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Samari

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(54) **MEDICAL DATA RECORDING SYSTEM**

(71) Applicant: **Sorna Corporation**, Eagan, MN (US)

(72) Inventor: **Cyrus Kurosh Samari**, Burnsville, MN (US)

(73) Assignee: **SORNA CORPORATION**, Eagan, MN (US)

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This patent is subject to a terminal disclaimer.

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Related U.S. Application Data

(63) Continuation of application No. 13/287,892, filed on Nov. 2, 2011, now Pat. No. 8,687,226, which is a continuation of application No. 12/265,331, filed on Nov. 5, 2008, now Pat. No. 8,059,304, which is a (Continued)

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G06F 19/00	(2018.01)
G06Q 50/24	(2012.01)
G11B 23/40	(2006.01)

(52) **U.S. Cl.**

CPC ***G06F 19/321*** (2013.01); ***G06Q 50/24*** (2013.01); *G11B 23/40* (2013.01)

(58) **Field of Classification Search**

CPC G06F 19/321; G06F 19/323

See application file for complete search history.

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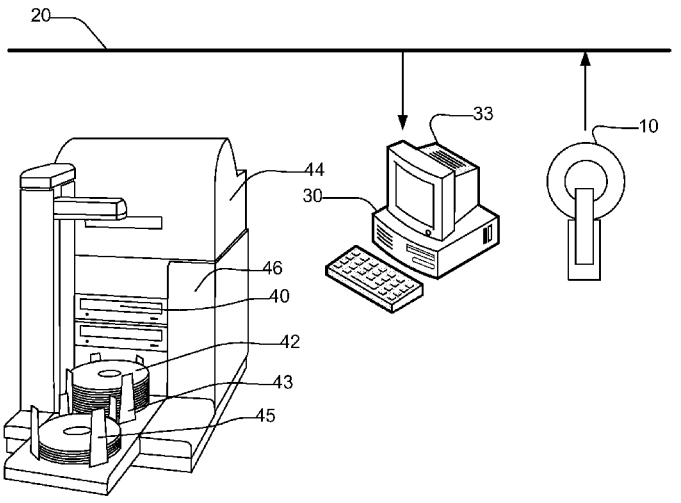
Primary Examiner — Joseph D Burgess

(74) *Attorney, Agent, or Firm* — Billion & Armitage; Richard E. Billion

(57) **ABSTRACT**

A device for recording information on CDRs or other recording media and printing file information for observing what is recorded thereon. The information may be medical images such as x-rays, cat scans, magnetic resonance images, or sonograms. The discs can have patient names and other information selected from information stored thereon, printed on the disc as well as logos for the hospital, service provider or trademarks. The discs can be automatically loaded into the recorder and printer. The fields of information or logos printed on the discs can be changed to suit the user. A database creates and updates a directory of patient files so the discs can be located and the images thereon viewed for each patient. The discs have software allowing the computer to view the images on the disc so that a personal computer not having imaging software can operate the disc.

45 Claims, 4 Drawing Sheets



Related U.S. Application Data

continuation of application No. 09/753,792, filed on Jan. 3, 2001, now Pat. No. 7,965,408.

(60) Provisional application No. 60/205,751, filed on May 19, 2000.

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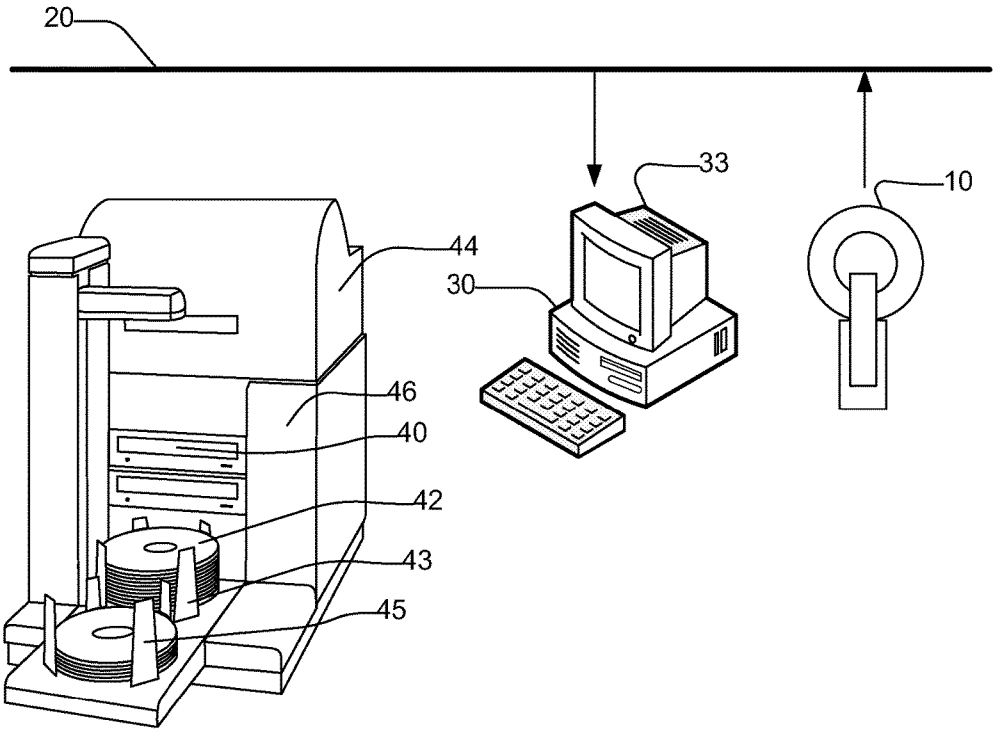

Figure 1

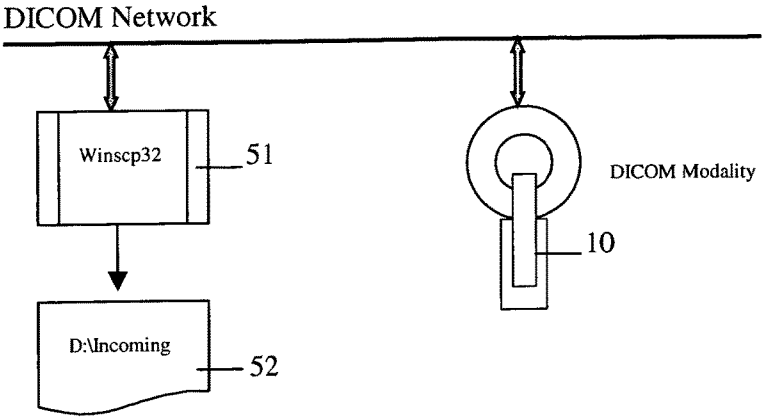

Figure 2

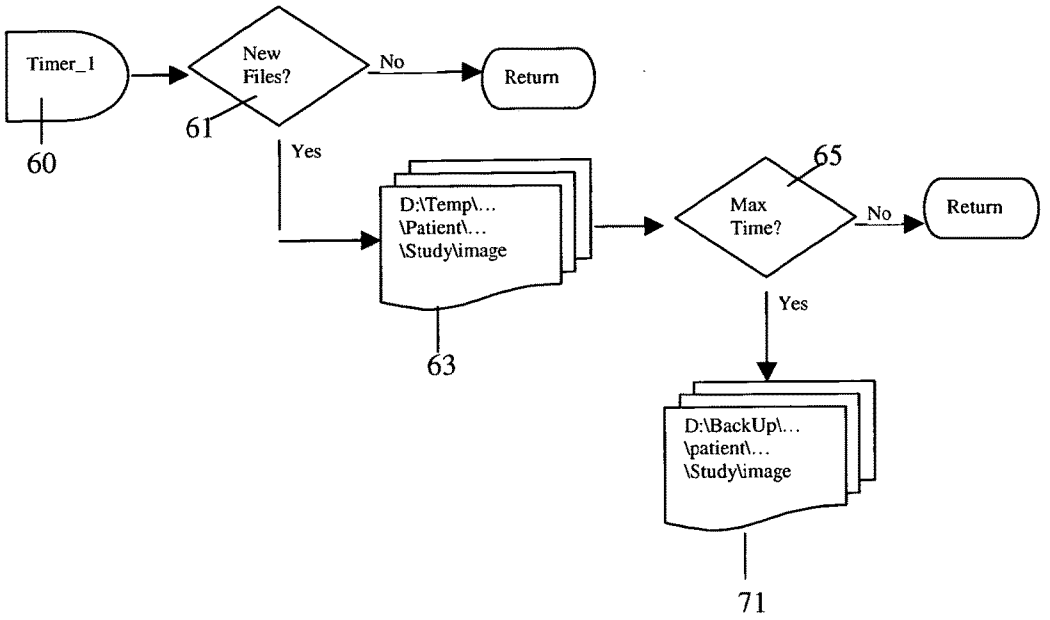

Figure 3

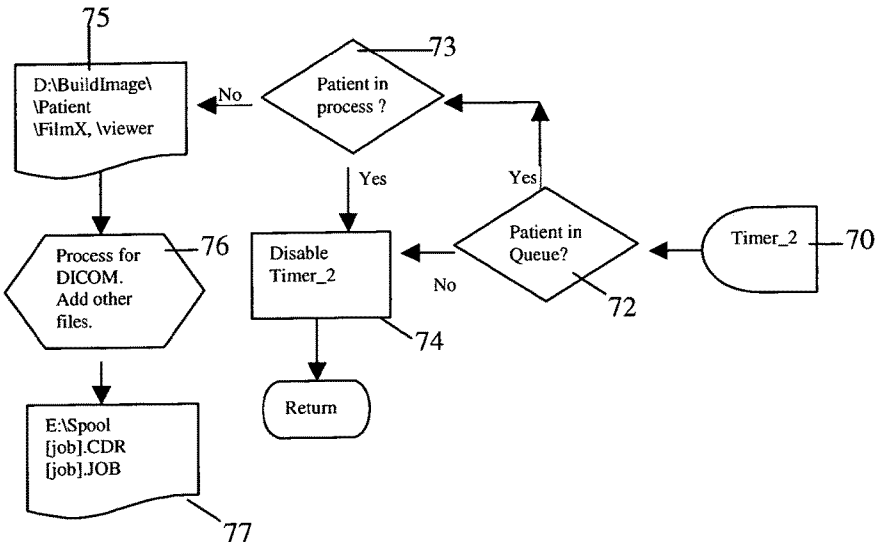

Figure 4

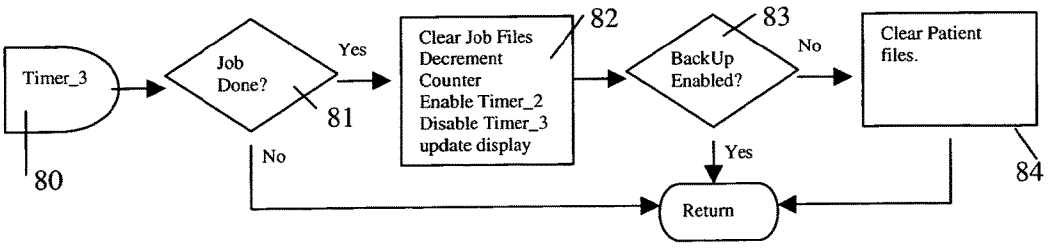

Figure 5

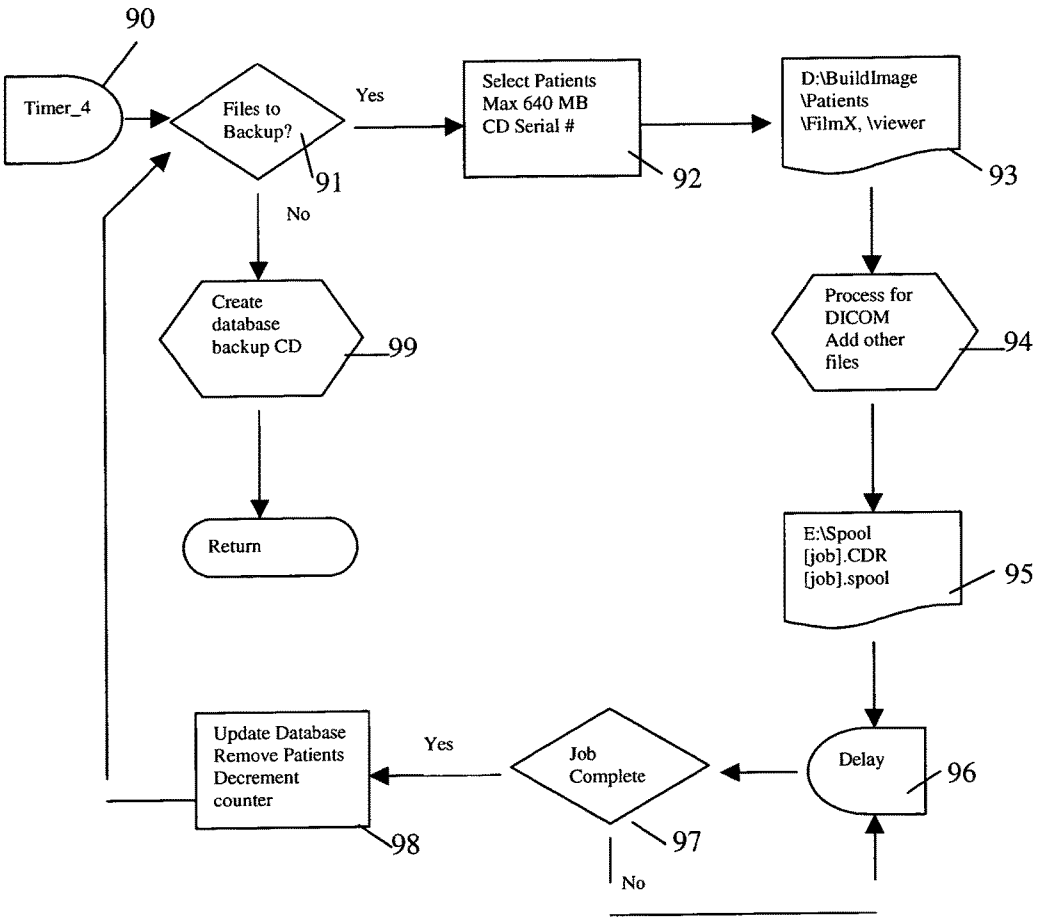
90
Timer_4
Files to Backup?
91
Yes
No
Select Patients Max 640 MB CD Serial #
92
D:\BuildImage \Patients \FilmX, \viewer
93
Process for DICOM Add other files
94
E:\Spool [job].CDR [job].spool
95
Delay
96
Job Complete
97
Yes
No
Update Database Remove Patients Decrement counter
98
Create database backup CD
99
Return

Figure 6.

MEDICAL DATA RECORDING SYSTEM

RELATED APPLICATIONS

This application is a continuation application of U.S. application Ser. No. 13/287,892, filed on 2 Nov. 2011, which is a continuation application of U.S. application Ser. No. 12/265,331, filed on 5 Nov. 2008, now U.S. Pat. No. 8,059,304, which is a continuation application of U.S. application Ser. No. 09/753,792, filed on 3 Jan. 2001, now U.S. Pat. No. 7,965,408, which claims the benefit of U.S. Provisional Application No. 60/205,751, filed on 19 May 2000, the entire contents of which are incorporated herein by reference. A claim of priority is made.

FIELD OF THE INVENTION

This invention relates to data storage and more particularly to determining end of incoming data stream in order to create jobs for recording and printing file information on a disc taken from the electronically stored information on the disc.

BACKGROUND OF THE INVENTION

In the past medical imaging such as x-rays were recorded on film and digital images were stored on digital film using film laser printers, which is expensive, bulky and difficult to store. Also, the original digital data might have to be modified so it can be printed using a laser printer since most printers can not handle high resolution or high quality digital data. Digital image storage allows storage and retrieval of original digital data on discs and transmittal of images over communications systems such as the internet.

There are printers combined with CD recording devices for printing on the disc that has just been recorded.

Medical imaging data is frequently manually stored on CD's and filed for later use in doctor's offices, hospitals, clinics and other medical facilities. The medical images may be generated by x-rays, cat scans, magnetic resonance images, sonograms or other image generating technologies.

Medical imaging data can be transmitted from one location to another over the internet or other communication system for recording the data. The filing and record keeping of the images thus received is a problem. It is a labor-intensive and error-prone task to gather information about each disc, write out labels and attach the labels to the discs, or write directly on the disc for storing and filing. It is very useful to have the information contained on a disc printed on the disc for reference and filing and for automatically creating a directory of the information stored on all the discs recorded in an office.

BRIEF SUMMARY OF THE INVENTION

The present invention automatically scans data received for storage on the disc and prints selected fields of information directly on the discs for ease of file management. The invention also constantly updates a database having a directory of all patient records and the discs the patient data is stored on. Although the invention is described in terms of storing medical imaging data any data imbedded with information useful for filing and label printing can be used with the invention.

The Medical Data Recording System hardware consists of three main components: a computer server; a CD autoloader with printer; and a piracy prevention device. The software components are: DICOM® communication software; FilmX™ software for storing software for viewing the images on the CDs, software for selecting image information to be copied to the CD and fields for printing on the discs; software for creating and updating a database of patient information and autoloader control software for the CDR and printer; and security device driver software.

The computer server communicates with other medical devices on the network using the DICOM® protocol. It receives medical images (patient studies) from other devices, processes the images and burns each patient's images on one or more CDRs along with medical image viewing software and other files as defined by the DICOM® protocol as well as files containing printed label definition and graphics files, files containing patient and study demographics, and necessary system files to make the CD autorun and autoload. Once a CDR has been burnt, information regarding the contents of the CDR and other graphics (company logo, legal notices, etc) is then printed directly on the CDR using the printer attached to the autoloader. Optionally, the system will create back up copies of the medical images it has received by burning them on CDR at configured days of the week and time. Each back up CDR will contain as many patients' images as possible to maximize disc space usage. Each backup disc is assigned a serial number which is printed on it. The patient and study demographics of the backed up data along with the corresponding backup disc serial number is stored in a database where they can queried.

Additional advantages and features of the invention will be set forth in part in the description which follows, and in part, will become apparent to those skilled in the art upon examination of the following or may be learned by practice of the invention.

OBJECTS OF THE INVENTION

It is an object of the invention to print information from selected fields of data saved on a disc onto the disc for visual recognition such that the discs can be properly stored in files.

It is an object of the invention to reduce clerical time and reduce errors by having discs printed with information fields from files stored on the discs.

It is an object of the invention to automatically load discs for information storage.

It is an object of the invention to automatically stop recording when the information stream has stopped and load a new disc for the next patient.

It is an object of the invention to print trademarks, service marks and logos on the discs.

It is an object of the invention to print selectable fields of information on the discs.

It is an object of the invention to back up files at specified time intervals.

It is an object of the invention to get as many images as possible onto one CDR.

It is an object of the invention to conveniently store medical image data on CD's rather than on film.

It is an object of the invention to be able to use a computer display to view medical images stored on CD's.

It is an object of the invention to preserve medical images for long periods of time.

It is an object of the invention to create patient files with directories and subdirectories from image data streams.

It is an object of the invention to divide data streams into separate files.

It is an object of the invention to automatically create and update file databases to locate patient information on the discs.

Other objects, advantages and novel features of the present invention will become apparent from the following detailed description of the invention when considered in conjunction with the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** shows a schematic of the system using the data recording system.

FIG. **2** shows a block diagram of the software steps used in the computer for receiving files from the network and storing them on the computer.

FIG. **3** shows the routine for determining the data for jobs from incoming files.

FIG. **4** shows the routine for processing jobs in queue.

FIG. **5** shows the routine for checking for end of jobs.

FIG. **6** shows the routine for the backup process.

DETAILED DESCRIPTION

FIG. **1** shows a schematic view of the invention. A medical imaging device **10** such as an x-ray, cat scan, magnetic resonance imaging, sonogram or other device which generates information for storage on a disc or generates images of a patient and either transmits it or stores it for later transmittal through a communication network **20** such as the internet to a computer **30**. The computer **30** can be used to select information to be stored by the compact disc writer **40** on compact discs, CDs, **42** and can select what information is to be printed by printer **44** on discs **42**. Although CDs **42** are shown, any recording medium may be used for storage of information. The blank compact discs **42** are stacked in an input CD stack **43** waiting to be recorded. The CD autoloader **46** selects CDs **42** from the top of the input CD stack **43** to be recorded on and places the CDs **42** into the recorder **40**. When the CD **42** has information stored on it, it is moved by the CD autoloader **46** to the printer **44** where selected information and logos or other graphics are printed on the CD **42** so that the users have a written record on the disc of the information stored thereon and logos identifying the producer of the disc or other information. The CDs **42** are then removed from the printer **44** by CD autoloader **46** and placed in the CD output tray **45**. The CDs **42** can then be placed in patient files.

The software for running the invention performs several tasks. There is security software communicating to an attached piracy prevention security device that keeps track of how many CDs are being recorded and what product option are active. There is software to run the autoloading functions of the CD autoloader **46** for recording and moving discs **42**. The software also can be programmed to select the fields of information to be printed on the discs and for printing logos or other graphics or information on the discs. The software also copies instructions for operating the imaging onto the disc so that a computer without imaging software loaded in it can view the images on the discs.

Although many different software programs can be used to accomplish the goals set out above the following shows one method of securing image information for later viewing and recording it on discs with labels printed thereon. The software described herein is called FilmX™ software by the applicant.

FilmX™ software is used to receive data in the computer **30** from the communication network **20**. The software incorporates DICOM® network connectivity software **51** such as WinSCP32.exe which is currently a standard digital imaging protocol used in the industry to receive the digital imaging data from the imaging device **10**. The imaging data is received in the computer **30** by use of network connectivity software **51** using "winSCP32.exe" software available from ETIAM Corporation; Rennes, France. This program is a Storage Service Class Provider using the DICOM® protocol. The computer **30** receives DICOM® images that are sent to it and places them in the Incoming ("D:.backslash-.Incoming") directory **52**. The files are named:<Storage SOP Class>.<SOP Instance UID>.dcm where <Storage SOP Class> is the SOP class of the image and <SOP Instance UID> is the image UID (Unique Identifier).

There are multiple timers defined with in FilmX.exe. Timer.sub.--**1 60** is responsible for checking for incoming new files **61** in Incoming Directory **52**. If new files are received they are stored as a separate file in a temporary directory Temp Directory **63**. Timer.sub.--**1 60** is programmed to check if an end-of-patient-data timeout (MaxTime) 65 has occurred. The value for Timer.sub.--**1 60** is defined in the FilmX.ini file and is hence user configurable. Default time for Timer.sub.--**1 60** is 1 (one) second. Max Time 65 is also user configurable via FilmX.ini and is set to 30 seconds for default. The system will not allow that time to be set less than 10 seconds. Once the Timer.sub.--**1 60** goes off, two routines are called:

DcmBTreeParseInputDirectory

dcmBTreeMakePatientDataAvailable

The first routine parses any DICOM Part **10** file found in Incoming Directory **52**. If any new files **61** are available, they are transferred to the Temp Directory (d:.backslash.Temp) **63**. For each different patient, a subdirectory is created under the Temp Directory **63**, and for each study of this patient, a subdirectory is created under the patient directory.

Patient differentiation is based on Patient Identification which consists of the concatenation of information found in DICOM® datasets: PatientsID '_' PatientsName, without any ' ', any white character or any character that may lead to an invalid Windows directory name, all characters are uppercase and enclosing blanks are removed. Patient Directory name underneath Temp Directory **63** is the Patient Identification described above.

Study identification is based on the StudyInstanceUID. Study Directory name beneath the Patient Directory is the study identification referenced above.

Filenames are the original filenames found in Incoming Directory **52**. This allows the system to override an image if it is sent twice.

An additional text file is created in each Patient Directory. This file has a fixed name (timestamp.bsy) and contains the date and time of the last image insertion in the Patient hierarchy. The following information is also written in this file:

PatientsName

PatientsSex

PatientsBirthDate

An additional text file is created in each Study Directory. This file has a fixed name (study.dsc) and contains the information extracted from the last image of the study inserted in the Study Directory. This information is as follows:

StudyDate

StudyTime

StudyID

StudyDescription

RefferringPhysiciansName
AccessionNumber.

Once DcmBTreeParseInputDirectory has returned, any new patients are added to the Incoming Patient Queue and displayed on the screen as such. The combination of patient "[id]_[name]" is now the internal job name used for tracking the job.

Then dcmBTreeMakePatientDataAvailable is called to check in Temp Directory **63** if any patient subdirectories have not been modified (some images added) since MaxTime 65 seconds ago. The number of unmodified directories since MaxTime 65 seconds is returned. If no new files **61** have arrived for a patient, the timestamp file (timestamp.bsy) for the patient will be renamed to a fixed filename (timestamp.rdy).

Once the function returns a positive number, we browse for Patient Directories in the Temp Directory **63** containing "timestamp.rdy" file. The entire patient hierarchy is then moved to the Backup Directory **71** (D:.backslash.Backup). The Job is then removed from the Incoming Patient Queue and added to the Pending Patient Queue and displayed as such. If inactive, Timer.sub.--**2 70** is activated to start processing the pending job(s).

Timer.sub.--**2 70** is responsible for moving jobs pending in Queue to be processed. Once it goes off, the system is checked for any patient in queue **72**, if none are present, Timer.sub.--**2 70** is disabled in step **74**. If there are pending jobs in Pending Patient Queue, the system is checked for patient in process **73** (being recorded or printed). If there is one, Timer.sub.--**2 70** is disabled and it returns. If there are no patients in process **73**, the next job in Pending Patient Queue, is processed. The patient directory hierarchy in Backup Directory **71** is moved to the Build Image Directory **75** (D:.backslash.Build Image) to get ready to burn on CDR(s). The Build Image Directory **75** also contains a Viewer Directory (".backslash.Viewer) where the viewing software resides. There is also a FilmX Directory ("FilmX") in the Build Image Directory **75** which contains the Patient information file ("Patient.txt") and the Xlabel Directory (".backslash.Xlabel") where the CD printing label definitions and graphics files reside. Since DICOM® Exchange standards only allow for eight character file names, the Patient, and Study directories as well as image file names are converted to eight character format in processing step **76**. The Patient Directory name is changed to "PT000000" for the first patient. In case of back up CD, Patient Directories are then sequentially named "PT000001" and so on. The Study Directory(ies) are named starting with "ST000000" and increase sequentially if there is more then one study for the patient. The image files are then named starting with "IM000000" and so on. On the Build Image Directory **75** there is also an "autorun" file which is recognized by the Windows operating system and executed when a disc is inserted in a computer. The "autorun" file contains instructions to start the viewer in an "autoload" fashion causing it to immediately load and display the first Patient's first Study. Finally, according to DICOM® Exchange standard, a "DICOMDIR" file is generated in step **76** in the Build Image Directory **75**.

Once the Build Image Directory **75** is complete, it represents what should be put on the final CDR with Build Image Directory **75** as the root of the CD. The computer program "Premaster.exe" is then called to create a CD image of the contents of the Build Image Directory **75**. This program is part of the BuzzSaw® software package produced by ISO Media of Seattle, Wash. The result is a "[job].CDR" file which is the image of the final CDR. It is located in the Spool Directory **77** (E:.backslash.Spool). A "[job]job" file containing the job control information for the autoloader control software (Buzzsaw®) is created in the Spool Directory **77**. The Job file specifies the name of the CDR file, the input file for the print label fields, the number of CDRs to be made, the test flag, and other fields as required by the Buzzsaw® software. Once the CD image files is generated in the Spool Directory **77**, the Build Image Directory **75** is then cleared of the patient directory and other created files. Once created, the job file is recognized by the Buzzsaw® software and processed.

Buzzsaw® instructs the autoloader **46** to pick up a new CDR **42**, put it in the CDR drive **40**. Once there, Buzzsaw® will proceed to record the contents of [job].CDR" file on the CDR **42** in the drive **40**. In multi-copy, multi-drive situations, Buzzsaw® will place new CDRs **42** in other drives **40** as well and record them simultaneously. Once the recording is finished, Buzzsaw® instructs the autoloader **46** to place the recorded CDR **42** in the Disc Printer **44**. It will then execute the printing software to print the label containing the input fields on the CDR.

The label printing software and printer driver are supplied by Primera Technologies; Plymouth, Minn., a disc printer manufacturer. The label definitions allow for input fields to be merged into the label via a merge file in Build Image Directory **75**. The patient.txt file in the Build Image directory **75** is that merge file.

Once printed, the CDR **42** is then placed in the output bin **45** by the autoloader **46**. If there are multiple copies, the other CDRs **42** are then printed by the Disc Printer **44** and put on the output bin **45** as well by the autoloader **46**. Buzzsaw® then updates the status line at the bottom of the "[job].JOB" file contained in the Spool Directory **77** to indicate the job is completed.

Timer.sub.--**3 80** is responsible for checking the end of the job. Once Timer.sub.--**3 80** goes off, the system checks for job done **81**. If so, the job is moved from the Patients in Process to Patients completed and display is updated in step **82** where Timer.sub.--**3 80** is cleared, and Timer.sub.--**2 70** is enabled. If Backup Enabled **83** is false, the patient directory is deleted from Backup Directory **71**. Otherwise, it will be kept there to be used during the backup.

Timer.sub.--**4 90** starts the backup process. It is programmed to go off at the configured time on the configured day(s) of the week. The program then checks if there are any files to backup **91**. This is also a check for the end of back up process. If finished (or nothing left to back up), a CDR **42** containing only the latest database files is generated **99**. This is the backup disc for the database files. If there are files to backup **91**, in Select Patients step **92** enough patients are selected to fill a 650 MB CD (if there are enough) minus approximately 10 MB which is used for storing system, label, and viewer files. A Backup CD unique serial number is also generated in Select Patients step **92**. The patient directories are then moved from Backup Directory **71** to Build Image Directory **75**. The same processing as for a patient CD, as described in steps **75-77** above then occur steps **93-95**. Once a backup job is created, the software then goes through a timed delay **96** waiting for the job to finish by checking for job complete **97**. Once done, the database is updated with the patient and study information of all the patients on that CD and the CD unique serial number in Update Database step **98**. The process starts anew by checking to see if there are any more files to back up **91**.

A simple query screen allows for querying the backup database using patient name, patient id, or study date thus allowing the user to find which CD a patient information is stored on.

The piracy protection device is attached to the parallel port. It is initialized with the number of CDRs **42** purchased, and with patient and/or backup options. FilmX™ will create patient CDs if that option is enabled; back up CDs if that option is enabled; and ii both if both options are present. Once a job has been successfully completed, the number of CDs created by it are deducted from the counter in the piracy protection device. If at Zero, the system halts operation until a new code for additional CDs has been entered. Patient and/or backup options can be enabled by operator entering a code provided by Soma Corporation.

Even though the invention has been described herein using CDRs, other printable recording medium, including but not limited to CDR, CDRW, DVD-R, DVD-RW, DVDRAM; can be used.

Obviously, many modifications and variations of the present invention are possible in light of the above teachings. It is therefore to be understood that, within the scope of the appended claims, the invention may be practiced otherwise than as specifically described.

What is claimed is:

1. A medical data recording method comprising:

receiving medical data information in DICOM format for a plurality of patients through a software module and extracting patient identification information and study information from the received medical data information, the medical data further comprising one or more files;

storing the extracted patient identification information and extracted study information, the stored extracted study information and patient identification information coming from the one or more files;

storing DICOM image information coming from the one or more files, the-patient identification information for each of the plurality of patients read from one or more portions of headers associated with the DICOM image;

determining an end of the received medical data information through the software module for each patient; and

providing print information for a record and print control software, the print information having selected fields obtained from a scan of the stored extracted patient identification information and the stored extracted study information;

recording said DICOM image information from the one or more files on a recording media;

recording other files as defined by DICOM on the recording media; and

printing the selected fields from the scan of the stored extracted patient identification information and the stored extracted study information on the recording media to label the recording media for at least one of the plurality of patients.

2. The medical data recording method of claim **1** further comprising communicating with a security software to an attached piracy prevention security device to track a number of recording media being recorded.

3. The medical data recording method of claim **1** further comprising:

associating a serial numbering device for associating a serial number with the recording media; and

storing the medical information associated with the serial number and the associated recording media in a searchable format.

4. The medical data recording method of claim **1** further comprising:

the medical information for the plurality of patients including images, patient identification information and study information;

sorting the medical information based on patient identity information;

associating at least one DICOM file with medical information on the recording media; and

labeling the recording media, the label including at least a portion of selected medical information, the portion of the selected medical information associated with the content of the at least one DICOM file stored on the recording media.

5. The medical data recording method of claim **1** further comprising storing the DICOM image information on said recording media at another memory location.

6. The medical data recording method of claim **1** further comprising:

storing the DICOM image information on said recording media at another memory location; and

associating a unique identifier with the recording media and with the DICOM image information stored at another memory location.

7. The medical data recording method of claim **1** wherein storing the DICOM image information on said recording media at another memory location is part of backing up the medical data information.

8. The medical data recording method of claim **1** further includes recording a medical data viewing software on the media.

9. The medical data recording method of claim **1** wherein the recording media is loaded, and moved robotically.

10. The medical data recording method of claim **1** wherein the recording media is recorded and labeled at substantially one position.

11. The medical data recording method of claim **1** wherein the label for the recording media includes selected logos, trademarks or images.

12. The medical data recording method of claim **1** wherein receiving medical data information includes receiving a plurality of files at different times.

13. The medical data recording method of claim **1** wherein determining the end of the received medical data comprises utilizing a time out period.

14. The medical data recording method of claim **1** wherein the receiving medical data information includes receiving a plurality of patient files for different patients at different times.

15. The medical data recording method of claim **1** wherein receiving medical data information in DICOM format through a software module receiving medical data information from a network, the medical data further comprising one or more files.

16. A non-transitory machine-readable medium providing instructions that, when executed by a machine, cause the machine to perform operations comprising:

receiving medical data information in DICOM format through a software module and extracting patient identification information and study information from the received medical data information, the medical data further comprising one or more files for a plurality of patients;

storing the extracted patient identification information and extracted study information, the stored extracted study information and patient identification information coming from the one or more files;

storing DICOM image information coming from the one or more files, the-patient identification information read from one or more portions of headers associated with the DICOM image information;

determining an end of the received medical data information through the software module for each patient; and

providing print information for a record and print control software, the print information having selected fields obtained from a scan of the stored extracted patient identification information and the stored extracted study information for at least one of the plurality of patients;

recording said DICOM image information from the one or more files on a recording media;

recording other files as defined by DICOM on the recording media; and

printing the selected fields from the scan of the stored extracted patient identification information and the stored extracted study information on the recording media to label the recording media for a patient.

17. The non-transitory machine-readable medium of claim **16** providing instructions that, when executed by a machine, cause the machine to perform operations comprising communicating with a security software to an attached piracy prevention security device to track a number of recording media being recorded.

18. The non-transitory machine-readable medium of claim **16** providing instructions that, when executed by a machine, cause the machine to perform operations comprising:

associating a serial numbering device for associating a serial number with the recording media; and

storing the medical information associated with the serial number and the associated recording media in a searchable format.

19. The non-transitory machine-readable medium of claim **16** wherein the instructions for receiving medical information that, when executed by a machine, further cause the machine to perform operations comprising:

receiving medical information in the form of a DICOM file for a plurality of patients, the medical information including images, patient identification information and study information;

sorting the medical information based on patient identity information;

associating at least one DICOM file associated with medical information on the recording media; and

labeling the recording media, the label including at least a portion of selected medical information, the portion of the selected medical information associated with the content of the at least one DICOM file stored on the recording media.

20. The non-transitory machine-readable medium of claim **16** further providing instructions that, when executed by a machine, cause the machine to perform operations comprising storing the patient identification information on said recording media at another memory location.

21. The non-transitory machine-readable medium of claim **16** providing instructions that, when executed by a machine, cause the machine to perform operations wherein the recording media is loaded, and moved robotically.

22. A medical data recording method comprising:

receiving medical data information of one or more patients in DICOM format through a software module communicatively coupled to a network;

extracting patient identification information and extracting study information from the received medical data information;

storing DICOM image information coming from the medical data information, the-patient identification information read from one or more portions of headers associated with the DICOM image information;

storing the extracted patient identification information and extracted study information, from the medical data information;

automatically scanning the stored extracted patient identification information and the stored extracted study information for selected fields from one or more files;

noting the end of the received medical data information through the software module for each patient;

creating a job for a patient containing medical data, and medical data image viewing software; providing information to allow for visual recognition to an autoloader control software, the information having the selected fields obtained from the automatically scanning of the stored extracted patient identification information and the stored extracted study information; submitting the job to the autoloader control software; recording at least one DICOM image on a disc; recording a DICOMDIR file on the disc;

recording on the disc the job such that the medical data information image viewing software is recorded on the disc along with the medical data information; and

automatically printing the selected fields of the stored extracted patient identification information and the stored extracted study information to label the disc.

23. A medical data recording method of claim **22** wherein other files as defined by DICOM are recorded on the disc.

24. A non-transitory machine-readable medium providing instructions that, when executed by a machine, cause the machine to perform operations comprising:

receiving medical data information in DICOM format through a software module and parsing patient identification information and study information from the received medical data information, the medical data information further comprising medical data information for one or more patients,

storing the parsed patient identification information and parsed study information, the stored parsed study information and patient identification information coming from the one or more files,

storing DICOM image information coming from the one or more files, the-patient identification information read from one or more portions of headers associated with the DICOM image information,

noting the end of the received medical data information through the software module for each patient,

creating a job containing medical data for a patient, and medical data image viewing software, and

providing information to allow for visual recognition to an autoloader control software, the information having selected fields obtained from an automatic scan of the stored parsed patient identification information and the stored parsed study information,

submitting the job to the autoloader control software, and

recording said DICOM image information from the one or more files on a recording media, recording a DICOMDIR file and other files as defined by DICOM on the recording media, recording, on said recording media in

response to the job, the medical data image viewing software along with the medical data information,

automatically printing the selected fields of the automatic scan of the stored parsed patient identification information and the stored parsed study information on the recording media to label the recording media, and

storing information to form a logical continuum to said DICOM image information from the one or more files recorded on said recording media at another location of storage.

25. The non-transitory machine-readable medium of claim **24** providing instructions that, when executed by a machine, cause the machine to perform operations comprising storing the information on said recording media at another location of volatile memory that can be written to as well as read.

26. The non-transitory machine-readable medium of claim **24** providing instructions that, when executed by a machine, cause the machine to perform operations comprising storing the information related to the information recorded on said disc at another storage location as part of a backup system for creating at least one additional copy of data.

27. A medical data recording method comprising:

receiving medical data information of one or more patients in DICOM format through a software module communicatively coupled to a network;

extracting patient identification information and extracting study information from portions of headers associated with the received medical data information;

automatically scanning the extracted patient identification information and the extracted study information from one or more files;

noting the end of the received medical data information through the software module for each patient;

creating a job for a patient containing medical data information;

providing information for visual recognition, the information provided to an autoloader control software, the information obtained from the automatically scanning of the extracted patient identification information and the extracted study information;

submitting the job to the autoloader control software;

recording the medical data information on the disc; and

automatically printing at least some of extracted patient identification information and the extracted study information to label the disc.

28. The medical data recording method of claim **27** wherein other files as defined by DICOM are recorded on the disc.

29. The medical data recording method of claim **27** further comprising recording at least one file on a disc in DICOM format.

30. The medical data recording method of claim **27** further comprising recording a DICOMDIR file on the disc.

31. The medical data recording method of claim **27** further comprising:

storing DICOM image information from the medical data information; and

storing the extracted patient identification information and extracted study information, from the medical data information.

32. The medical data recording method of claim **27** further comprising recording a viewer for viewing files in DICOM format.

33. A non-transitory machine-readable medium providing instructions that, when executed by a machine, cause the machine to perform operations comprising:

receiving medical data information of one or more patients in DICOM format through a software module communicatively coupled to a network;

extracting patient identification information and extracting study information from the received medical data information by reading portions of headers associated with the medical data information;

automatically scanning the extracted patient identification information and the extracted study information from one or more files;

noting the end of the received medical data information through the software module for each patient;

creating a job for a patient containing medical data information;

providing information for visual recognition, the information provided to an autoloader control software, the information obtained from the automatically scanning of the extracted patient identification information and the extracted study information;

submitting the job to the autoloader control software;

recording the medical data information on the disc; and

automatically printing at least some of extracted patient identification information and the extracted study information to label the disc.

34. The non-transitory machine-readable medium of claim **33** providing instructions that, when executed by a machine, cause the machine to perform operations further comprising recording a DICOMDIR file on the disc.

35. The non-transitory machine-readable medium of claim **33** providing instructions that, when executed by a machine, cause the machine to perform operations further comprising recording at least one file on the disc in DICOM format.

36. The non-transitory machine-readable medium of claim **33** providing instructions that, when executed by a machine, cause the machine to perform operations further comprising recording other files as defined by DICOM on the disc.

37. The non-transitory machine-readable medium of claim **33** providing instructions that, when executed by a machine, cause the machine to perform operations further comprising:

storing DICOM image information from the medical data information; and

storing the extracted patient identification information and extracted study information, from the medical data information.

38. The non-transitory machine-readable medium of claim **33** providing instructions that, when executed by a machine, cause the machine to perform operations further comprising recording a viewer for viewing files in DICOM format.

39. A medical data recording system comprising:

a processor;

a memory; and

an instruction set stored in memory that causes the processor to:

receive medical data information of one or more patients in DICOM format through a software module communicatively coupled to a network;

extract patient identification information and extracting study information from the received medical data information by reading one or more portions of headers associated with the medical data information;

automatically scan the extracted patient identification information and the extracted study information from one or more files;

note the end of the received medical data information through the software module for each patient;

create a job for a patient containing medical data information;

provide information for visual recognition, the information provided to an autoloader control software, the information obtained from the automatically scanning of the extracted patient identification information and the extracted study information;

submit the job to the autoloader control software;

record the medical data information on the disc; and

automatically print at least some of extracted patient identification information and the extracted study information to label the disc.

40. The medical data recording system of claim **39** wherein the instruction set stored in memory further causes the processor to record other files as defined by DICOM on the disc.

41. The medical data recording system of claim **39** wherein the instruction set stored in memory further causes the processor to record at least one file on a disc in DICOM format.

42. The medical data recording system of claim **39** wherein the instruction set stored in memory further causes the processor to record a DICOMDIR file on the disc.

43. The medical data recording system of claim **39** wherein the instruction set stored in memory further causes the processor to:

store DICOM image information from the medical data information; and

store the extracted patient identification information and extracted study information, from the medical data information.

44. The medical data recording system of claim **39** wherein the instruction set stored in memory further causes the processor to record a viewer for viewing files in DICOM format.

45. A medical data recording method comprising:

receiving a file including:

medical data information received from one or more modalities for a patient, the medical information in DICOM format, the medical data information received through a software module communicatively coupled to a network;

patient identification information and study information extracted from portions of headers associated with the received medical data information by scanning the extracted patient identification information and the extracted study information from one or more files, the end of the received medical data information noted through the software module for the patient;

a job for created for the patient containing medical data information which includes information for visual recognition, the information provided to an autoloader control software, the information obtained from the automatically scanning of the extracted patient identification information and the extracted study information; and

printing the file as received which further includes:

submitting the job to the autoloader control software;

recording the medical data information on the disc; and

automatically printing at least some of extracted patient identification information and the extracted study information to label the disc.

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