded in another recording medium such as removably mountable IC card. The program data or the like may be supplied from another device such as personal computer.

The TFT liquid crystal monitor 32 displays serially shot images in an image recording mode as a through image, and displays a video image in a reproduction mode based on an analog video signal generated from image data recorded in the flash memory 53. The strobe 33 is driven as required during shooting operation when the shutter key 31 is pressed, and emits auxiliary light. The communication interface 57 has a connector to which the cable 2 is connected, and the CPU 42 makes data communication with the personal computer 20 via the communication interface 57.

Now, an operation of each device when a user of an

electronic still camera 30 sets the shooting conditions of the electronic still camera 30 by using data shot from an image server 10 via a personal computer 20 will be described in accordance with a flow chart shown in FIG. 9 and FIG. 12. Here, a case in which the network 1 is Internet will be described.

<Operation of Personal Computer and Image Server>

That is, as shown in FIG. 9, when a personal computer 20 provides an access to an image server 10 (such as a download site of image data) with the user operation (step SA1), the image server 10 requests a camera type name (step SB1). The personal computer 20 prompts the user to enter a device type name, and transmits the entered device type name to the image server 10 (step SA2). Although the user inputted device type name data is transmitted to the image server 10, for example, at the step SB1, the image server 10 transmits all device type name data 14a registered in the previously described set file 14 to the personal computer 20, and the personal computer 20 displays the screen such as device type name list, and causes the user to select any device type name so that the selected device type name data may be transmitted to the image server 10.

Then, the image server 10 reads a plurality of image data 13b stored in advance in an image data file 13 (step SB2), these items of data are transmitted to

the personal computer 20 (step SB3). In addition, at this time, a plurality of image data transmitted by the image server 10 to the personal computer 20 may be reduced image data 13b because the device type name is identified. A small data capacity will suffice, and thus, a short transfer time and a small receiving memory space will suffice. For example, this reduced image data is effective in the case where the capacity of a memory such as electronic still camera 30 having a communication function is limited. The personal computer 20 displays on the screen an image based on each item of received image data 13b (step SA3). At this time, on the screen, for example, as shown in FIG. 10, a predetermined image order screen 100 having displayed thereon an input box 100a for a selected image, an order button 100b, and a cancel button 100c is displayed together with a plurality of images A to L based on each item of the received image data 13b. When the user select one or plural images, and clicks the order button 100b (YES at step SA4), the personal computer 20 transmits to the image server 10 specific information such as image number or data name specifying the selected images, and requests the image (step SA5). In the case where the user clicks the cancel button 100c instead of the order button 100b, processing for returning to the step SA2 or the like is carried out.

Next, the image server 10 carries out processing for reducing the image size to an image size that corresponds to the specified device type name stored in a set file 14 and shot at the step SB1 (step SB4). Further, the shooting condition data 13c stored in advance in the image data file 13 added corresponding to the image data is added to image data 13b after processing, and sample image data 140 that is transmission image data of the present invention, the data comprising image data 130b after reduced and shooting condition data 13c, is generated as shown in FIG. 11 (step SB5). In FIG. 11, although the sample image data 140 is conceptually shown, in the case where the sample image data 140 is defined as an image file in a JPEG scheme, for example, the image data 130b (encode data) after reduced is stored in an image data region of the image file, and the shooting condition data 13c is stored in a region in which a predetermined user can use freely. Next, immediately after one or plural items of generated sample image data 140 has been transmitted to the personal computer 20 (step SB6), predetermined accounting processing is carried out for the user of the personal computer 20 (step SB7).

The personal computer 20 receives the sample image data 140 from the image server 10, and stores the data in a hard disk (step SA6). Then, the user initiates previously described link program, and carries out a

predetermined transmission operation, whereby the sample image data 140 stored in the hard disk is transmitted to the electronic still camera 30 (step SA7). In this manner, one or plural items of sample image data 140 downloaded from the image server 10 is recorded in the sample image recording region 53b allocated in a flash memory 53 of the electronic still camera 30 in accordance with the previously described procedure.

<Operation of Electronic Still Camera>

Now, an operation of an electronic still camera 30 in which, after sample image data 140 has received from a personal computer 20, and the received sample image data 140 is recorded in a flash memory 53, will be described with reference to FIG. 12.

The figure is a flow chart showing an example of operation when a shooting condition setting mode is selected based on a sample image provided in advance in an electronic still camera 30, where, when the set mode is selected, the electronic still camera 30 displays on a TFT liquid crystal monitor 32 a sample image recorded in a sample image recording region 53b of a flash memory 53 (step SC1). In addition, at this time, in the case where a plurality of sample images are recorded in the flash memory 53, the plurality of sample images are serially reproduced in predetermined order (or in reverse order) according to the user

operation of the "+" and "-" keys 35, and are displayed on the TFT liquid crystal monitor 32.

When the user instructs shooting condition setting by key operation while such any sample image is displayed (YES at the step SC2), the shooting condition data 13c added to sample image data (sample image data 140) displayed at this time is read out (step SC3). Then, a variety of shooting conditions indicated by the read out shooting condition data 13c are set (step SC4), processing goes to a REC (record) mode that is a shooting standby state, and a through image is displayed on the TFT liquid crystal monitor 32 (step SC5). Thereafter, when a shutter key 31 is pressed (YES at the step SC6), an image is captured from a CCD 41, and the captured image is compressed. In addition, the compressed, shot image data is recorded in a shot image recording region 53a of the flash memory 53, and shooting is completed (step SC7).

In this manner, the user of the electronic still camera 30, i.e., the operator can set the same shooting conditions as that during shooting of sample image at the electronic still camera 30 while reviewing an image from the sample image shot by the electronic still camera of same device type. Therefore, according to the present embodiment, anyone using the electronic still camera 30 can set acquired shooting conditions according to the shooting result while imaging the

result.

Although the present embodiment has described a case in which sample image data 140 with charge (realistically, shooting condition data 13c) is downloaded from the image server 10, in the case where the image data is downloaded with free, when the user selects an image to be downloaded (step SA3 in FIG. 6), the contents of the shooting condition data 13c may be displayed at the same time together with image. In addition, even if the downloading is carried out with charge, as in the present embodiment, the shooting condition data 13c can be provided with charge without forcing the user to make wasteful payment by browsing an image that can be downloaded with free.

In addition, although the present embodiment has described a case in which the image server 10 generates sample image data 140 comprising the previously described image data 130b after reduced and the shooting condition data 13c, the original image data 13b before reduced and shooting condition data 13c that are stored in the image data file 13 may be provided to be associated with each other. In that case, both of the data may be recorded in the flash memory 53 of the electronic still camera 30 while the mutual correlation can be checked.

In addition, in the system according to the present embodiment, a sample image displayed on the TFT

liquid crystal monitor 32, as described by referring to FIG. 9, is reduced in advance according to the display capacity of the electronic still camera 30 (TFT liquid crystal monitor 32) at the image server 10 side when the sample image is downloaded. Thus, there is no need to generate a sample image according to the display capacity of the TFT liquid crystal monitor 32 of the electronic still camera 30 in advance by means of the personal computer 20 or electronic still camera 30 in which data processing cannot be expected as compared with the image server 10, which is convenient. At the same time, a required time when a sample image is downloaded from the image server 10 is reduced, and communication cost required for downloading is reduced.

In addition, although the present embodiment presents a case in which the personal computer 20 is used as a shooting condition receiving terminal according to the present invention, another communication terminal device can be used as a shooting condition receiving terminal as long as connection to the image server 10 is enabled via a network 1, and image data communication with the electronic still camera 30 is enabled. In that case, such another communication terminal device may not always have a display section for displaying an image transmitted from the image server 10. In addition, communication of image data or the like between such a communication

terminal device and the electronic still camera 30 may be communication by means of red infrared rays or wireless communication without being limited to cable 2. Further, in the case where both of the communication terminal device and electronic still camera 30 each have a configuration such that the same removable recording media can be used, there may be provided a configuration such that sample image data 140 or the like is exchanged via such recording media.

In addition, when the previously described electronic still camera 30 is uniquely configured to be connectable to the image server 10 via the network 1, for example, and is configured to have a transmission section or a receiving section for transmitting/receiving data to/from the image server 10, advantageous effect similar to that according to the present embodiment can be provided without using a communication terminal device such as personal computer 20.

(Second Embodiment)

Now, a second embodiment of the present invention will be described here. FIG. 13 is a configuration diagram of a shooting condition setting system according to a second embodiment of the present invention. This system comprises: an image server 10 connected to via an existing network 1 such as public line network or Internet; a general-purpose personal

computer 20; and an electronic still camera 30 interconnected to the personal computer 20 via a cable 2 (for example, predetermined link cable or UBS cable), as in the first embodiment. Hereinafter, like elements similar to those according to the first embodiment are designated by like reference numerals. A duplicate description is omitted here. Primarily, the elements different from those according to the first embodiment will be described in detail.

That is, according to the present embodiment, the data file 12 (storage section) that the previously described image server 10 has comprises a configuration described later, and a program different from that according to the first embodiment is stored in the program file 11. The data file 12 that the image server 10 according to the present embodiment has comprises an image data file 23 shown in FIG. 14 and a set file 14 already described by referring to FIG. 4. The image data file 23 comprises device type name data 23a for specifying an electronic still camera (for example, device type name consisting of alphanumeric or the like); image data 23b on a plurality of images shot in advance by using the electronic still camera; shooting condition data 23c indicating the contends of setting the shooting conditions set in the electronic still camera during shooting of each of these images; and a reduction image data 23d. The reduction image

data 23d is image data 23b and reduction images of the stored image. In the present embodiment, the reduction image data denotes thumb nail image data of 320 × 240 pixels in size, for example.

Here, the image data 23b and reduction image data 23d may be general image data compressed in the JPEG scheme or the like or may be image data available for use in a specific electronic still camera only. Further, in the case where image data 23b is an image file in the JPEG scheme, the reduction image data 23d may be stored as additional data of the image data 23b in the same image file. The contents of the shooting condition data 23c are similar to those according to the first embodiment.

<Operation of Personal Computer and Image Server>

Now, an operation between a personal computer 20 and an image server 10 when the user of the electronic still camera 30 acquires data for setting the shooting conditions of the electronic still camera 30 from the image server 10 via the personal computer 20, will be described in accordance with a flow chart shown in FIG. 15.

That is, when the personal computer 20 provides an access to the image server 10 (such as download site of image data) with the user operation (step SD1), the image server 10 requests a camera device type name (step SE1). The personal computer 20 prompts the user

to enter a device type name, and transmits the entered device type name data to the image server 10 (step SD2). Here, although it is assumed that the user entered device type name data is transmitted to the image server 10, for example, at the step SE1, the image server 10 transmits all device type name data 14a registered in the previously described set file 14 to the personal computer 20, the personal computer 20 displays a device type name list or the like on the screen, and causes the user to select any device type name so that the selected device type name data may be transmitted to the image server 10.

Then, the image server 10 reads out a plurality of image data 23b stored in advance in the image data file 23 based on the transmitted device type name data (step SE2), and transmits them to the personal computer 20 (step SE3).

In addition, at this time, a plurality of image data transmitted by the image server 10 to the personal computer 20 may be reduction image data 23d because the device type name is identified. A small data capacity will suffice, and thus, a short transfer time and a small receiving memory space will suffice. For example, this reduction image data is effective in the case where the capacity of a memory such as electronic still camera 30 having a communication function, for example, is limited. The personal computer 20 displays on the

screen an image based on each of the received images 23b (step SD3). At this time, on the screen, as in the first embodiment, for example, a predetermined image order screen 100 as shown in FIG. 10 is displayed. When the user selects one or plural images, and an order button 100b is clicked (YES at the step SD4), the personal computer 20 transmits to the image server 10 specific information such as image number or data name for specifying the selected image, and requests the image (step SD5). In the case where a cancel button 100c is clicked instead of an order button 100b, processing for returning to the step SD2 or the like is carried out.

Next, the image server 10 selects reduction image data 23d (thumb nail image data) stored in advance the image data file 23, the reduction image data corresponding to image data 23b in one of plural required images 23b (step SE4). Further, the corresponding shooting condition data 23c thereto is added to the reduction image data 23d, and sample image data 150 that is transmission image data of the present invention, comprising reduction image data 23d and shooting condition data 23c, is generated as shown in FIG. 15 (step SE5).

When reduction image data 23d is selected (searched) at the step SE4), in the case where image data 23b is an image file in the JPEG scheme, and

reduction image data 23d is stored as additional data of the image data 23b in the same image file, as described previously, processing for extracting only the reduction image data 23d from the corresponding image file is carried out. In addition, in FIG. 16, although sample image data 150 is conceptually shown, in the case where the sample image data 150 is an image file in the JPEG scheme, for example, the reduction image data 23d (encode data) and the shooting condition data 23c are stored in a region other than this image data storage region that a predetermined user can use freely.

Then, one or plural items of generated sample image data 150 is transmitted to the personal computer 20 (step SE6), and then, predetermined accounting processing is carried out for the user of the personal computer 20 at this time (step SE7). Thereafter, the personal computer 20 receives the sample image data 150 from the image server 10, and stores the data in a hard disk (step SD6). Then, the user initiates the previously described link program, and carried out predetermined transmission operation, whereby the sample image data 150 stored in the hard disk is transmitted to the electronic still camera 30 (step SD7). In this manner, one or plural items of sample image data 150 downloaded from the image server in the previously described procedures are recorded in a

sample image recording region 53b allocated in the flash memory 53 of the electronic still camera 30.

Therefore, in the present embodiment as well, advantageous effect similar to that according to the previously described first embodiment can be provided. In addition, the previously electronic still camera 30 is configured so as to be connectable to the image server 10 via the network 1 uniquely, for example, i.e., is configured to have a transmission section or a receiving section for transmitting/receiving data to/from the image server 10, whereby advantageous effect similar to that according to the present embodiment can be provided without using a communication terminal device such as personal computer 20. The present embodiment is similar to the first embodiment in another respect, for example, in that a communication terminal device other than the personal computer 20 may be a shooting condition receiving terminal of the present invention.

(Third Embodiment)

Now, a third embodiment of the present embodiment will be described here. According to the present embodiment, in the system described in the second embodiment, programs for causing each device to carry out operations described below are recorded in a program file 11 of an image server 10, a storage section 22 of a personal computer 20, and a ROM 54 of

an electronic still camera 30, respectively.

<Operation of Electronic Still Camera>

FIG. 17 is a flow chart showing an image recording mode operation in an electronic still camera 30. When an image recording mode is set, the electronic still camera 30 enters a shooting standby state in which a through image is displayed on a TFT liquid crystal monitor 32 (step SF1). When a shutter key 31 is pressed (YES at the step SF2), an image is captured from a CCD 41 (step SF3), and the captured image is compressed and a reduction image of the shot image is produced (step SF4), and the reduction image data 23d (data on thumb nail image of 320 × 240 pixels in size, for example, in the present embodiment) and the shooting condition data 23c comprising shooting condition setting parameters (such as shutter speed or diaphragm value) during shooting are added to the compressed image data 23b, as shown in FIG. 18. Then, the added data is recorded as an image file 160 in a predetermined format scheme, for example, the JPEG scheme in the shooting image recording region 53a of the flash memory 53 (step SF5), whereby one shooting operation is completed.

<Operation of Electronic Still Camera and Personal Computer>

FIG. 19 is a flow chart showing an operation concerning data transfer between an electronic still

camera 30 and a personal computer 20 when the user of an electronic still camera 30 uploads an image file 160 recorded in the previously described image recording mode on an image server 10 via the personal computer 20.

That is, when the user connects the electronic still camera 30 and personal computer 20 to each other via a predetermined link cable, and a transfer mode is set to the electronic still camera 30 (YES at the step SH1), the electronic still camera 30 delivers a communication establishment command signal to the personal computer 20 (step SG2). When the personal computer 20 receives the above signal (YES at the step SH1), the computer initiates link software, delivers a communication establishment response signal to the electronic still camera 30, and enters a data receiving standby state (step SH2).

When the electronic still camera 30 receives the communication establishment response signal (YES at the step SG3), the camera transfers all the image files 160 stored in a shooting image recording region 53a of a flash memory 53 to the personal computer (step SG4). After transfer of all the image files 160 has been completed (YES at the step SG5), a transfer completion notification signal is delivered at that time (step SG6), and operation in the transfer mode is terminated. In this duration, the personal computer 20 receives the image files 160 from the electronic still camera 30,

and stores the received image files 160 in order in a hard disk (step SH3). When the transfer completion notification signal has been received (step SH4), data receiving standby state caused by the link software is terminated immediately.

<Operation of Personal Computer and Image Server>

FIG. 20 is a flow chart sowing an operation between a personal computer 20 and an image server 10 when an image file 160 transferred to a personal computer 20 is uploaded on an image server 10 in accordance with the previously described procedures.

That is, when the personal computer 20 provides an access to the image server 10 (such as download site of image data) with the user operation (step SI1), the image server 10 requests a camera device type name (step SJ1). Concurrently, the personal computer 20 prompts the user to enter a device type name, and transmits the entered device type name data to the image server 10 (step SI2). Then, the image server 10 temporarily stores the transmitted device type name data (step SJ2), and transmits data displayed on an upload acceptance screen to the personal computer 20 (step SJ3).

The personal computer 20 displays a predetermined upload acceptance screen based on the received data (step SI3), and causes the user to select an image file 160 to be uploaded from such screen (step SI4). At

this time, selection operation is made by listing on the screen a reduction image (thumb nail image) contained in the image file 160 stored in a predetermined place in a hard disk by a transfer operation described by referring to FIG. 19, for example, and causing the user to select one or plural, or alternatively, all images by predetermined key operation in the screen. Then, when the user makes transmission operation after selection operation (YES at the step SI5), one or plural selected image files 160 are transmitted to the image server 10 (step SI6). This transmission is continued until transmission of all the selected files has been completed (NO at the step SI7). Upload operation is terminated at a time when transmission of all the files has been completed (YES at the step SI7).

In addition, at the image server 10, image files 160 delivered from the personal computer 20 are sequentially received (step SJ4), and each item of data configuring the received image file 160, i.e., image data 23b, reduction image data 23d, and shooting condition data 23c are associated with device type name acquired at the step SJ2, and associated data is stored in an image data file 23 shown in FIG. 14 (step SJ5). Then, at a time when receiving processing of all the image files delivered from the personal computer 20 has been completed (YES at the step SJ6), one upload

acceptance operation is terminated.

Therefore, in the present embodiment, as described in the first and second embodiments, anyone using the electronic still camera 30 can set proper shooting conditions according to the shooting result while imaging the shooting result. In addition, when the own shot image and the shooting conditions set in the electronic still camera 30 when the image is shot are stored in the image server 10, the own shot image data or the like can be used by another person. Images can be exchanged between a plurality of persons. As a result, a manager of image data download site or the like can easily provide a variety of data to the image server 10.

Although the present embodiment describes a case in which, in uploading the image file 160 shown in FIG. 20, the image server 10 requires the personal computer 20 (accessing person) to enter a camera device type name, and an accessing person makes input operation for the device type name, for example, in the case where the electronic still camera 30 has a function for adding its own device type name data to the image file 160 during shooting, it causes the image server 10 to automatically judge the camera device type name from the received image file 160. In addition, although a description has been given with respect to a case in which the electronic still camera 30 records

image data 23b of an image shot in an image recording mode as an image file 160, and the reduction image data 23d and shooting condition data 23c are added to the image data 23b, in the case where the electronic still camera 30 is configured to additionally store each item of data 23b, 23c, and 23d during shooting, these items of data 23b, 23c, and 23d may be transferred and uploaded in batch during transfer described in FIG. 19 and during upload described in FIG. 20.

With respect to upload of the image file 160 or the like described above, the electronic still camera 30 is configured so as to be connectable to the image server 10 via the network 1 uniquely, for example, i.e., is configured to gave a transmission section and a receiving section for transmitting/receiving data to/from the image server 10, only the electronic still camera 30 can upload the image file without using a communication terminal device such as personal computer 20.

C L A I M S

1. A shooting condition providing apparatus comprising:

a storage section configured to store images shot by shooting and shooting condition setting information indicating shooting conditions corresponding to the images; and

a transmission section configured to transmit the images and shooting condition setting information stored in the storage section to the camera device.

2. A shooting condition providing apparatus according to claim 1, wherein there is provided a reduction section configured to reduce the images stored in the storage section to a predetermined size, and the transmission section transmits the images reduced by the reduction section to the camera device.

3. A shooting condition providing apparatus according to claim 2, wherein the predetermined size is directed to a size according to image display capacity that a display section of the camera device has.

4. A shooting condition providing apparatus according to claim 1, wherein the storage section is provided with reduced images corresponding to the images; and

the transmission section transmits the reduced images to the camera device.

5. A shooting condition providing apparatus

according to claim 1, comprising an information adding section configured to add the shooting condition setting information stored in the storage section to the corresponding images thereto, wherein images obtained when shooting condition setting information is added by this information adding section are transmitted to the camera device by means of the transmission section.

6. A shooting condition providing apparatus according to claim 1, the apparatus comprising:

a receiving section configured to receive specific information for specifying any of a plurality of images stored in the storage section from the camera device; and

a control section configured to cause the transmission section to transmit a plurality of images stored in the storage section to the camera device, followed by transmitting to the camera device the shooting condition setting information that corresponds to the images specified according to the specific information received by the receiving section.

7. A shooting condition providing apparatus according to claim 1, comprising an accounting processing section configured to carry out accounting processing for a user of the camera device, as the transmission section transmits the shooting condition setting information to the camera device.

8. A shooting condition providing apparatus according to claim 1, wherein the images stored in the storage section include images uploaded by the camera device.

9. A camera apparatus, comprising:

a shooting condition receiving terminal configured to receive images and shooting condition setting information transmitted from a shooting condition providing unit; and a camera device main body capable of communicating with the shooting condition receiving terminal, and configured to shoot and record object images, the camera device main body comprising:

a terminal side storage section configured to store the image and shooting condition setting information received via the shooting condition receiving terminal;

a display section configured to display the image stored in the terminal side storage section; and

a setting section configured to set shooting conditions during shooting based on the shooting condition setting information stored in the terminal side storage section.

10. A shooting condition setting system comprising: a shooting condition providing unit and a camera device, the shooting condition providing unit comprising:

storage section configured to store images shot by

shooting and shooting condition setting information indicating shooting conditions corresponding to the images; and

a transmission section configured to transmit the images and shooting condition setting information stored in the storage section, and wherein the camera device comprises:

a receiving section configured to receive the image and shooting condition setting information transmitted from the shooting condition providing unit;

a terminal side storage section configured to store the image and shooting condition setting information received by this receiving section;

a display section configured to display the image stored in the terminal side storage section; and

a setting section configured to set the shooting conditions during shooting based on the shooting condition setting information stored in the terminal side storage section according to a user request.

11. A shooting condition setting system according to claim 10, wherein the shooting condition providing unit comprises a reduction section configured to reduce the images stored in the storage section to a predetermined size, and the transmission section transmits the images reduced by the reduction section to the camera device.

12. A shooting condition setting system according

to claim 11, wherein the predetermined size is directed to a size according to the image display capacity that a display section of the camera device has.

13. A shooting condition setting system according to claim 10, wherein the shooting condition providing unit is provided with the reduced images corresponding to the images; and

the transmission section transmits the reduced images to the camera device.

14. A shooting condition setting system according to claim 10, wherein the shooting condition providing unit comprises an information adding section configured to add the shooting condition setting information stored in the storage section to the corresponding images thereto, and the images obtained when the shooting condition setting information is added by the information adding section are transmitted to the camera device by means of the transmission section, and the setting section of the camera device sets the shooting conditions shown in the shooting condition setting information added to the received images by means of the receiving section as the shooting conditions during shooting.

15. A shooting condition setting system according to claim 10, wherein the shooting condition providing unit comprises:

a receiving section configured to receive specific

information for specifying any of a plurality of images stored in the storage section from the camera device; and

a control section configured to cause the transmission section to transmit a plurality of images stored in the storage section to the camera device, followed by transmitting the shooting condition setting information that corresponds to the images specified according to the specific information received by the receiving section, and the camera device comprises:

a selection section configured to select any of a plurality of images transmitted from the shooting condition providing apparatus; and

a transmission section configured to transmit specific information for specifying the image selected by the selection section to the shooting condition providing unit.

16. A shooting condition setting system according to claim 10, wherein the shooting condition providing unit comprises an accounting processing section configured to carry out accounting processing for a user of the camera device, as the transmission section transmits the shooting condition setting information to the camera device.

17. A shooting condition setting system according to claim 10, wherein the camera device comprises: the shooting condition receiving terminal having the

receiving section; and a camera device main body communicable with the shooting condition receiving terminal, and configured to shoot and record object images, the camera device main body comprising: a terminal side storage section configured to store the image and shooting condition setting information received via the shooting condition receiving terminal; a display section configured to display the image stored in the terminal side storage section; and a setting section configured to set the shooting conditions during shooting based on the shooting condition setting information stored in the terminal side storage section.

18. A shooting condition setting system according to claim 10, wherein the image stored in the storage section of the shooting condition providing unit includes the images uploaded by the camera device.

19. A method of providing shooting condition setting information to a camera device for setting shooting conditions during shooting based on the shooting condition setting information, the method comprising:

a preparation process for storing shooting condition setting information indicating images shot by shooting and shooting conditions corresponding to the images;

a selection process for displaying a plurality of

stored images for a user of the camera device, and causing the user to select desired images;

a readout process for reading out shooting condition setting information stored corresponding to the selected images; and

a transmission process for transmitting to the camera device the read out shooting condition setting information and selected images to be associated with each other.

FIG.1

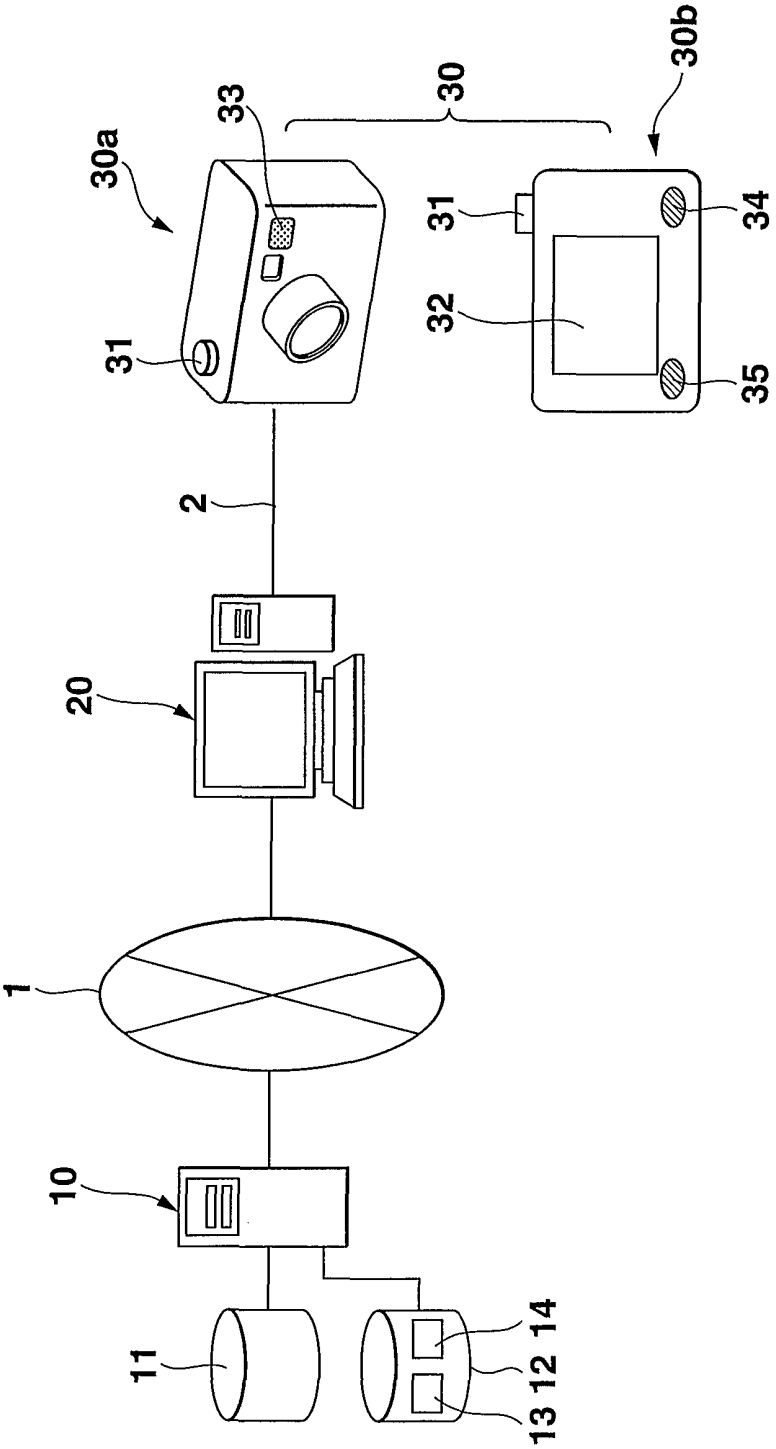


FIG.2

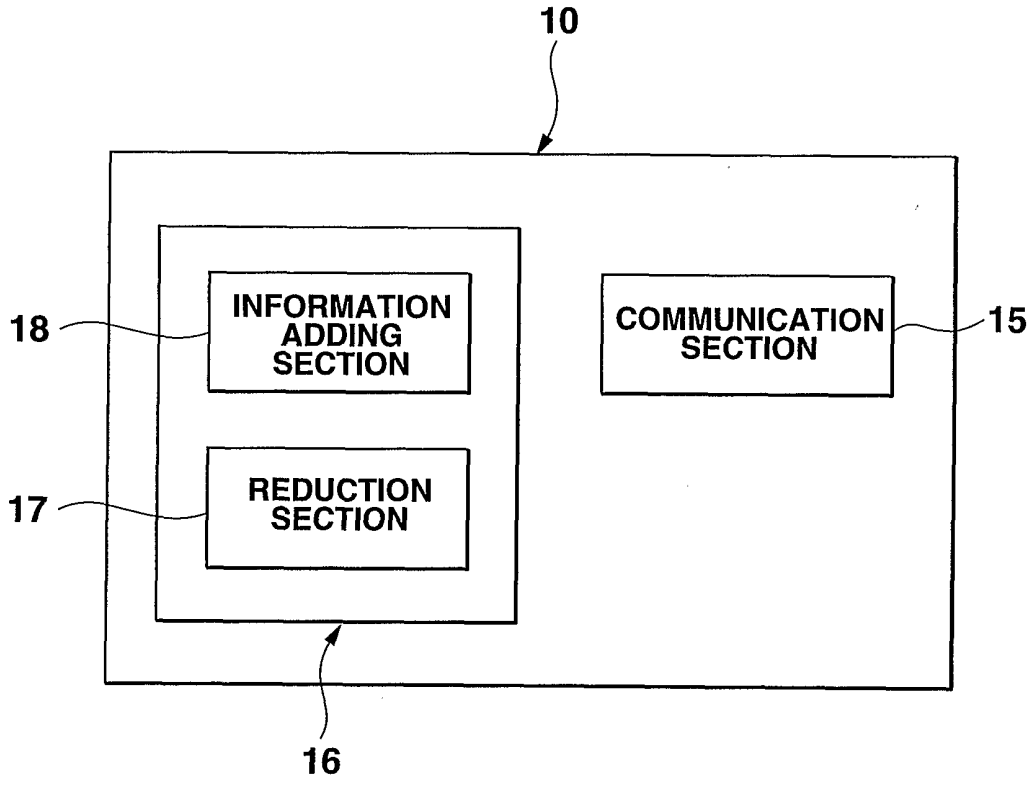

10
18
INFORMATION ADDING SECTION
17
REDUCTION SECTION
COMMUNICATION SECTION
15
16

FIG.3

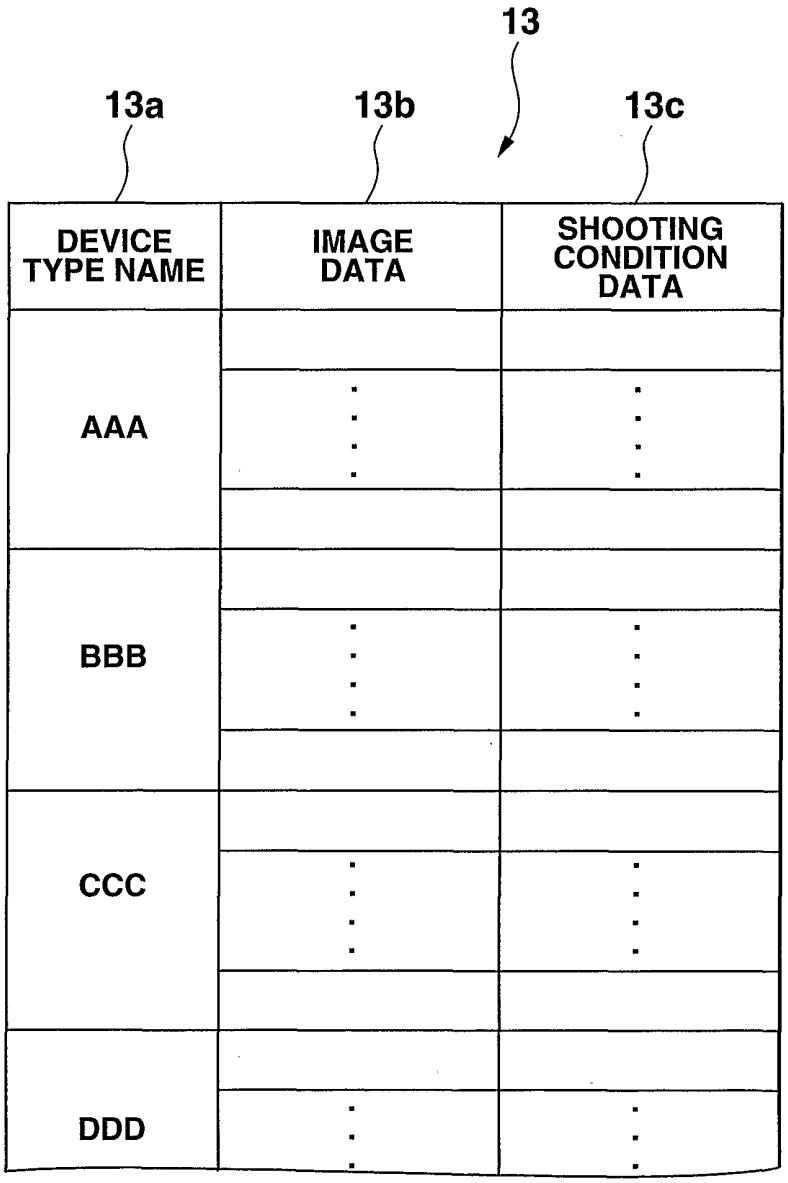

13
13a
13b
13c
DEVICE TYPE NAME
IMAGE DATA
SHOOTING CONDITION DATA
AAA
BBB
CCC
DDD

FIG.4

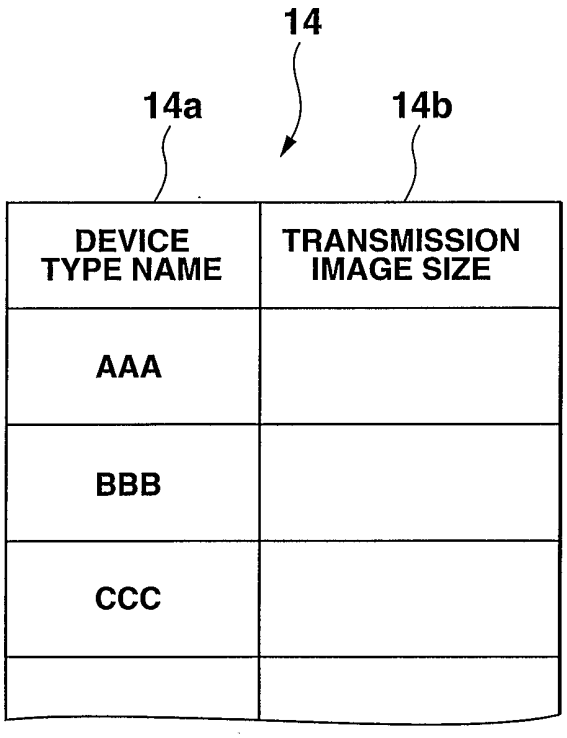

14
14a
14b
DEVICE TYPE NAME
TRANSMISSION IMAGE SIZE
AAA
BBB
CCC

FIG.5

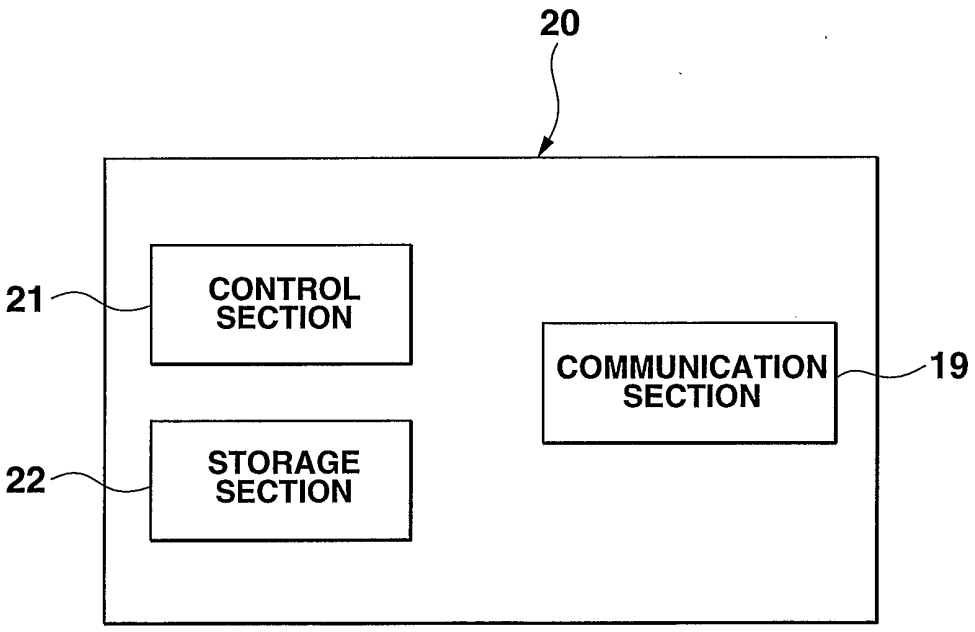

20
21
CONTROL SECTION
22
STORAGE SECTION
COMMUNICATION SECTION
19

FIG.6

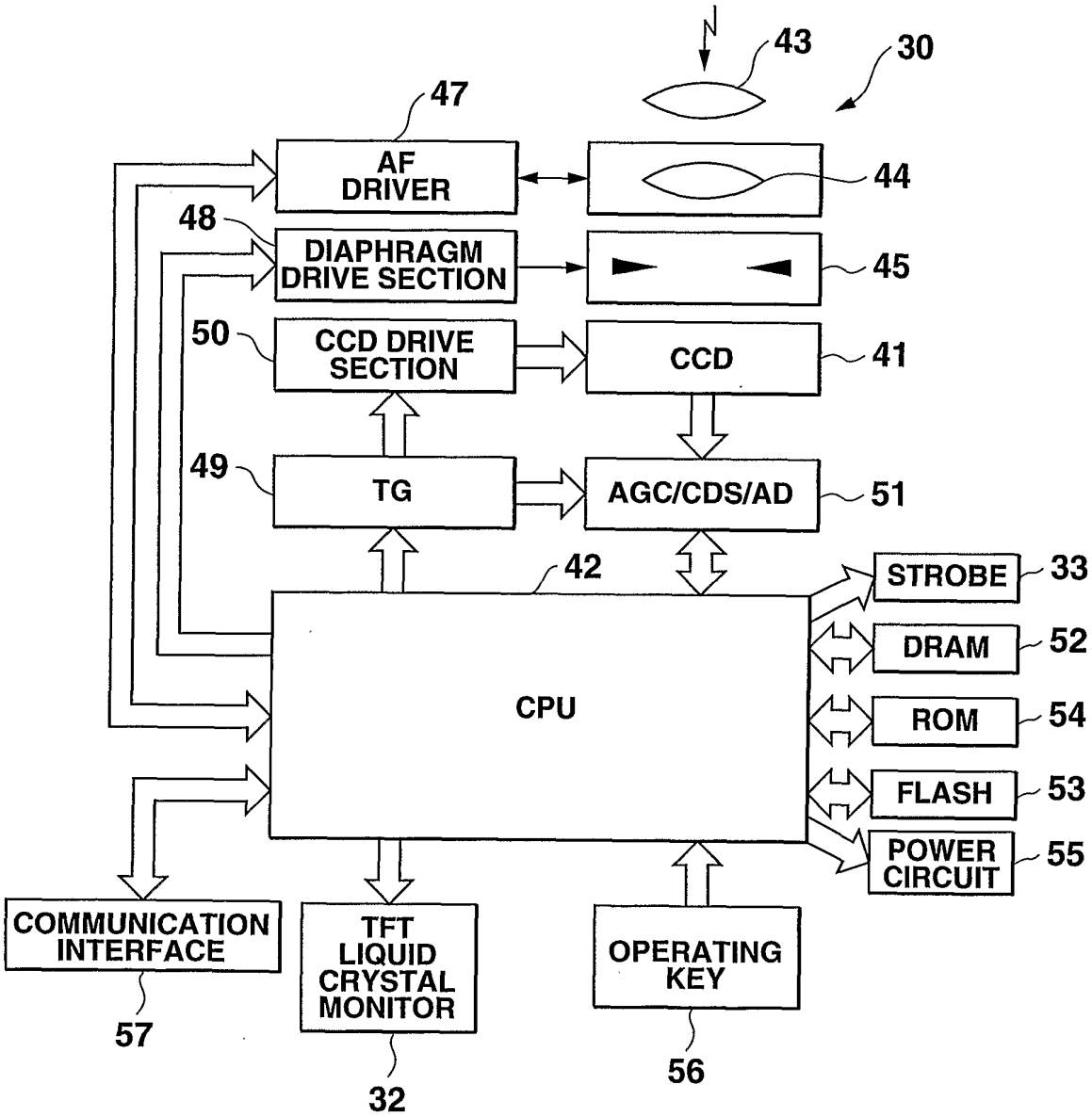

43
30
47
AF DRIVER
44
48
DIAPHRAGM DRIVE SECTION
45
50
CCD DRIVE SECTION
CCD
41
49
TG
AGC/CDS/AD
51
42
STROBE
33
DRAM
52
CPU
ROM
54
FLASH
53
POWER CIRCUIT
55
COMMUNICATION INTERFACE
57
TFT LIQUID CRYSTAL MONITOR
32
OPERATING KEY
56

FIG.7

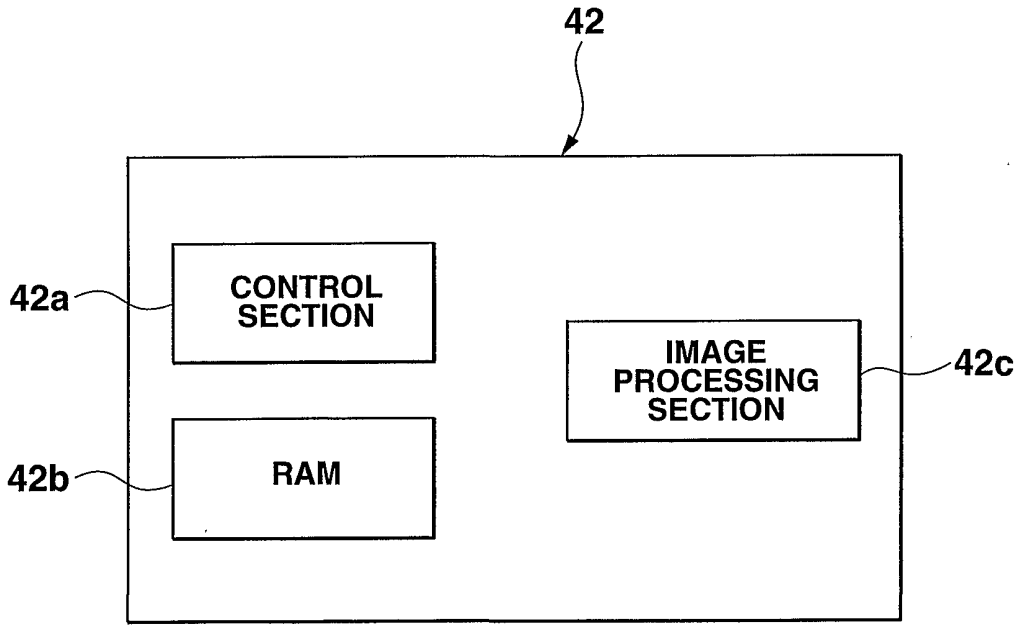

42
42a
CONTROL SECTION
42b
RAM
IMAGE PROCESSING SECTION
42c

FIG.8

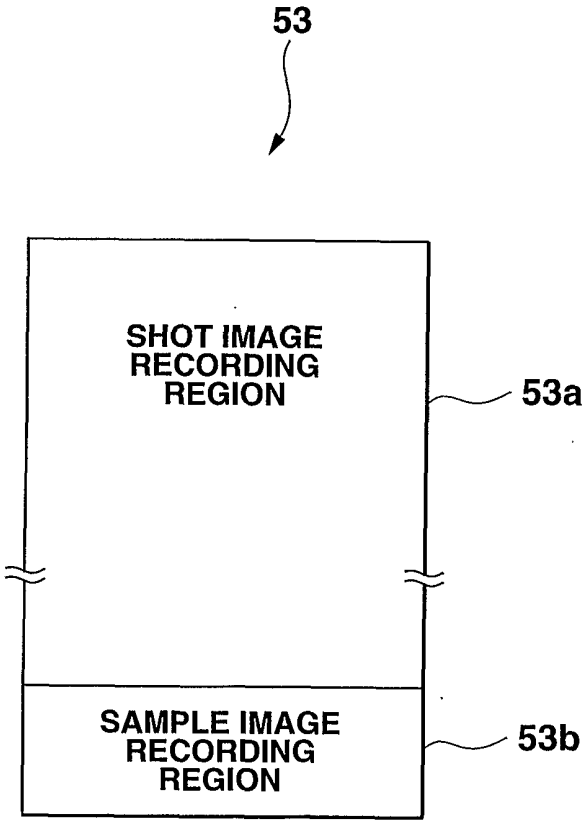

53
SHOT IMAGE RECORDING REGION
53a
SAMPLE IMAGE RECORDING REGION
53b

FIG.9

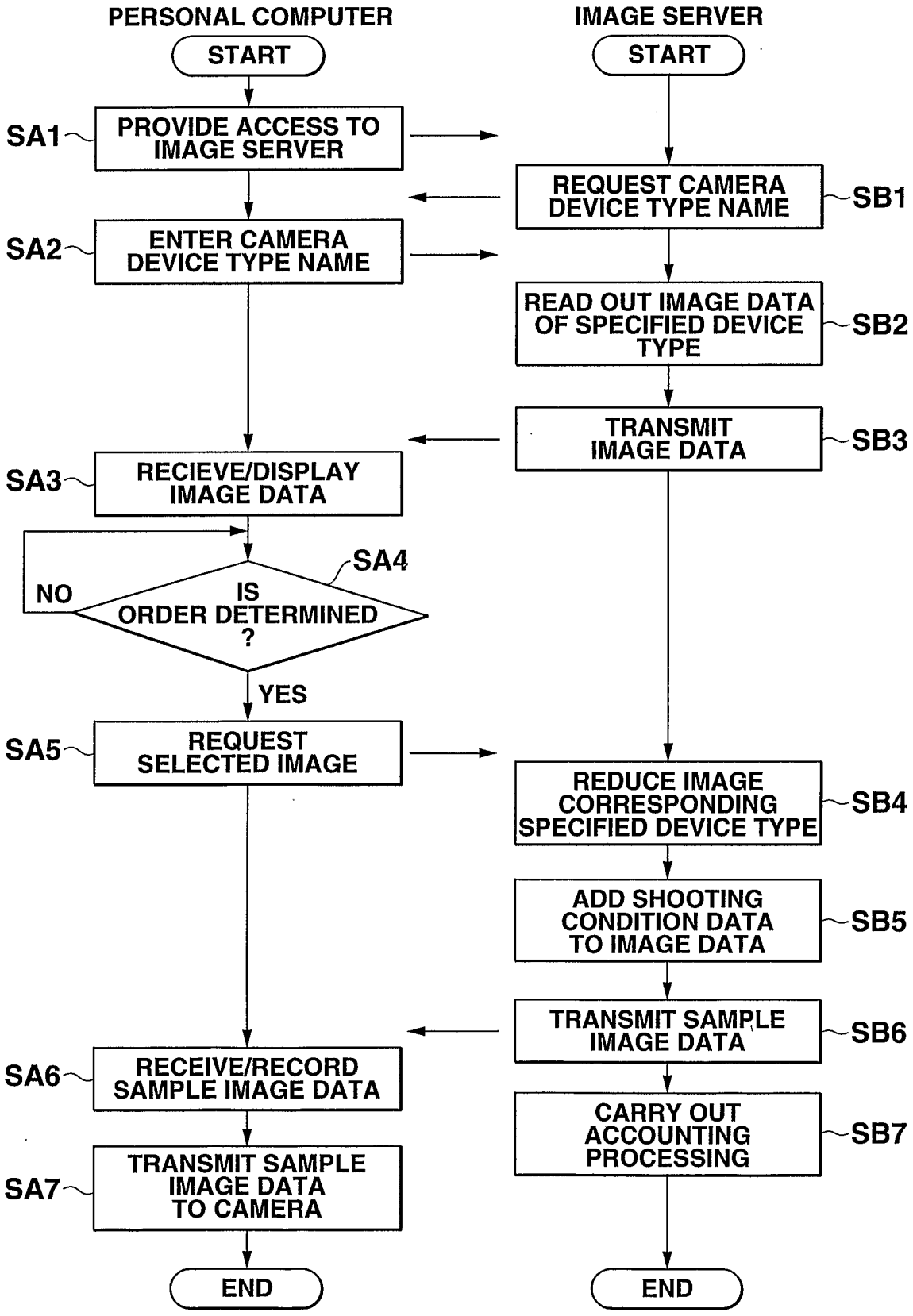

PERSONAL COMPUTER
IMAGE SERVER
START
START
SA1
PROVIDE ACCESS TO IMAGE SERVER
REQUEST CAMERA DEVICE TYPE NAME
SB1
SA2
ENTER CAMERA DEVICE TYPE NAME
READ OUT IMAGE DATA OF SPECIFIED DEVICE TYPE
SB2
TRANSMIT IMAGE DATA
SB3
SA3
RECIEVE/DISPLAY IMAGE DATA
SA4
NO
IS ORDER DETERMINED ?
YES
SA5
REQUEST SELECTED IMAGE
REDUCE IMAGE CORRESPONDING SPECIFIED DEVICE TYPE
SB4
ADD SHOOTING CONDITION DATA TO IMAGE DATA
SB5
TRANSMIT SAMPLE IMAGE DATA
SB6
SA6
RECEIVE/RECORD SAMPLE IMAGE DATA
CARRY OUT ACCOUNTING PROCESSING
SB7
SA7
TRANSMIT SAMPLE IMAGE DATA TO CAMERA
END
END

FIG.10

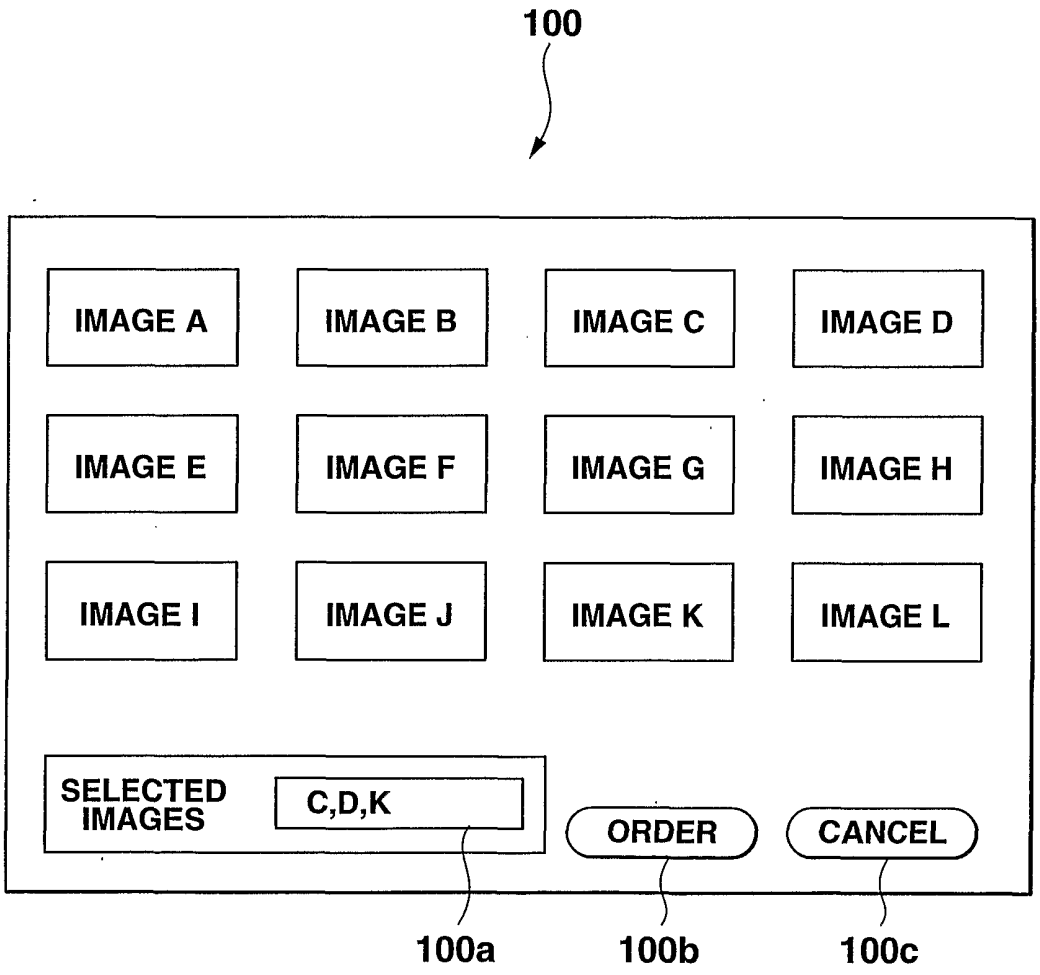

100
IMAGE A
IMAGE B
IMAGE C
IMAGE D
IMAGE E
IMAGE F
IMAGE G
IMAGE H
IMAGE I
IMAGE J
IMAGE K
IMAGE L
SELECTED IMAGES
C,D,K
ORDER
CANCEL
100a
100b
100c

FIG.11

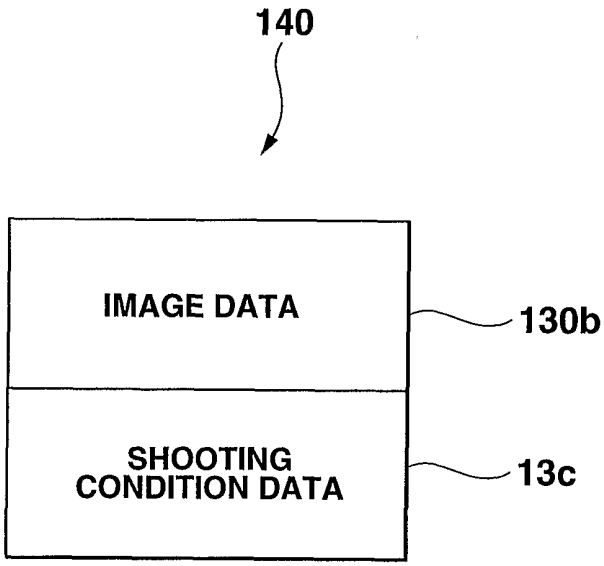


FIG.12

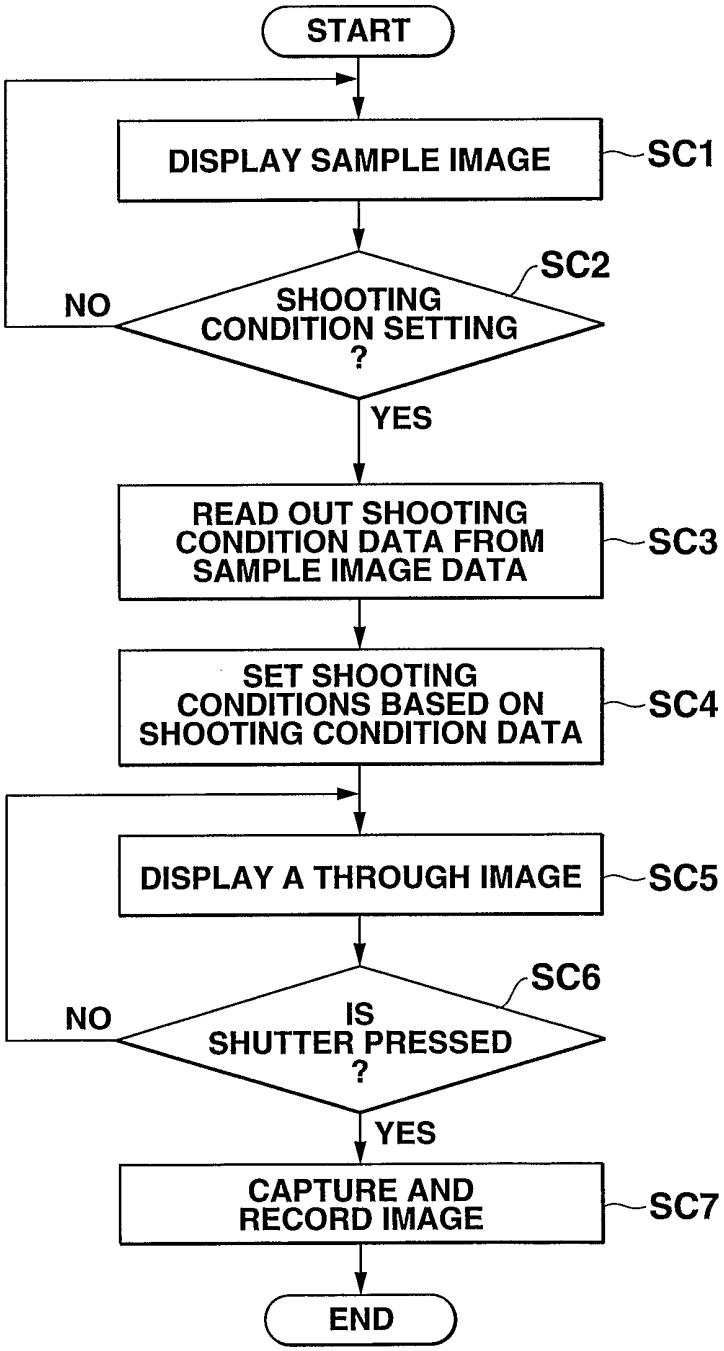

START
DISPLAY SAMPLE IMAGE
SC1
SC2
NO
SHOOTING CONDITION SETTING ?
YES
READ OUT SHOOTING CONDITION DATA FROM SAMPLE IMAGE DATA
SC3
SET SHOOTING CONDITIONS BASED ON SHOOTING CONDITION DATA
SC4
DISPLAY A THROUGH IMAGE
SC5
SC6
NO
IS SHUTTER PRESSED ?
YES
CAPTURE AND RECORD IMAGE
SC7
END

FIG.13

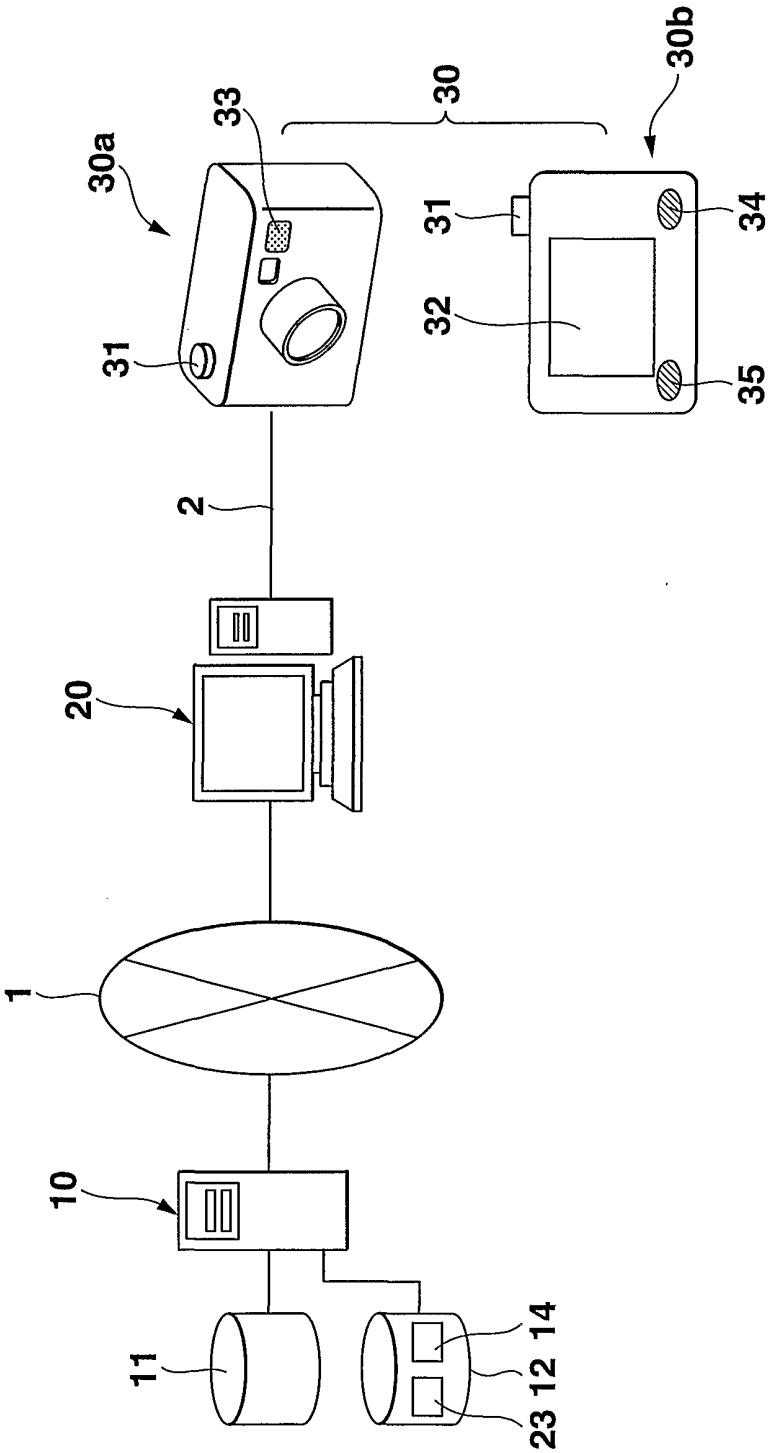


FIG.14

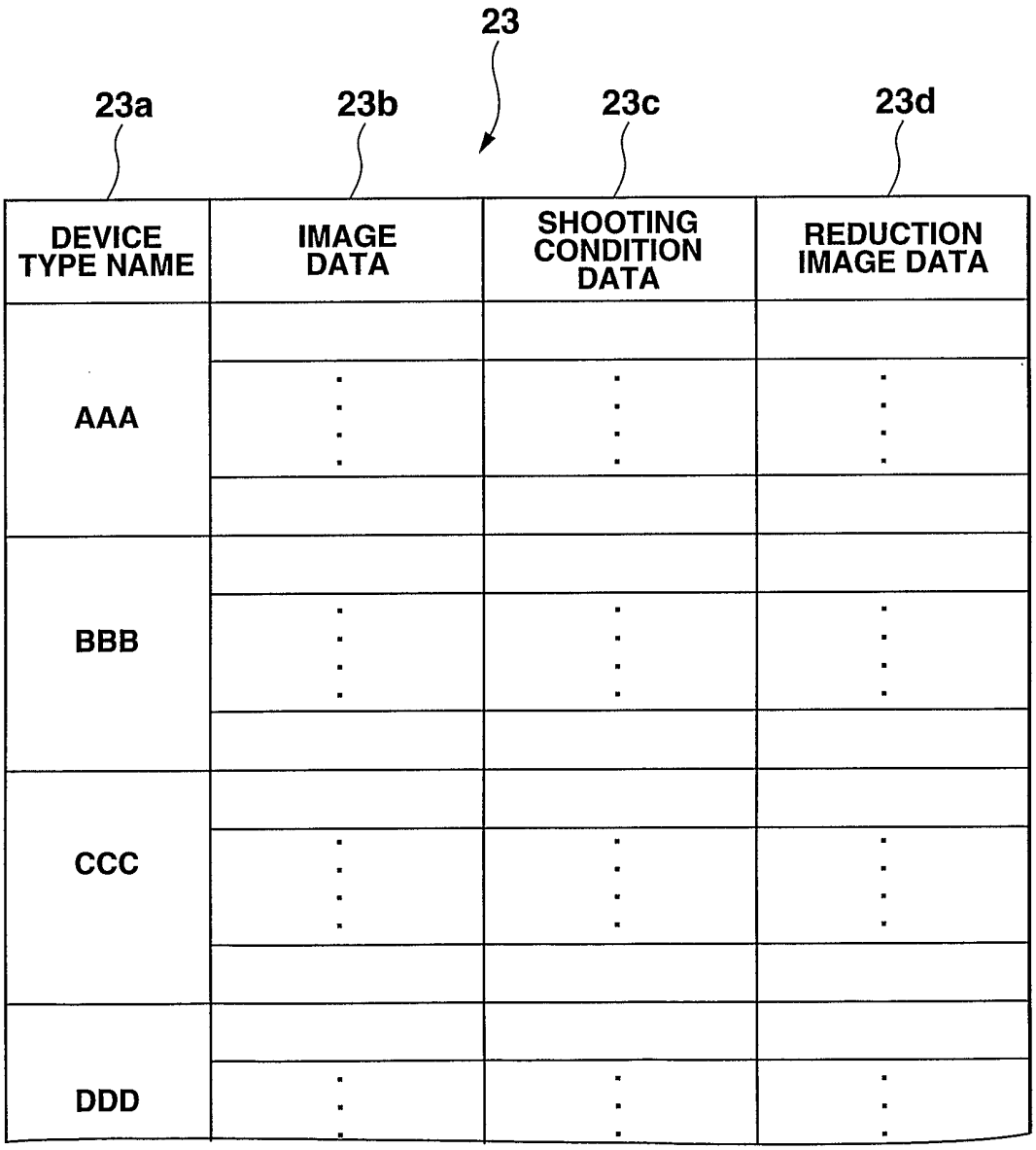

23
23a
23b
23c
23d
DEVICE TYPE NAME
IMAGE DATA
SHOOTING CONDITION DATA
REDUCTION IMAGE DATA
AAA
BBB
CCC
DDD

FIG.15

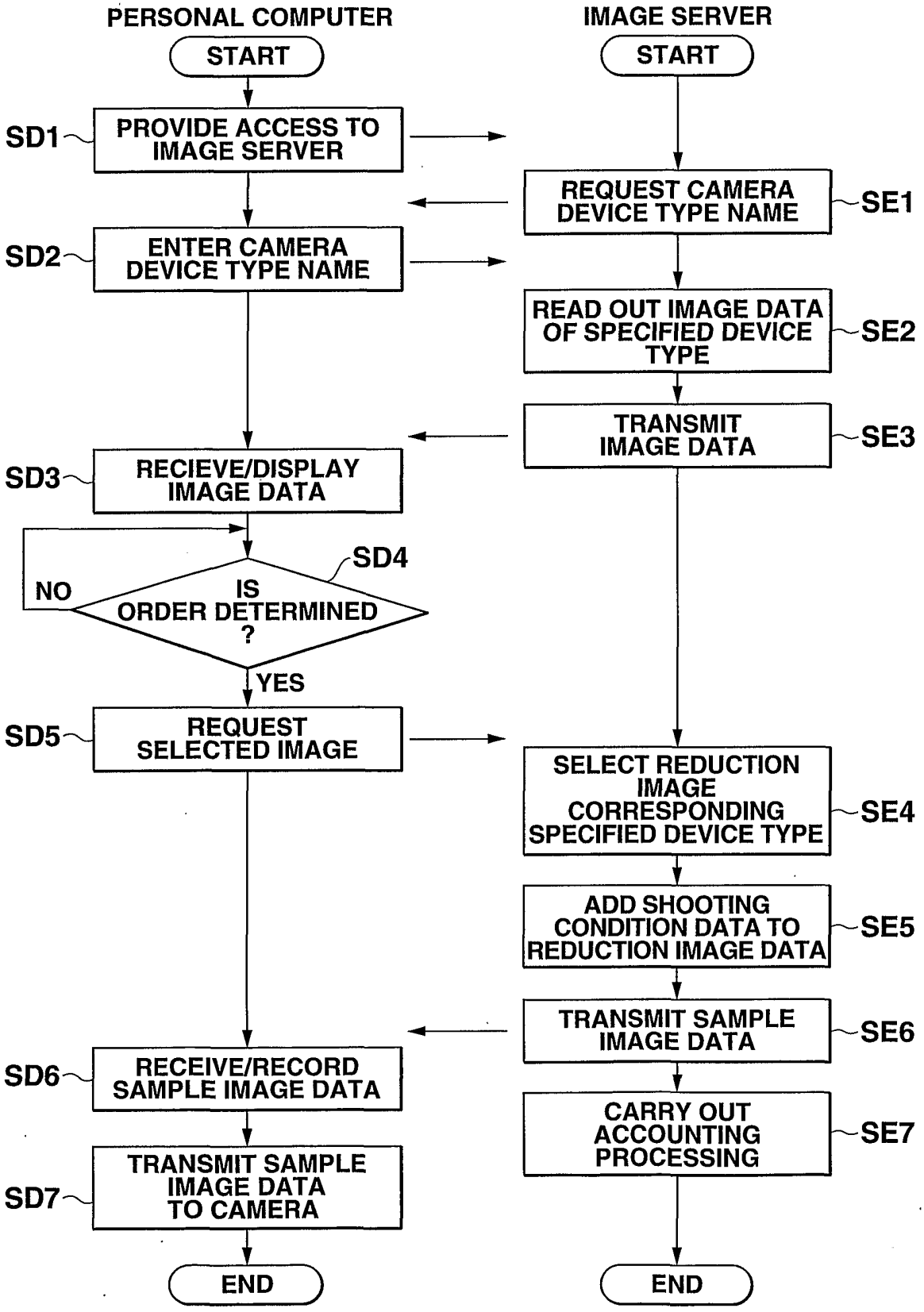

PERSONAL COMPUTER
IMAGE SERVER
START
START
SD1
PROVIDE ACCESS TO IMAGE SERVER
REQUEST CAMERA DEVICE TYPE NAME
SE1
SD2
ENTER CAMERA DEVICE TYPE NAME
READ OUT IMAGE DATA OF SPECIFIED DEVICE TYPE
SE2
TRANSMIT IMAGE DATA
SE3
SD3
RECIEVE/DISPLAY IMAGE DATA
SD4
NO
IS ORDER DETERMINED ?
YES
SD5
REQUEST SELECTED IMAGE
SELECT REDUCTION IMAGE CORRESPONDING SPECIFIED DEVICE TYPE
SE4
ADD SHOOTING CONDITION DATA TO REDUCTION IMAGE DATA
SE5
TRANSMIT SAMPLE IMAGE DATA
SE6
SD6
RECEIVE/RECORD SAMPLE IMAGE DATA
CARRY OUT ACCOUNTING PROCESSING
SE7
SD7
TRANSMIT SAMPLE IMAGE DATA TO CAMERA
END
END

FIG.16

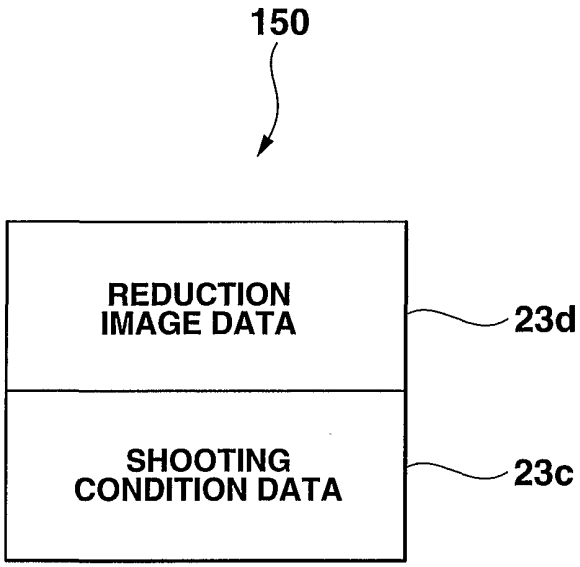


FIG.17

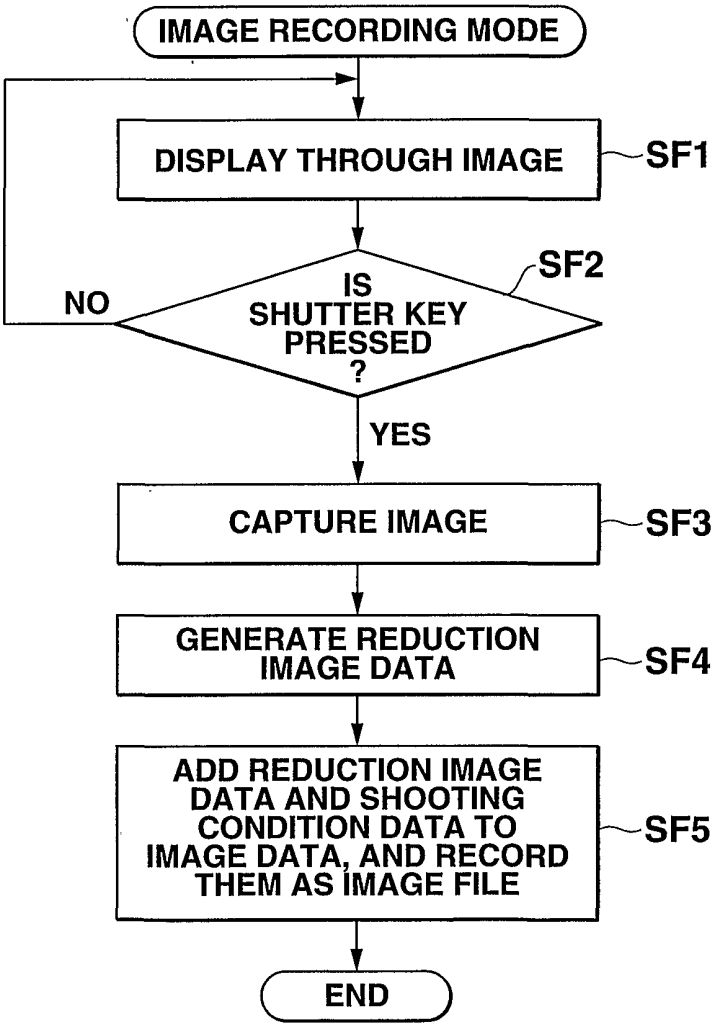


IMAGE RECORDING MODE
DISPLAY THROUGH IMAGE
SF1
IS SHUTTER KEY PRESSED ?
SF2
NO
YES
CAPTURE IMAGE
SF3
GENERATE REDUCTION IMAGE DATA
SF4
ADD REDUCTION IMAGE DATA AND SHOOTING CONDITION DATA TO IMAGE DATA, AND RECORD THEM AS IMAGE FILE
SF5
END

FIG.18

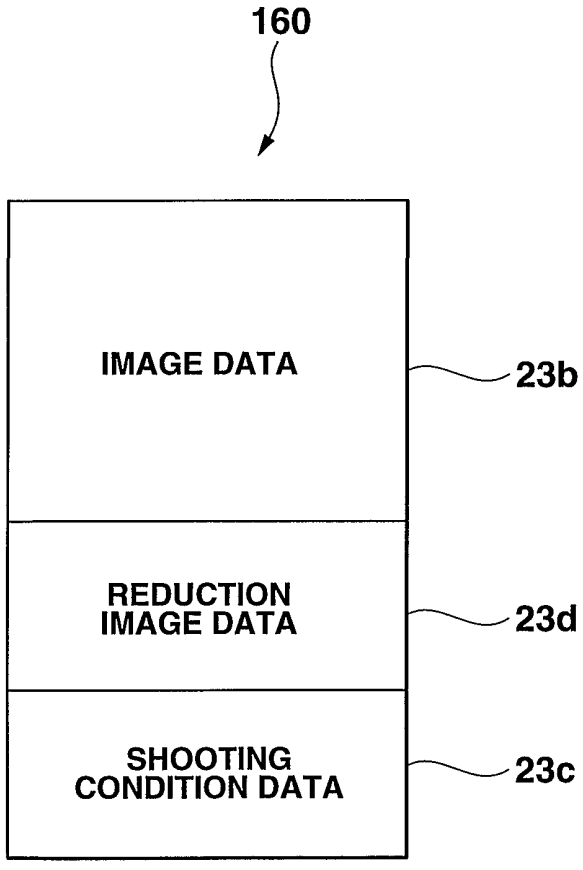

160
IMAGE DATA
23b
REDUCTION IMAGE DATA
23d
SHOOTING CONDITION DATA
23c

FIG.19

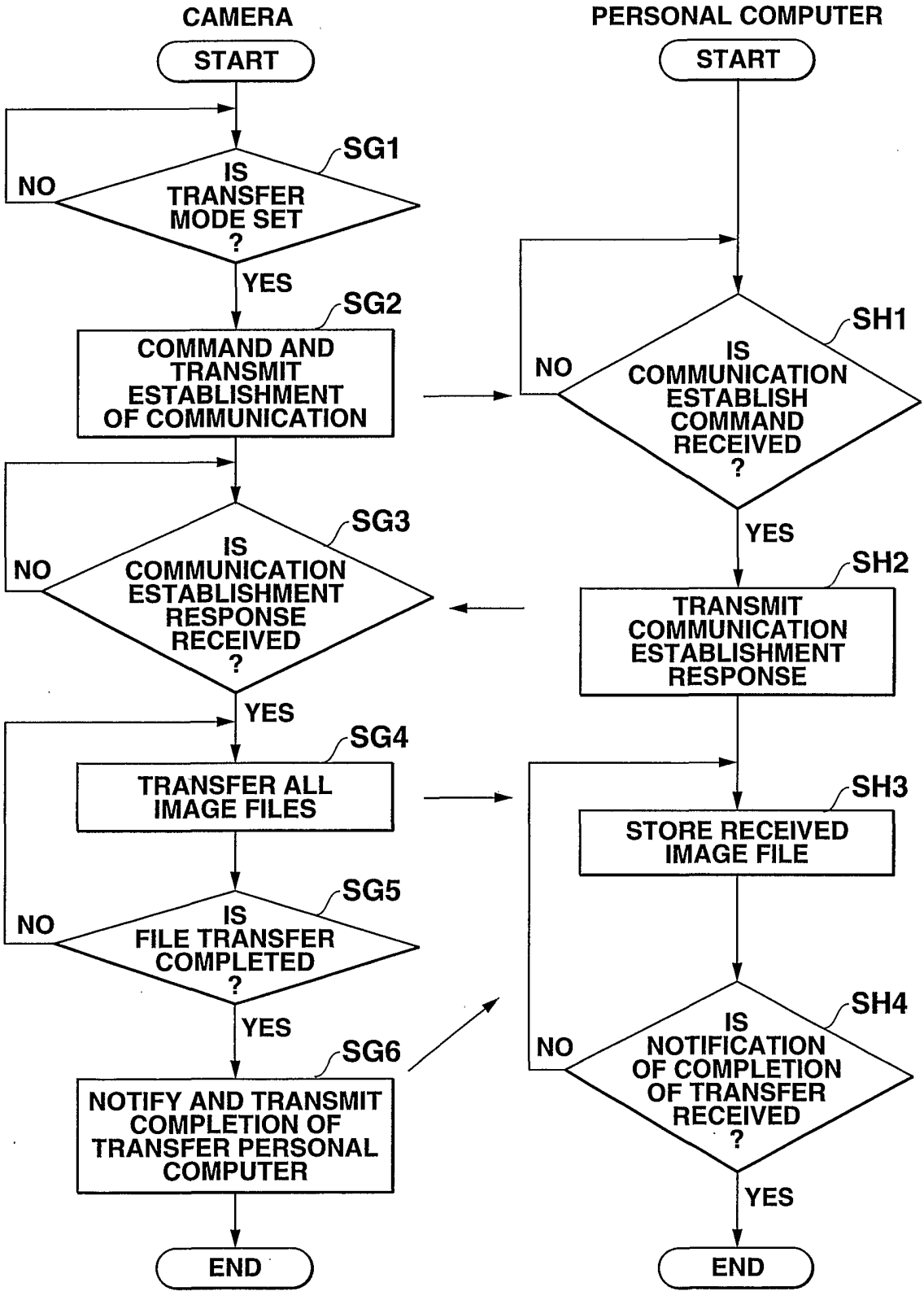
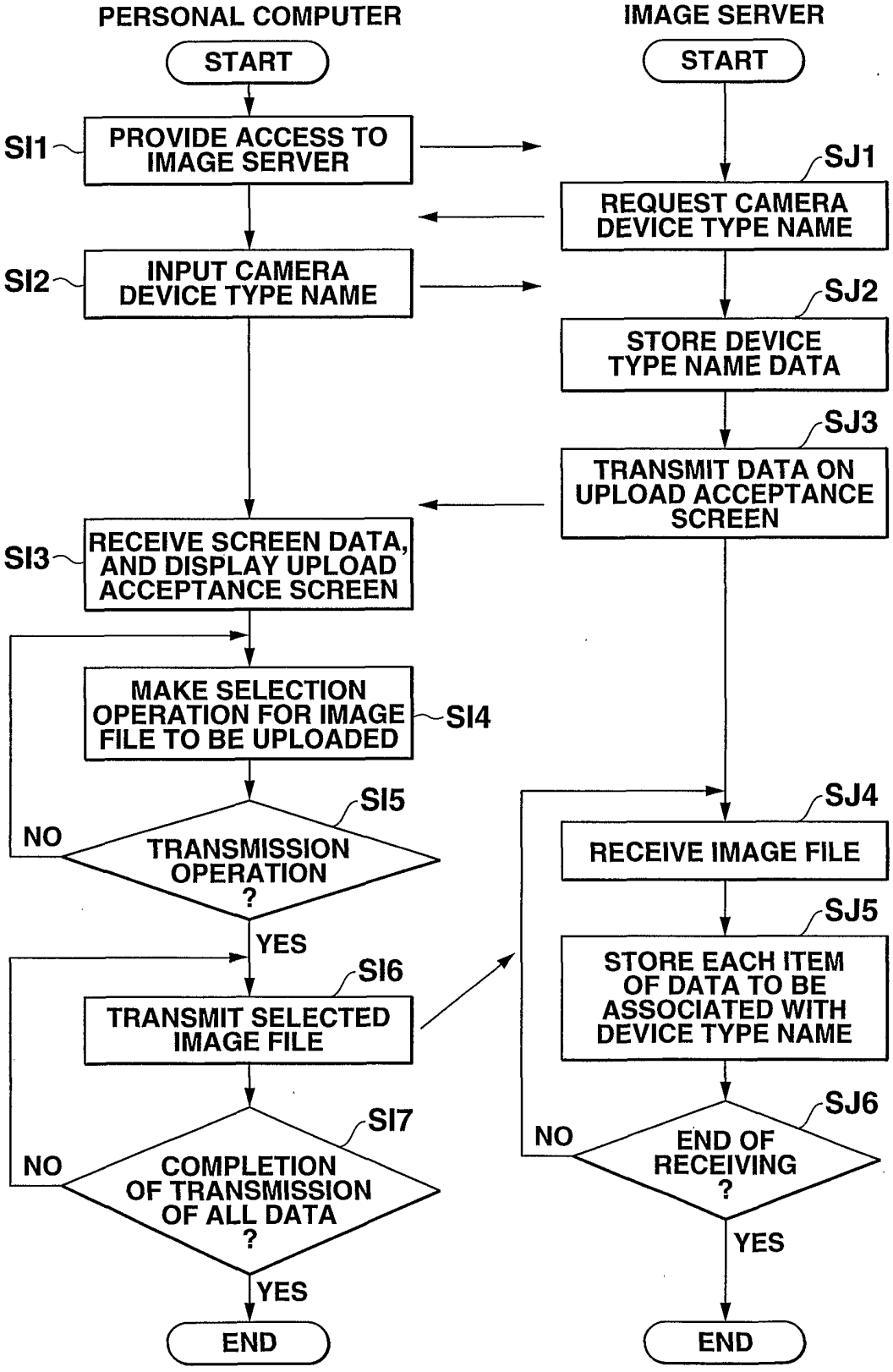

CAMERA
PERSONAL COMPUTER
START
START
SG1
IS TRANSFER MODE SET ?
NO
YES
SG2
COMMAND AND TRANSMIT ESTABLISHMENT OF COMMUNICATION
SH1
IS COMMUNICATION ESTABLISH COMMAND RECEIVED ?
NO
YES
SG3
IS COMMUNICATION ESTABLISHMENT RESPONSE RECEIVED ?
NO
YES
SH2
TRANSMIT COMMUNICATION ESTABLISHMENT RESPONSE
SG4
TRANSFER ALL IMAGE FILES
SH3
STORE RECEIVED IMAGE FILE
SG5
IS FILE TRANSFER COMPLETED ?
NO
YES
SH4
IS NOTIFICATION OF COMPLETION OF TRANSFER RECEIVED ?
NO
YES
SG6
NOTIFY AND TRANSMIT COMPLETION OF TRANSFER PERSONAL COMPUTER
END
END

FIG.20


PERSONAL COMPUTER
IMAGE SERVER
START
START
SI1
PROVIDE ACCESS TO IMAGE SERVER
SJ1
REQUEST CAMERA DEVICE TYPE NAME
SI2
INPUT CAMERA DEVICE TYPE NAME
SJ2
STORE DEVICE TYPE NAME DATA
SJ3
TRANSMIT DATA ON UPLOAD ACCEPTANCE SCREEN
SI3
RECEIVE SCREEN DATA, AND DISPLAY UPLOAD ACCEPTANCE SCREEN
MAKE SELECTION OPERATION FOR IMAGE FILE TO BE UPLOADED
SI4
SI5
NO
TRANSMISSION OPERATION ?
YES
SJ4
RECEIVE IMAGE FILE
SJ5
STORE EACH ITEM OF DATA TO BE ASSOCIATED WITH DEVICE TYPE NAME
SI6
TRANSMIT SELECTED IMAGE FILE
SJ6
NO
END OF RECEIVING ?
SI7
NO
COMPLETION OF TRANSMISSION OF ALL DATA ?
YES
YES
END
END

INTERNATIONAL SEARCH REPORT

Int ›nal Application No
PCT/JP 01/07747

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04N1/21

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y A	EP 0 838 939 A (FUJI PHOTO FILM CO LTD) 29 April 1998 (1998-04-29) the whole document	1,9,10, 19 2-8, 11-18
Y A	EP 0 805 418 A (MATSUSHITA ELECTRIC IND CO LTD) 5 November 1997 (1997-11-05) abstract	1,9,10, 19 2-8, 11-18
A	PATENT ABSTRACTS OF JAPAN vol. 1999, no. 12, 29 October 1999 (1999-10-29) & JP 11 191858 A (CANON INC), 13 July 1999 (1999-07-13) abstract	1-19

-/--

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
14 November 2001	27/11/2001

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Greve, M

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INTERNATIONAL SEARCH REPORT

Int nal Application No
PCT/JP 01/07747

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 949 805 A (FUJI PHOTO FILM CO LTD) 13 October 1999 (1999-10-13) the whole document -----	1-19

INTERNATIONAL SEARCH REPORT

Int ial Application No
PCT/JP 01/07747

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		EP 0838939 A2	29-04-1998
		US 6011547 A	04-01-2000
EP 0805418 A	05-11-1997	CN 1171580 A	28-01-1998
		EP 0805418 A2	05-11-1997
		JP 10040419 A	13-02-1998
JP 11191858 A	13-07-1999	NONE	
EP 0949805 A	13-10-1999	EP 0949805 A2	13-10-1999
		JP 11353330 A	24-12-1999