

(19) World Intellectual Property
Organization
International Bureau



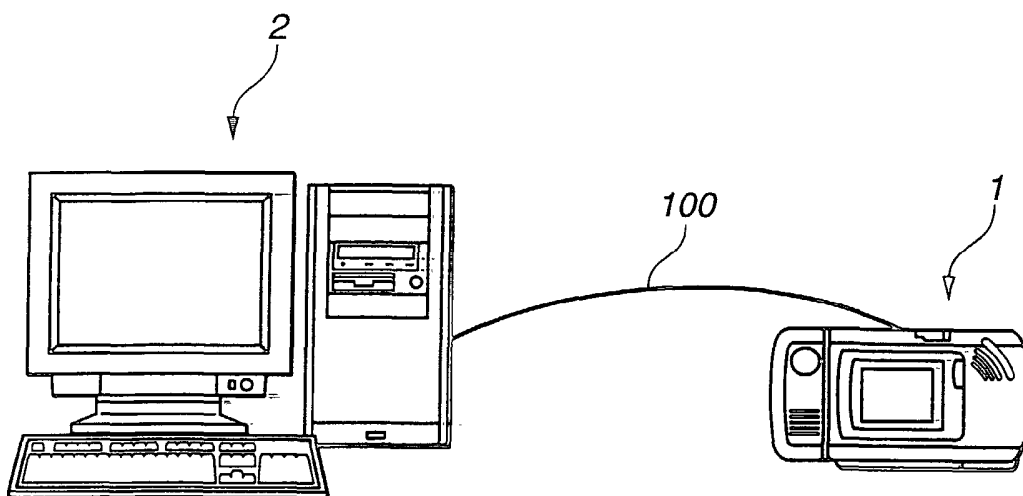
(43) International Publication Date
29 January 2004 (29.01.2004)

PCT

(10) International Publication Number
WO 2004/010302 A2

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- (21) International Application Number: PCT/JP2003/009050 (74) Agents: SUZUYE, Takehiko et al.; c/o Suzuye & Suzuye, 7-2, Kasumigaseki 3-chome, Chiyoda-ku, Tokyo 100-0013 (JP).
- (22) International Filing Date: 16 July 2003 (16.07.2003)
- (25) Filing Language: English (81) Designated States (*national*): CN, KR.
- (26) Publication Language: English (84) Designated States (*regional*): European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR).
- (30) Priority Data:
2002-212475 22 July 2002 (22.07.2002) JP
2003-161441 6 June 2003 (06.06.2003) JP
- Published:
— without international search report and to be republished upon receipt of that report
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(54) Title: IMAGE MANAGEMENT SYSTEM, DIGITAL CAMERA, IMAGE MANAGEMENT METHOD, AND IMAGE PROCESSING METHOD FOR DIGITAL CAMERA



(57) Abstract: Digital camera (1) is connected to personal computer (2) via communication cable (100). When a user operates a key to delete any one of images recorded on memory card (25) of the digital camera (1), digital camera (1) requests personal computer (2) to delete an image which links to the deleted image and is stored in personal computer (2). When receiving this command, personal computer (2) deletes the image linked to the image deleted from digital camera (1). These processes ensure consistency between an original image stored in the digital camera (1) and a copy image stored in the personal computer (2).

D E S C R I P T I O N

5 IMAGE MANAGEMENT SYSTEM, DIGITAL CAMERA,
IMAGE MANAGEMENT METHOD, AND IMAGE
PROCESSING METHOD FOR DIGITAL CAMERA

Technical Field

The present invention relates to an image
management system and an image management method
10 capable of transmitting or transferring image data
stored in a digital camera to an external device and
recording the image data in the external device, and
more particularly to a digital camera and its image
processing method for implementing the image management
15 system and image management method.

Background Art

A digital camera stores digital images on
recording media such as various types of detachable
memory cards. Recently, the storage capacity of such
20 recording media is increasing as much as at least
several tens to hundreds megabytes. Many digital
cameras may connect to a personal computer via a cable
or a wireless means. A user may appropriately transfer
image data (as an image file) stored in the recording
25 medium to the personal computer for managing the
digital image data by the personal computer, displaying
the digital image on a relatively large personal
computer monitor, or printing the image.

When the images are transferred to the personal

computer or the like from the digital camera, there may be a case of deleting or protecting the images on the personal computer while the original images remain in the digital camera. In such case, it has been impossible to maintain consistency between images stored in the personal computer and the digital camera. When a user deletes a given image on the personal computer and then transfers a large number of images from the digital camera to the personal computer anew, the original images remaining in the digital camera are retransferred to the personal computer. As a result, the user may need to delete the same image on the personal computer.

Disclosure of Invention

The present invention is directed to method and apparatus that substantially obviates one or more of the problems due to limitations and disadvantages of the related art.

According to an embodiment of the present invention, there is provided an image management system comprising a digital camera and an image recording apparatus, characterized in that the digital camera comprises:

means for imaging an object to output first image data;

first storage means for storing the first image data output from the imaging means;

first processing means for performing a predetermined process for at least one item of the first image data; and

means for transmitting a request for the predetermined process to the image recording apparatus, and the image recording apparatus comprises:

second storage means for storing second image data including an item of data whose contents are identical to contents of an item of the first image data stored in the first storage means; and

second processing means for performing the predetermined process for an item of the second image data which is stored in the second storage means and whose contents are identical to contents of the at least one item of the first image data stored in the first storage means to which the predetermined process is performed based on the request transmitted from the transmitting means.

According to another embodiment of the present invention, there is provided a digital camera comprising:

means for imaging an object to output first image data;

means for storing the first image data output from the imaging means; and

means for performing a predetermined process for at least one item of the first image data,

characterized by further comprising:

means for transmitting a request for the predetermined process to an external device to cause the external device to perform the predetermined process for an item of second image data which is stored in the external device and whose contents are identical to the contents of the at least one item of the first image data to which the predetermined process is performed by the performing means.

10 According to still another embodiment of the present invention, there is provided an image management method for an image management system comprising a digital camera and an image recording apparatus, the method comprising:

15 performing a predetermined process for at least one item of image data stored in the digital camera; and

transmitting a request for the predetermined process to the image recording apparatus, characterized by further comprising:

20 performing the predetermined process for an item of data which is stored in the image recording apparatus and whose contents are identical to contents of the at least one item of the image data stored in the digital camera to which the predetermined process is performed based on the request transmitted.

According to still another embodiment of the

present invention, there is provided an image processing method for a digital camera, the method comprising:

performing a predetermined process for at least one item of first image data stored in the digital camera, and characterized by further comprising:

transmitting a request to an external device, the request to cause the external device to perform the predetermined process for an item of second data which is stored in the external device and whose contents are identical to contents of the at least one item of the first image data stored in the digital camera to which the predetermined process is performed.

Additional objects and advantages of the present invention will be set forth in the description which follows, and in part will be obvious from the description, or may be learned by practice of the present invention.

The objects and advantages of the present invention may be realized and obtained by means of the instrumentalities and combinations particularly pointed out hereinafter.

Brief Description of Drawings

The accompanying drawings, which are incorporated in and constitute a part of the specification, illustrate presently preferred embodiments of the present invention and, together with the general

description given above and the detailed description of the preferred embodiments given below, serve to explain the principles of the present invention in which:

FIG. 1 is an external view of an image management system according to an embodiment of the present invention;

FIG. 2 is a circuit diagram of the image management system;

FIG. 3 is a general flowchart showing a deletion mode of a digital camera in the image management system;

FIG. 4 is a flowchart showing an outline of a global deletion mode in the image management system;

FIG. 5 is a flowchart showing details of a global deletion mode in the image management system;

FIG. 6 is a flowchart showing details of a normal deletion mode in the digital camera;

FIG. 7 is a flowchart showing details of another embodiment of the global deletion mode in the image management system; and

FIG. 8 is a circuit diagram of another image management system.

Best Mode for Carrying Out the Invention

Embodiments of the present invention will be described in further detail with reference to the accompanying drawings.

FIG. 1 shows a configuration of the image

management system according to the embodiment. The system includes a digital camera 1 and a personal computer 2 as an electronic device. The digital camera 1 is connected to the personal computer 2 via a communication cable 100 such as a USB cable.

FIG. 2 is a block diagram showing an electrical configuration of the digital camera 1 and the personal computer 2. The respective devices are configured as described below.

10 - Configuration of the digital camera

The digital camera 1 has a CCD 12 that photoelectrically converts an object's optical image formed via an optical lens system 11. When the photoelectric conversion generates the object's optical image, the CCD 12 outputs an analog image signal corresponding to the optical image to a CDS/ADC circuit 13. The CDS/ADC circuit 13 removes noise from the image signal output from the CCD 12 by using correlated double sampling. Then, the CDS/ADC circuit 13 converts the image signal into a digital signal and supplies it to an FCP circuit 16 included in a system LSI 15. The system LSI 15 includes a CCDTG circuit 17 that generates a drive timing signal for the CCD 12. A timing signal generated from the CCDTG circuit 17 is output to a drive circuit 18 that drives the CCD 12.

The system LSI 15 includes an IPDMAC circuit 19, an MCP circuit 20, a PIXTFR circuit 21, a JPEG

interface (I/F) circuit 22, and a JPEG circuit 23. A digitized image signal is input to these circuits via the FCP circuit 16. The JPEG circuit 23 compresses or decompresses digital image data output from the CCD 12 based on the JPEG standard. The compressed digital data is finally stored as an image file via a media control (CTRL) circuit 24 in a memory card 25 that is detachably attached to the camera body and operates as an image storage. The system LSI 15 further includes an LCDTG circuit 27, a video circuit 28, and a D/A conversion circuit 29. The LCDTG circuit 27 drives an LCD module 26 including a liquid crystal display panel that displays an image output from the CCD 12 or an image read from the memory card 25 and decompressed. The video circuit 28 generates a video signal based on digital data of an image that is read from the memory card 25 and is decompressed. The D/A conversion circuit 29 converts an output signal from the video circuit 28 into an analog video signal and outputs this signal. The video signal output from the D/A conversion circuit 29 is supplied to an external monitor 41 connected to the camera body via a video cable 40.

The digital camera 1 includes first and second microcomputers 30 and 31, a program ROM 32 to store a program for operating these microcomputers 30 and 31, a work memory 33 including a RAM to be used by the first

and second microcomputers 30 and 31, a key input block 34, and a communication module 35.

The first microcomputer 30 controls overall camera operation. The second microcomputer 31 mainly controls operations of the system LSI 15. The key input block 34 includes a power key to turn on or off the power, a shutter key for imaging operations, mode keys for setting various modes including a recording mode and a reproduction mode, and various operation keys such as +/- keys used to select setup items in various modes or to change display images. The key input block 34 outputs a corresponding operation signal to the first microcomputer 30. The communication module 35 operates as transmission means and transmits specified operation information in the digital camera 1 to the personal computer 2 under control of the first microcomputer 30. According to the embodiment, the first microcomputer 30 operates as processing means by performing operations to be described later according to the operational program stored in the program ROM 32.

- Configuration of the personal computer

The personal computer 2 includes a CPU 51, a ROM 52, a RAM 53, an auxiliary storage 54, a display apparatus 55, an input apparatus 56, and an input/output interface 57. The ROM 52 stores a BIOS that determines basic operations of the CPU 51. The RAM 53 works as external memory for the CPU 51. The

auxiliary storage 54 is specifically a hard disk that stores a variety of data such as an OS, various application programs, image files, and the like. The auxiliary storage 54 stores a specified link software (program) that allows the CPU 51 to execute operations (to be described) and to function as linking processing means. Such link software is supplied by the manufacturer of the digital camera 1 according to any method. The display apparatus 55 includes a CRT or a liquid crystal monitor. The input apparatus 56 includes a keyboard or a mouse. The input/output interface 57 operates as reception means to interchange data with the other devices under control of the CPU 51. The bidirectional data communication is made available by connecting the input/output interface 57 with the communication module 35 in the digital camera 1 via the communication cable 100.

The following describes operations of the deletion mode of the digital camera 1 having the above-mentioned configuration according to the embodiment of the present invention.

FIG. 3 is a general flowchart concerning the deletion mode.

The digital camera 1 includes a normal deletion mode (first deletion mode) and a global deletion mode (second deletion mode). The normal deletion mode deletes only image files stored in the memory card 25

of the digital camera 1. The global deletion mode deletes image files stored in the memory card 25 of the digital camera 1 and in the auxiliary storage 54 of the personal computer 2.

5 At step S1 in FIG. 3, it is determined whether or not the global deletion mode is selected according to the user's operation of the mode key on the key input block 34. When it is determined that the global deletion mode is selected, control advances to step S2
10 to execute a global deletion process.

 When it is determined at step S1 that the global deletion mode is not selected, control advances to step S3. It is determined at step S3 whether or not the normal deletion mode is selected according to a user's
15 operation of the mode key on the key input block 34. When it is determined that the normal deletion mode is selected, control advances to step S4 to execute a normal deletion process.

 The following outlines operations of the global
20 deletion process at step S2 in FIG. 3 with reference to a flowchart in FIG. 4. The digital camera 1 deletes an image selected at the camera (step SA1), and then requests the personal computer 2 to delete an image that is stored in the personal computer 2 and is linked
25 with (same as) the deleted image (step SA2). In response to this request, the personal computer 2 displays a predetermined process message (step SB1),

and then deletes the image linked to the image deleted by the camera (step SB2). Upon completion of the deletion, the personal computer 2 notifies this to the digital camera 1 (step SB3). Meanwhile, the digital camera 1 waits for the process to complete (step SA3) and terminates the process when the termination notification is received from the personal computer 2.

Referring now to a flowchart in FIG. 5, the following describes details of the global deletion process. Before the global deletion process, a user starts the above-mentioned link software on the personal computer 2. When the user operates the mode key to select the global deletion mode, the digital camera 1 assigns "1" to number "n" for an image to be selected (step SA11). This number is a serial number (management number) assigned to each image (image file) stored in the memory card 25. The digital camera 1 reads an image file assigned with such number "n" (initially set to "1") from the memory card 25, decompresses the image data using the JPEG circuit 23, displays the image on a screen of the LCD module 25, and then waits for an operation (step SA12). If the user operates a page advancing key or a page changeover key (YES at step SA13), the digital camera 1 increments the number "n" (step SA17). Control returns to step SA12, and then the digital camera 1 displays an image assigned with the next number "n" (the nth image).

When any image is displayed, the user may operate the deletion key (NO at step SA13 and YES at step SA14). In this case, the digital camera 1 deletes a file for the nth image from the memory card 25 (step 5 SA15). Thereafter, the digital camera 1 checks for connection with the personal computer 2 via the communication cable 100. If no connection is confirmed (NO at step SA16), the digital camera 1 increments the number "n" (step SA17) and returns to step SA12 to 10 display the next image. When not connected to the personal computer 2, the digital camera 1 repeats steps SA12 through SA17 to sequentially delete user-selected image files from the memory card 25.

When confirming the connection with the personal 15 computer 2 (YES at step SA16), the digital camera 1 sends a deletion command and a file name (operation information according to the present embodiment) of the image file deleted at step SA15 to the personal computer 2 via the communication cable 100 (step SA18). 20 The digital camera 1 then awaits reception of a process termination command (step SA19).

Meanwhile, when receiving the deletion command (YES at step SB11), the personal computer 2 searches the auxiliary storage 54 for an image file matching the 25 image file name received with the deletion command (step SB12). If there is an image file having the matching file name (YES at step SB13), the personal

computer 2 deletes the image file from the auxiliary storage 54 (step SB14). The personal computer 2 sends the process termination command to the digital camera 1 via the communication cable 100 (step SB15). If there is no matching image file (NO at step SB13), the personal computer 2 immediately sends the process termination command to the digital camera 1 via the communication cable 100. Thereafter, the personal computer 2 repeats the above-mentioned process until the link software terminates.

When receiving the process termination command from the personal computer 2 (YES at step SA19), the digital camera 1 increments the number "n" (step SA17), and then returns to step SA12 to repeat the above-mentioned process.

According to the present embodiment, the user connects the digital camera 1 to the personal computer 2 and starts the link software on the personal computer 2. Thereafter, when the user deletes an intended image file (original file) from the digital camera 1 using the global deletion mode, the personal computer 2 may automatically delete the corresponding image file (duplicate file). Consequently, the user may easily maintain consistency between the original image stored in the digital camera 1 and a copy image stored in the personal computer 2.

Referring now to a flowchart in FIG. 6, the

following describes details of the normal deletion process at step S4 in FIG. 3.

When the user operates the mode key to select the normal deletion mode, the digital camera 1 assigns "1" to number "n" for an image to be selected (step SC11). This number "n" is a serial number (management number) assigned to each image (image file) stored in the memory card 25. The digital camera 1 reads an image file assigned with such number "n" (initially set to "1") from the memory card 25, decompresses the image data using the JPEG circuit 23, displays the image on the screen of the LCD module 25, and then waits for an operation (step SC12). If the user operates the page advancing key or the page changeover key (YES at step SC13), the digital camera 1 increments the number "n" (step SC16), returns to step SC12, and then displays an image assigned with the next number "n" (the nth image).

When any image is displayed, the user may operate the deletion key (NO at step SC13 and YES at step SC14). Then, the digital camera 1 deletes a file for the nth image from the memory card 25 (step SC15). The digital camera 1 then increments the number "n" (step SC16) and returns to step SC12 to display the next image. Thus, the digital camera 1 repeats steps SC12 through SC16 to sequentially delete user-selected image files from the memory card 25.

According to the present embodiment, the user may delete image files by selecting the appropriate deletion mode depending on situations.

While the embodiment provides two deletion modes,
5 the global deletion mode and the normal deletion mode, it may be preferable to provide only one deletion mode.

FIG. 7 is a flowchart for explaining operations of a deletion mode capable of executing both the global deletion process and the normal deletion process
10 described above. Because operations of the personal computer 2 is the same as those shown in FIG. 5, their description is omitted here. In this example, two deletion keys, first and second deletion keys, are provided.

15 When the user operates the mode key to select the deletion mode, the digital camera 1 assigns "1" to number "n" for an image to be selected (step SD11). This number "n" is a serial number (management number) assigned to each image (image file) stored in the
20 memory card 25. The digital camera 1 reads an image file assigned with such number "n" (initially set to "1") from the memory card 25, decompresses the image data using the JPEG circuit 23, displays the image on the screen of the LCD module 25, and then waits for an
25 operation (step SD12). If the user operates the page advancing key or the page changeover key (YES at step SD13), the digital camera 1 increments the number "n"

(step SD18), returns to step SD12, and then displays an image assigned with the next number "n" (the nth image).

When any image is displayed, the user may operate the first deletion key (NO at step SD13 and YES at step SD14). In this case, the digital camera 1 deletes a file for the nth image from the memory card 25 (step SD15). Thereafter, the digital camera 1 checks for connection with the personal computer 2 via the communication cable 100. If no connection is confirmed (NO at step SD16), the digital camera 1 displays a warning message such as "Connect to personal computer" on the screen of the LCD module 26 (step SD17). The digital camera 1 then increments the number "n" (step SD18) and returns to step SD12 to display the next image.

When confirming the connection with the personal computer 2 (YES at step SD16), the digital camera 1 displays a deletion confirmation message such as "Are you sure you want to delete the image from the personal computer?" on the screen of the LCD module 26 (step SD19).

With the deletion confirmation message displayed, the digital camera 1 checks if the user operates a cancellation key (step SD20) or an execution key (step SD21).

If it is determined that the cancellation key is

operated at step SD20, the digital camera 1 increments the number "n" (step SD18) and returns to step SD12 to display the next image.

5 If it is determined that the execution key is operated at step SD21, control advances to step SD22. The digital camera 1 sends a deletion command and a file name (operation information according to the present embodiment) of the image file deleted at step SD15 to the personal computer 2 via the communication
10 cable 100 (step SD22). The digital camera 1 then awaits reception of the process termination command (step SD23).

When receiving the process termination command from the personal computer 2 (YES at step SD23), the
15 digital camera 1 increments the number "n" (step SD18), and then returns to step SD12 to repeat the above-mentioned process.

If it is determined at step SD24 that the user operates the second deletion key, the digital camera 1
20 deletes a file corresponding to the nth image displayed at that time from the memory card 25 (step SD25). The digital camera 1 then proceeds to step SD18 to increment the number "n", and then returns to step SC12 to display the next image.

25 According to the present embodiment, with any image displayed, the global deletion process is executed when the user operates the first deletion key;

the normal deletion process is executed when the user operates the second deletion key. When the memory card 25 mixedly stores images intended for the global deletion process and the normal deletion process, for example, it just needs to change the deletion key to be operated. This eliminates the need for a complicated operation of frequently changing between the global deletion mode and the normal deletion mode.

The embodiment specifies no retrieval location when the personal computer 2 retrieves an image file to be deleted from the auxiliary storage 54 during the process at step SB12. However, it is possible to provide the above-mentioned link software with a function capable of setting one or more directories (folders) as destinations for storing images copied from the memory card 25. The process at step SB12 may retrieve only image files from a predetermined storage location. In this case, it is possible to shorten the time for the digital camera 1 to await a process from the personal computer 2 (step SA19).

Each time the digital camera 1 deletes one image file in the system according to the embodiment, the digital camera 1 sends a deletion command and a file name of the deleted image file to the personal computer 2 and allows the personal computer 2 to retrieve and delete the corresponding image file. Alternatively, the system may be configured as follows. When the user

specifies the global deletion mode, the digital camera 1 sequentially stores file names of the deleted image files. When the operation is made to terminate the global deletion mode, the digital camera 1 transmits one or more stored file names as well as the deletion command to the personal computer 2. The personal computer 2 correspondingly retrieves and deletes one or more image files at a time. When the user selects the deletion mode in FIG. 7, the digital camera 1 sequentially stores file names of the image files deleted by the operation of the first deletion key. When the operation is made to terminate the deletion mode, the digital camera 1 transmits one or more stored file names as well as the deletion command to the personal computer 2. This configuration may eliminate the above-mentioned time for the digital camera 1 to await a process from the personal computer 2.

According to the embodiment, a user selects one image file to be deleted at a time from the digital camera 1. In addition, it may be preferable to batch-delete all image files stored in the memory card 25 (or any folder) at a time. When a batch deletion is specified in this configuration, the digital camera 1 sends file names of the batch-deleted all image files as well as the deletion command to the personal computer 2.

According to the embodiment, the personal computer

2 uses a file name to retrieve and delete the image file (duplicate image) corresponding to the image file (original file) deleted from the digital camera 1. However, the file name may be modified after the
5 corresponding file is copied to the personal computer 2. To solve this, the digital camera 1 may send to the personal computer 2 the other specific information such as an imaging date or place, a file size, imaging conditions, and the like attached to the deleted image
10 file. In this case, the personal computer 2 may retrieve an image file to be deleted using these pieces of specific information.

In addition, the digital camera 1 may embed a unique ID in image data stored after imaging or may
15 record the ID as additional information about the image data on an image file. During the global deletion process, the digital camera 1 extracts the above-mentioned ID from the image file to be deleted and sends the ID and the deletion command to the personal
20 computer 2. The personal computer 2 is allowed to retrieve and delete the image file having an ID matching the received ID.

The embodiment has described the system configuration that connects the digital camera 1 with
25 the personal computer 2 via the communication cable 100. In addition, both may be connected with each other by means of wireless systems such as infrared or

Bluetooth (trademark) systems having a relatively short communication range. The digital camera 1 may be connected to the personal computer 2 via not only a communication network, but also various types of wireless communication networks 200 such as a wireless LAN, a cellular phone network, and the Internet as shown in FIG. 8. The image management system according to the present embodiment may include a digital camera 61 (or a cellular phone equipped with a camera) and a personal computer 62 having the basic configuration as shown in FIG. 2.

In such system, the digital camera 61 may use its memory to store transmission destination information such as a telephone number, an Internet address, and the like for specifying the personal computer 62 as a connection destination on the network. When no connection is made to the personal computer 2 for executing the global deletion process, the digital camera 61 uses the transmission destination information to execute a process for automatically making connection to the personal computer 62. The digital camera 61 then sends the deletion command and the file name of the image file deleted by the user. This allows the personal computer 62 to delete an image file corresponding to the image file deleted by the user. Further, it may be preferable to connect the digital camera 61 to a server provided on a wireless

communication network 200 and delete image files stored in a database of the server.

When the digital camera 1 or 61 deletes an image file according to the above-mentioned system, the personal computer 2 or 62 also deletes the corresponding image file. Instead of or in addition to this configuration, the system may be configured as follows. When the digital camera 1 or 61 executes the other image processing or editing processes such as protecting an image file, converting colors, resizing image files, and the like, the personal computer 2 or 62 may execute the equivalent processes for the corresponding image files. Also in this case, a user may easily maintain consistency between original images stored in the digital camera 1 or 61 and copy images stored in the personal computer 2 or 62.

When the digital camera 1 or 61 executes a given process for an image file, the above-mentioned system likewise processes the corresponding image file stored in one personal computer 2 or 62. Further, there may be provided a plurality of personal computers 2 or 62. In this case, it is possible to batch process the same image file stored in the personal computers 2 or 62.

Moreover, the digital camera 1 or 61 just needs to be able to use image files stored for imaging. It may be preferable to configure the image management system according to the present embodiment using the digital

camera 1 or 61 and the other electronic devices than
the personal computer 2 or 62 such as a cellular phone,
a mobile information terminal equipped with the
communication function, and a home server. Also in
5 this case, it is possible to easily maintain
consistency between original images and copy images
stored in the respective devices.

While the description above refers to particular
embodiments of the present invention, it will be
10 understood that many modifications may be made without
departing from the spirit thereof. The accompanying
claims are intended to cover such modifications as
would fall within the true scope and spirit of the
present invention. The presently disclosed embodiments
15 are therefore to be considered in all respects as
illustrative and not restrictive, the scope of the
invention being indicated by the appended claims,
rather than the foregoing description, and all changes
that come within the meaning and range of equivalency
20 of the claims are therefore intended to be embraced
therein. For example, the present invention can be
practiced as a computer readable recording medium in
which a program for allowing the computer to function
as predetermined means, allowing the computer to
25 realize a predetermined function, or allowing the
computer to conduct predetermined means.

C L A I M S

1. An image management system comprising a digital camera (1) and an image recording apparatus (2), characterized in that the digital camera (1) comprises:

means (12) for imaging an object to output first image data;

first storage means (25) for storing the first image data output from the imaging means (12);

first processing means (30) for performing a predetermined process for at least one item of the first image data; and

means (35) for transmitting a request for the predetermined process to the image recording apparatus (2), and the image recording apparatus (2) comprises:

second storage means (54) for storing second image data including an item of data whose contents are identical to contents of an item of the first image data stored in the first storage means (25); and

second processing means (51) for performing the predetermined process for an item of the second image data which is stored in the second storage means and whose contents are identical to contents of the at least one item of the first image data stored in the first storage means (25) to which the predetermined process is performed based on the request transmitted from the transmitting means (35).

2. The image management system according to claim 1, characterized in that the second processing means (51) comprises means for retrieving the item of the second image data which is stored in the second storage means and whose contents are identical to contents of at least one item of the first image data stored in the first storage means (25) to which the predetermined process is performed and means for performing the predetermined process for the retrieved item of the second image data.

3. The image management system according to claim 1, characterized in that the image recording apparatus (2) comprises means for transmitting information indicating completion of the predetermined process to the digital camera, and the digital camera (2) comprises means (35) for receiving the information indicating completion of the predetermined process.

4. A digital camera comprising:
means (12) for imaging an object to output first image data;
means (25) for storing the first image data output from the imaging means (12); and
means (30) for performing a predetermined process for at least one item of the first image data,
characterized by further comprising:
means (35) for transmitting a request for the predetermined process to an external device (2) to

cause the external device (2) to perform the predetermined process for an item of second image data which is stored in the external device and whose contents are identical to the contents of the at least one item of the first image data to which the predetermined process is performed by the performing means (30).

5 5. The digital camera according to claim 4, characterized in that the request comprises a command for specifying the predetermined process and an
10 identification for specifying the at least one item of the first image data to which the predetermined process is performed by the performing means (30).

 6. The digital camera according to claim 5, characterized in that the identification comprises an
15 image file name.

 7. The digital camera according to claim 4, characterized in that the predetermined process comprises a deletion process.

 8. The digital camera according to claim 4,
20 characterized by further comprising means for selecting one item of the first image data stored in the storing means (25), and characterized in that said performing means (30) performs the predetermined process for the selected one item of the first image data stored in the
25 storing means (25).

 9. The digital camera according to claim 4, characterized by further comprising means for setting a

predetermined process mode, and characterized in that
the transmitting means (35) transmits the request
when the predetermined process mode is set and the
performing means (30) performs the predetermined
5 process.

10. The digital camera according to claim 4,
characterized by further comprising:

mode setup means for setting one of a first
process mode and a second process mode;

10 means for instructing the performing means to
perform the predetermined process;

means for, when the mode setup means sets the
first process mode and the instructing means instructs
performing of the predetermined process, allowing the
15 performing means to perform the predetermined process
and allowing the transmitting means to transmit the
request; and

means for, when the mode setup means sets the
second process mode and the instructing means instructs
20 performing of the predetermined process, allowing the
performing means to perform the predetermined process.

11. The digital camera according to claim 4,
characterized by further comprising:

means for determining whether or not the digital
25 camera is electrically connected to the external
device, and characterized in that

the transmitting means (30) transmits the request

to the external device when the determining means determines that the digital camera (1) is electrically connected to the external device (2).

12. The digital camera according to claim 11,
5 characterized by further comprising means for notifying no electrical connection when the determining means determines that the digital camera is not electrically connected to the external device.

13. The digital camera according to claim 11,
10 characterized by further comprising means for performing an electric connection process between the digital camera (1) and the external device (2) when the determining means determines that the digital camera (1) is not electrically connected to the external
15 device (2).

14. The digital camera according to claim 4,
characterized by further comprising means for instructing the performing means (30) to perform the predetermined process and for instructing the
20 transmitting means (35) to transmit the request.

15. The digital camera according to claim 14,
characterized by further comprising means for canceling transmission of the request instructed by the instructing means.

25 16. The digital camera according to claim 4,
characterized by further comprising:

means for instructing the performing means to

perform the predetermined process for the at least one
item of the first image data stored in the storing
means (25); and

means for instructing the performing means (30) to
5 perform the predetermined process for the at least one
item of the first image data stored in the storing
means (25) and for instructing the transmitting means
(35) to transmit the request.

17. The digital camera according to claim 4,
10 characterized in that the transmitting means (35)
transmits the request to the external device (2) via a
communication cable (100).

18. The digital camera according to claim 4,
characterized in that the transmitting means (35)
15 transmits the request to the external device (2) using
wireless communication means.

19. The digital camera according to claim 4,
characterized in that the transmitting means (35)
transmits the request to the external device (2) via a
20 communication network.

20. The digital camera according to claim 4,
characterized by further comprising second storing
means for storing transmission destination information
for specifying the external device, and characterized
25 in that the transmitting means (35) transmits the
request to an external device specified by the
transmission destination stored in the second storing

means.

21. The digital camera according to claim 4, characterized in that the external device (2) comprises a personal computer.

5 22. An image management method for an image management system comprising a digital camera (1) and an image recording apparatus (2), the method comprising:

performing a predetermined process for at least
10 one item of image data stored in the digital camera (1); and

transmitting a request for the predetermined process to the image recording apparatus (2), characterized by further comprising:

15 performing the predetermined process for an item of data which is stored in the image recording apparatus (2) and whose contents are identical to contents of the at least one item of the image data stored in the digital camera (1) to which the
20 predetermined process is performed based on the request transmitted.

23. An image processing method for a digital camera, the method comprising:

performing a predetermined process for at least
25 one item of first image data stored in the digital camera (1), and characterized by further comprising:

transmitting a request to an external device (2),

the request to cause the external device (2) to perform
the predetermined process for an item of second data
which is stored in the external device and whose
contents are identical to contents of the at least one
5 item of the first image data stored in the digital
camera (1) to which the predetermined process is
performed.

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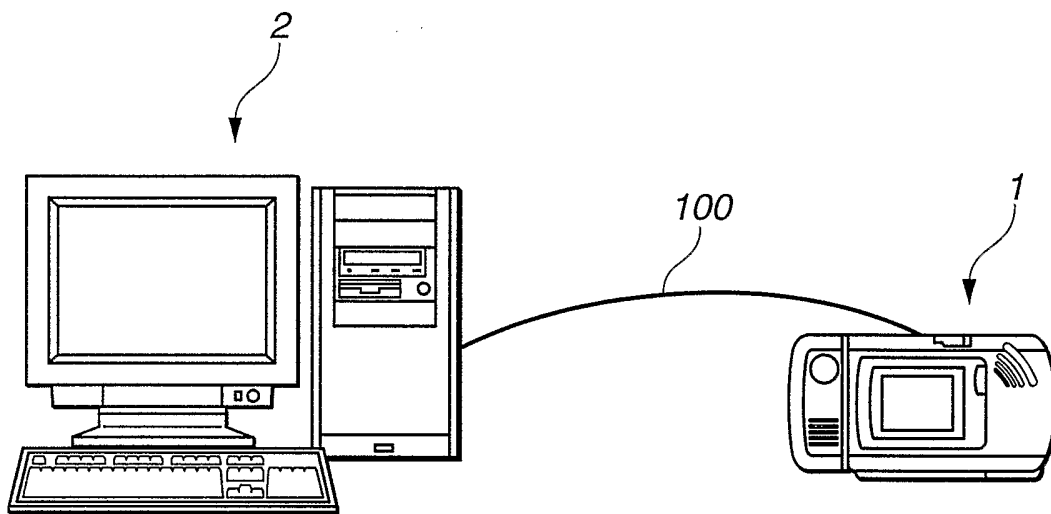


FIG.1

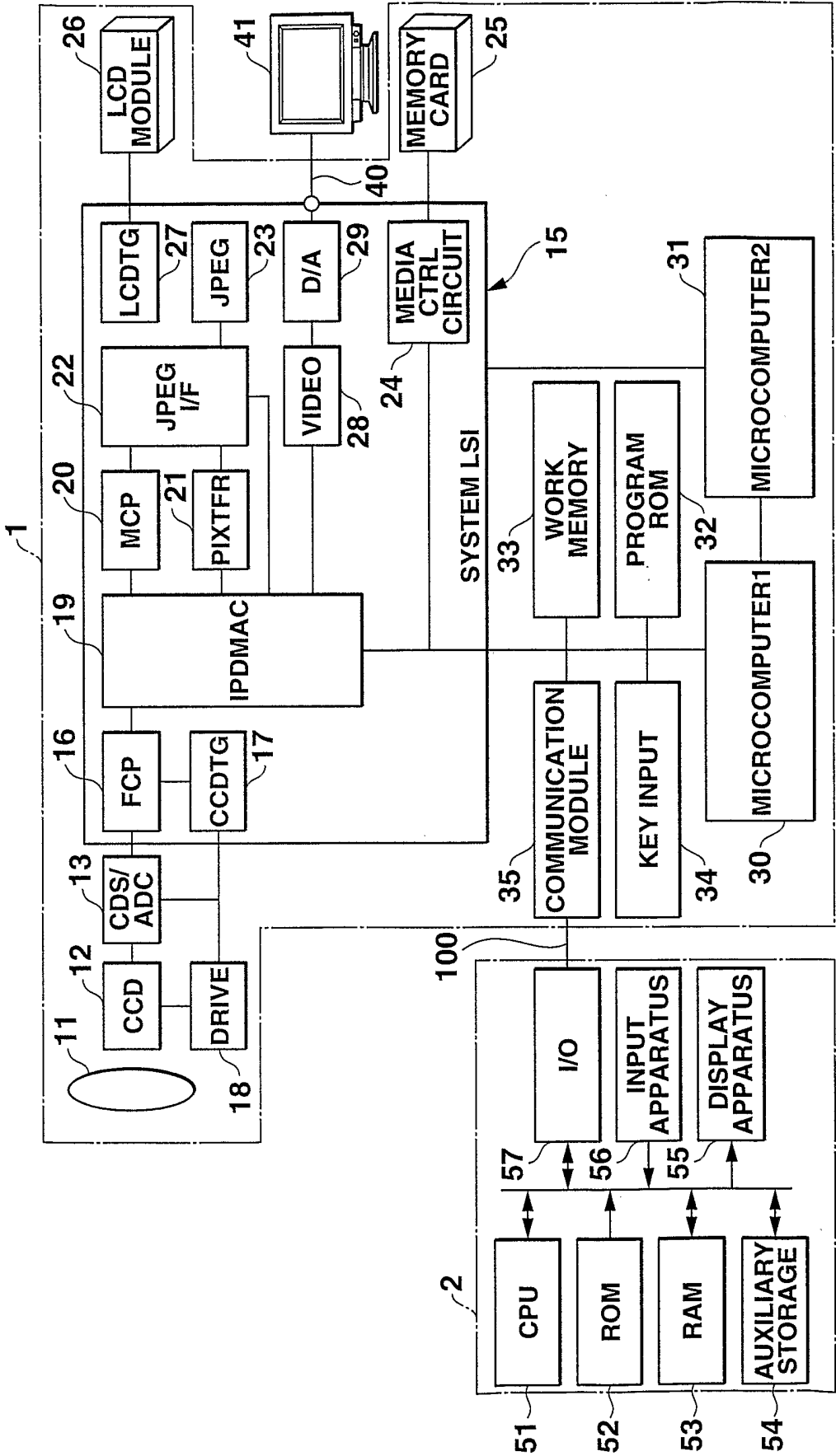


FIG.2

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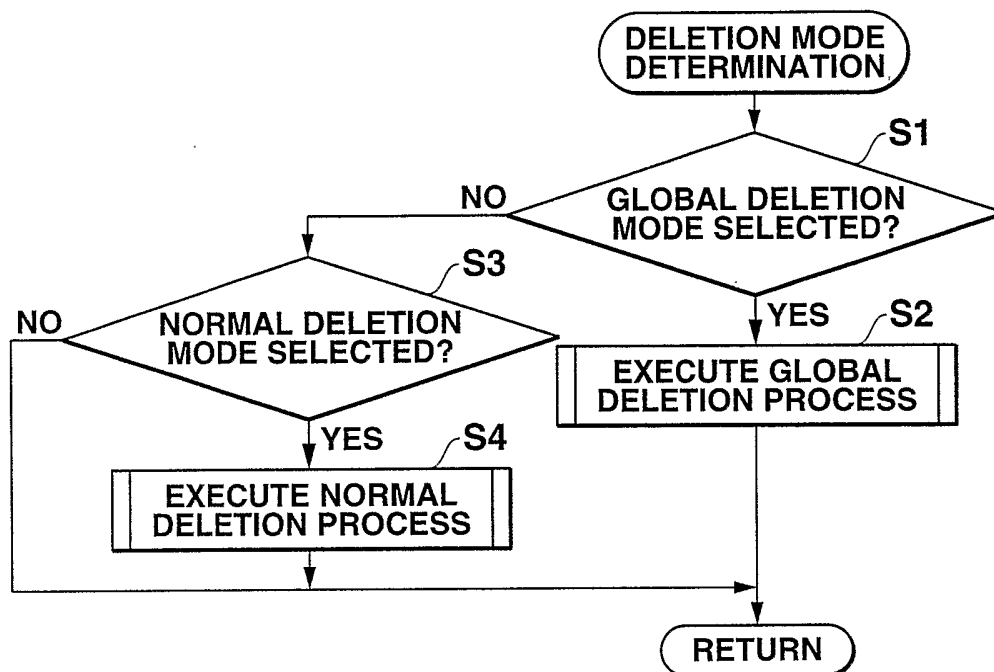


FIG.3

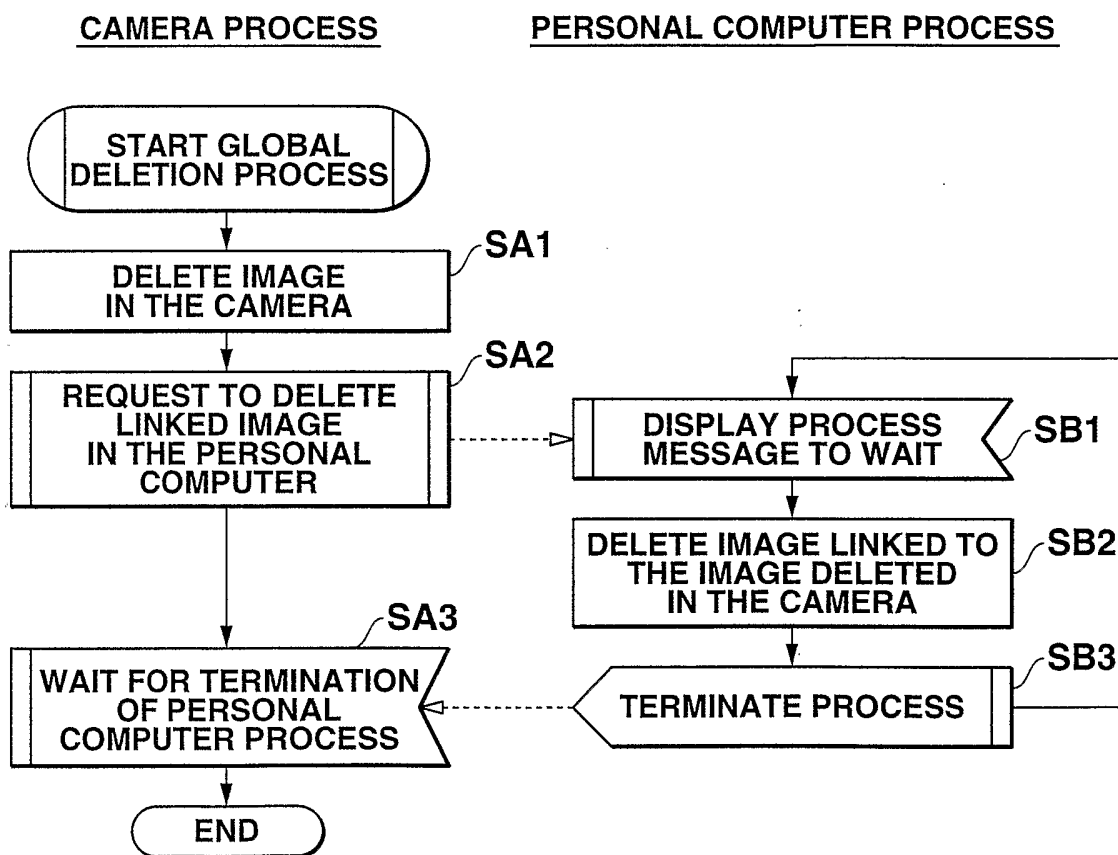


FIG.4

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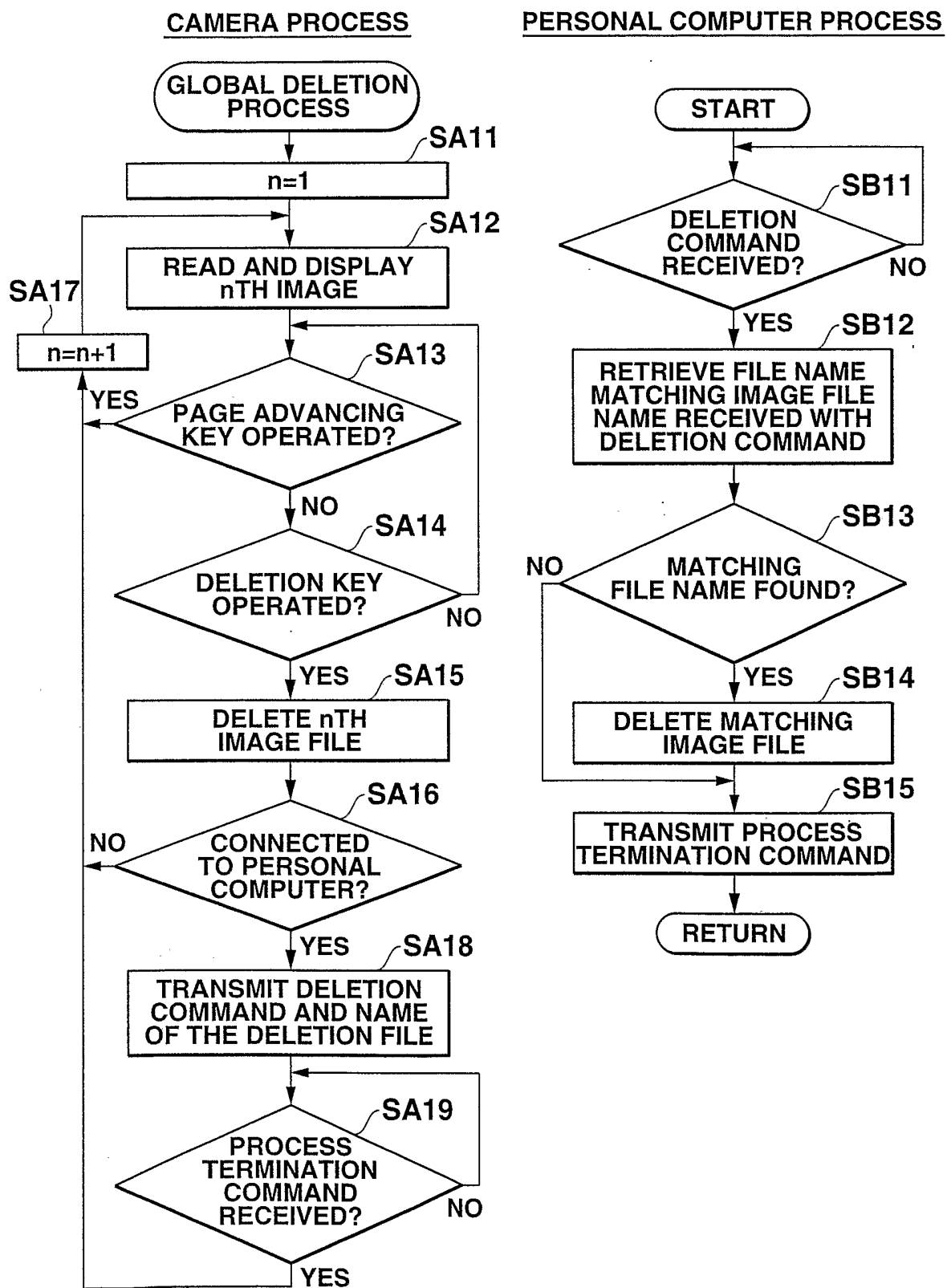


FIG.5

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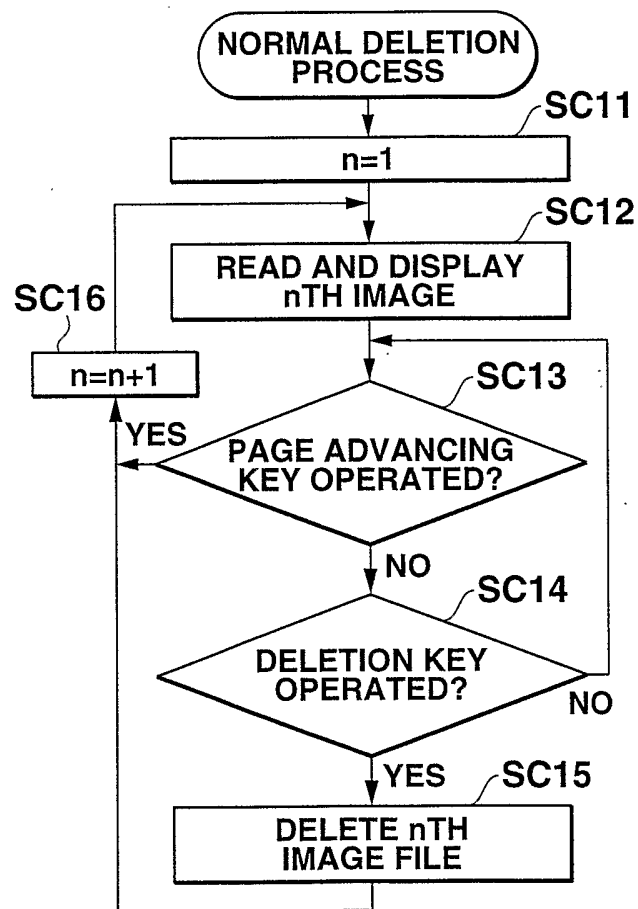
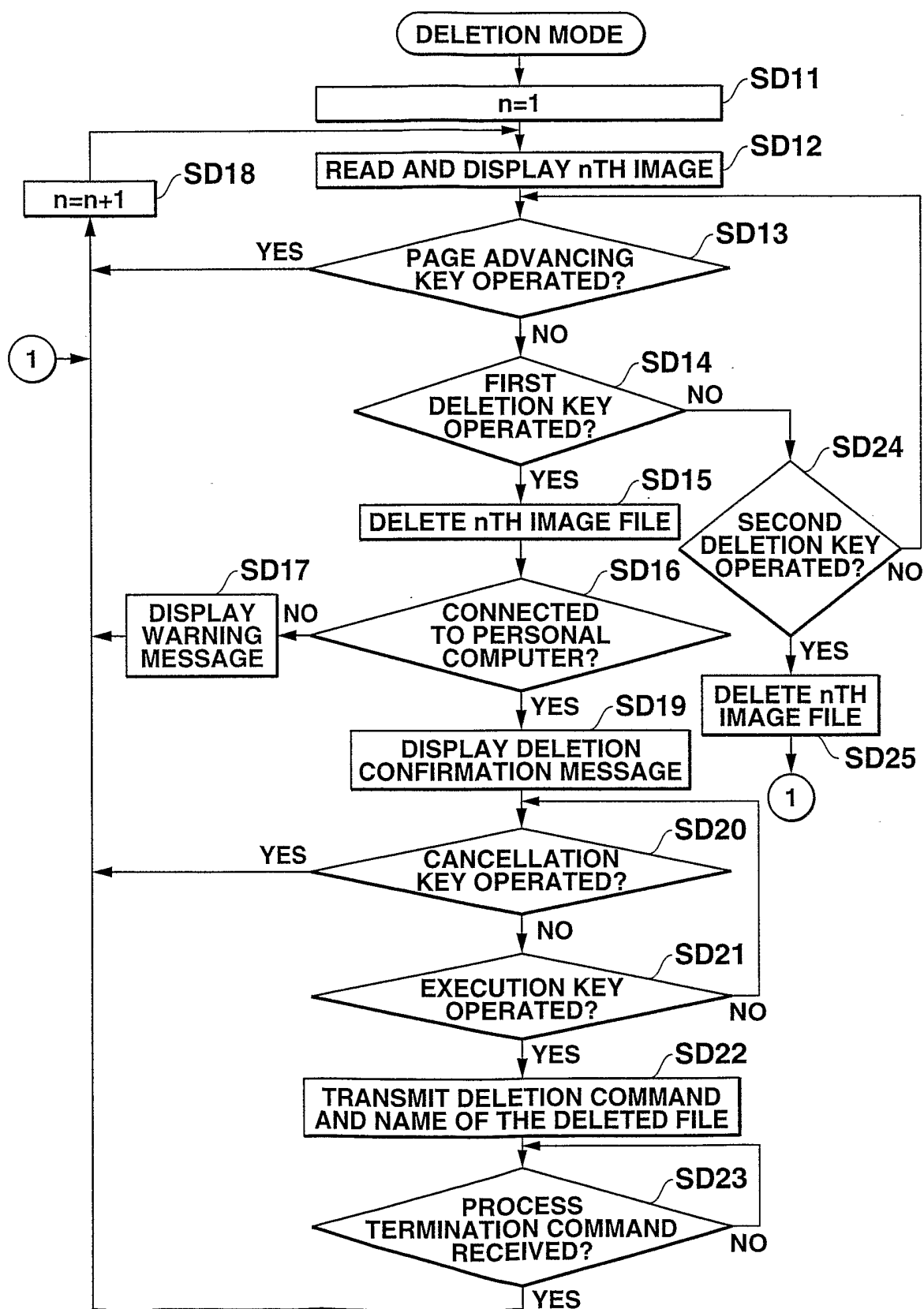


FIG.6

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CAMERA PROCESS**FIG.7**

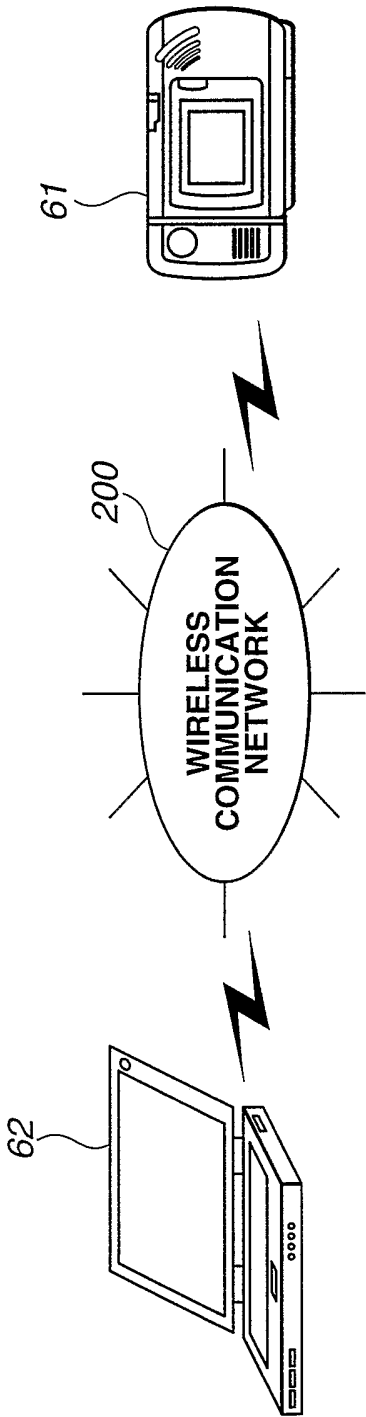


FIG.8