IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

TV GUIDE ONLINE, INC. and TV GUIDE ONLINE, LLC, Plaintiffs and Counterclaim Defendants, v. TRIBUNE MEDIA SERVICES, INC., Defendant and Counterclaim Plaintiff.	)	C.A. No.: 05-725-*** **PUBLIC VERSION**

CONSOLIDATED APPENDIX OF EXHIBITS
FOR DEFENDANT TRIBUNE MEDIA SERVICES, INC.'S
OPENING SUMMARY JUDGMENT AND MARKMAN BRIEFING

VOLUME 1 OF 2

Of Counsel

Mark A. Pals, P.C.
Linda S. DeBruin, P.C.
Michael A. Parks
Meredith Zinanni
KIRKLAND & ELLIS LLP
200 East Randolph Drive
Chicago, Illinois 60601
312.861.2000

Richard K. Herrmann (I.D. No. 405)
Mary B. Matterer (I.D. No. 2696)
MORRIS JAMES LLP
500 Delaware Avenue, 15th Floor
Wilmington, Delaware 19801
302.888.6800

Counsel for Defendant Tribune Media Services, Inc.

Original Dated: October 5, 2007
Redacted Version: October 15, 2007

TRIBUNE MEDIA SERVICES v. TV GUIDE INDEX	
DESCRIPTION	**PAGE NUMBER**
U.S. Patent 5,988,078	A 1-8
1992 Application	A 9-26
1992 Application Claim for Priority	A 27
08/13/1993 Office Action	A 28-35
11/16/1993 Amendment	A 36-46
02/07/1994 Office Action	A 47-52
08/08/1994 Application	A 53-74
09/29/1994 Notice of Abandonment	A 75
12/02/1996 Office Action	A 76-82
04/15/1997 Interview Summary	A 83
U.S. Patent 5,692,214	A 84-93
'078 Application Claim for Priority	A 94
10/09/1997 Preliminary Amendment	A 95-99
07/24/1998 Office Action	A 100-105
11/30/1998 Amendment	A 106-110
02/12/1999 Office Action	A 111-116
05/18/1999 Response to Office Action	A 117-119
06/08/1999 Notice of Allowability & Examiner's Amendment	A 120-123
04/13/1998 Record of Assignment	A 124-126
10/06/2005 Assignment to TV Guide	A 127
Delaware Secretary of State Report	A 128-129

U.S. Patent 4,706,121	A 130-158
The Complete Guide To CompuServe	A 159-181
CompuServe Information Service Today, July 1981	A 182-189
CompuServe Information Service Today, January 1982	A 190-197
Online Today, January 1985	A 198-199
Alfred Glossbrenner's Master Guide to CompuServe	A 200-215
Gemstar TV Guide Licensing Opportunities Internet IPGs Presentation	A 216-237
TV Guide-Yahoo! License Agreement	A 238-299
Gemstar TV Guide Licensing Opportunities Internet IPGs Presentation	A 300-321
03/27/1997 Letter from Donahue to Youngman (TMS 0001559-1565)	A 322-328
clickTV Grids (TMS 0025980-25985)	A 329-334
Zap2it.com screen shot	A 335-336
Zap2it.com User Profile	A 337
February 2002, Site User Profile: Wave 4 Tracking Prepared for Zap2it.com	A 338-411
Home v. Work Usage Statistics	A 412-450
Nielsen Statistics (TG 164155)	A 451
Zap2it.com screen shots	A 452-454
07/30/1993 Assignment Agreement	A 455-481
The New IEEE Standard Dictionary of Electrical and Electronics Terms	A 482-485
Dictionary of Computing	A 486-489

Merriam-Webster's Collegiate Dictionary	A 490-492
Newton's Telecom Dictionary	A 493-496
Newton's Telecom Dictionary	A 497-500
Newton's Telecom Dictionary	A 501-504
Microsoft Press Computer Dictionary (Second Edition)	A 505-515
Microsoft Press Computer Dictionary (Third Edition)	A 516-524
Microsoft Press Computer Dictionary	A 525-533
Newton's Telecom Dictionary	A 534-537
12/04/2006 Plaintiffs' Supplemental Responses and Objections to Defendant's Interrogatory Nos. 1, 4, 10, 11, 12, 13, 14, 17, 18 and 19	A 538-552
Expert Report of Dr. Christopher A. Vellturo	A 553-566
Supplemental Expert Report of J. Tipton Cole Concerning Infringement and Validity	A 567-569
Expert Report of J. Tipton Cole Concerning Infringement	A 570-588
Rebuttal Expert Report of J. Tipton Cole Concerning Validity	A 589-592
Rebuttal Expert Report of Michael H. Chase On Damages	A 593-595
06/21/2007 Deposition Transcript of J. Tipton Cole	A 596-613
10/18/2006 and 01/31/2007 Deposition Transcripts of Samir Armaly	A 614-623
10/11/2006 Deposition Transcript of Barry Berkov	A 624-628
08/25/2006 Deposition Transcript of Michael Levine	A 629-636

09/29/2006 Deposition Transcript of Barbara Needleman	A 637-638
08/09/2006 Deposition Transcript of Kathleen Frances Tolstrup	A 639-641
08/14/2007 Deposition Transcript of Christopher Vellturo, Ph.D.	A 642-650
TV Guide v. TMS: Proposed Claim Constructions as of September 21, 2007	A 651-652
Declaration of Gary S. Tjaden	A 653-674

US005988078A

United States Patent [19]

Levine

[11] Patent Number: 5,988,078

[45] Date of Patent: Nov. 23, 1999

[54] METHOD AND APPARATUS FOR RECEIVING CUSTOMIZED TELEVISION PROGRAMMING INFORMATION BY TRANSMITTING GEOGRAPHIC LOCATION TO A SERVICE PROVIDER THROUGH A WIDE-AREA NETWORK

[75] Inventor: Michael R. Levine, Boca Raton, Fla.

[73] Assignee: Gemstar Development Corp., Pasadena, Calif.

[21] Appl. No.: 08/947,950

[22] Filed: Oct. 9, 1997

Related U.S. Application Data

[63] Continuation of application No. 08/287,343, Aug. 8, 1994, Pat. No. 5,692,214, which is a continuation-in-part of application No. 07/848,338, Mar. 9, 1992, abandoned, which is a continuation-in-part of application No. 07/802,249, Dec. 4, 1991, abandoned.

[51] Int. Cl.[6] G06F 13/14; H04N 7/03

[52] U.S. Cl. 110/8; 348/13; 348/460; 709/218

[58] Field of Search 395/200; 348/13, 348/460; 709/218; 710/8

[56] References Cited

U.S. PATENT DOCUMENTS

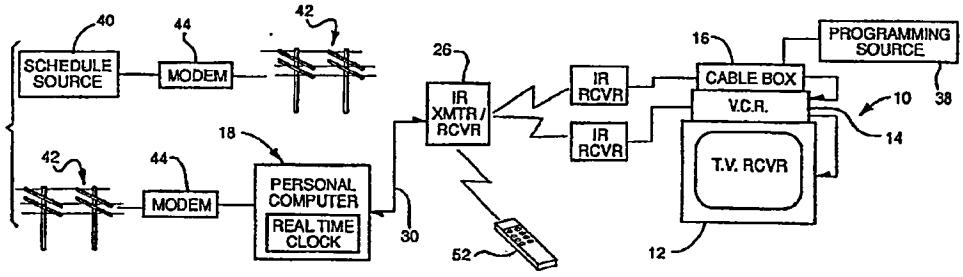
4,521,914	6/1985	Petrovic	455/158.5
4,630,108	12/1986	Gomersall	348/13
4,734,765	3/1988	Okada et al.	348/107
4,751,578	6/1988	Reiter et al.	348/564
5,223,924	6/1993	Strubbe	358/86
5,291,554	3/1994	Morales	380/5
5,382,983	1/1995	Kwoh et al.	348/716
5,404,505	4/1995	Levinson	707/10
5,485,219	1/1996	Woo	348/460
5,534,911	7/1996	Levitan	348/1
5,619,274	4/1997	Roop et al.	348/461
5,663,757	9/1997	Morales	348/13
5,703,795	12/1997	Mankovitz	345/327
5,781,246	7/1998	Alten et al.	348/569

Primary Examiner—Thomas C. Lee
Assistant Examiner—Albert Wang
Attorney, Agent, or Firm—Gifford, Krass, Groh, Sprinkle, Anderson & Citkowski, PC

[57] ABSTRACT

A personal computer is used to assist in the selection of television programs to be recorded at future times and to control a video tape recorder to implement the selected recordings. An application program allows the computer to receive data representing a schedule of future programs. The operator can perform data base operations on the data to obtain listings of programs of particular interest. A program to be recorded is selected by moving a cursor into position with the display of the program listing on the computer. An output device generates infrared signals to control the video tape recorder and a cable box to tune and record a selected program.

10 Claims, 3 Drawing Sheets



www.freepatentsonline.com

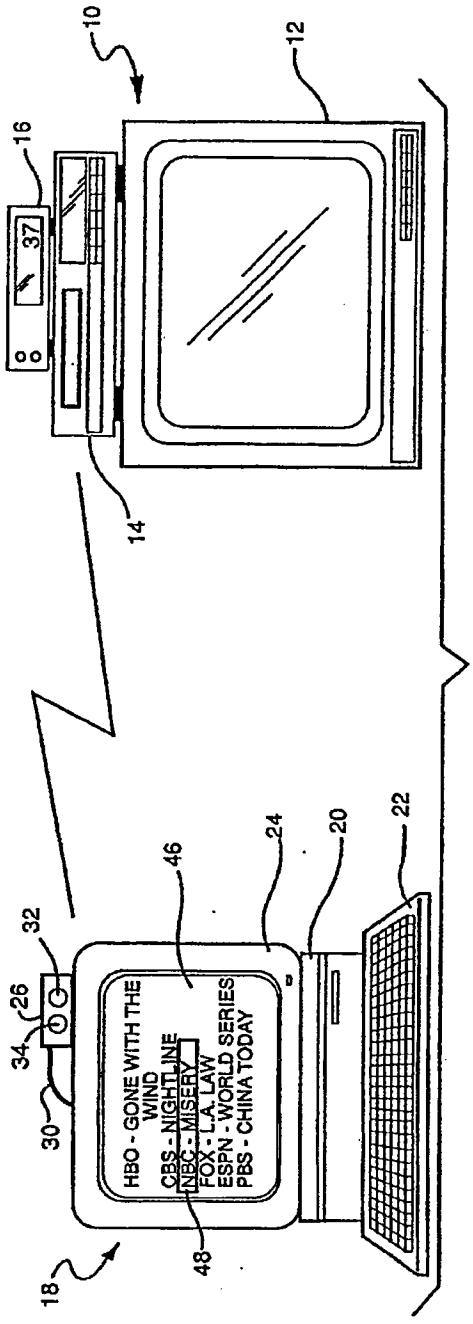


FIG - 1

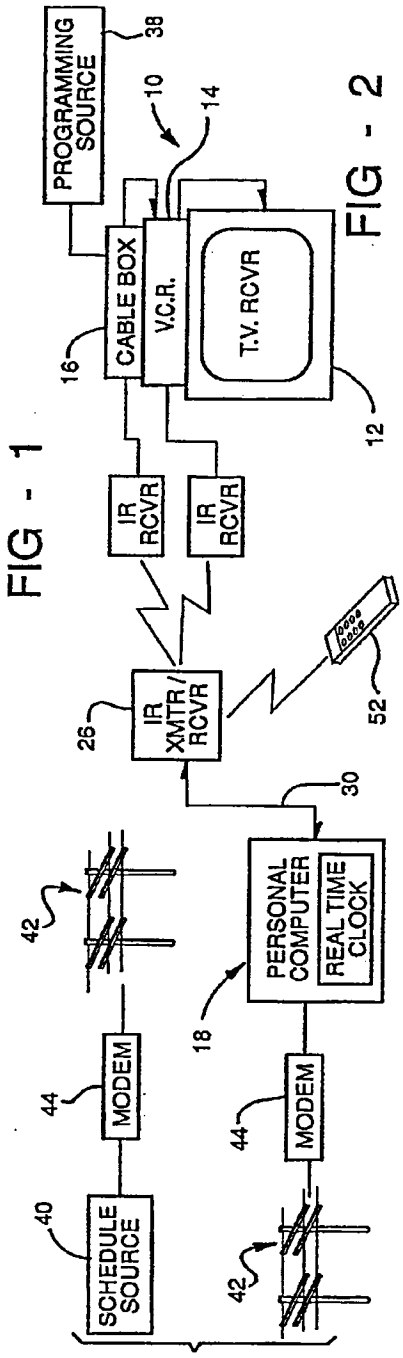


FIG - 2

www.freepatentsonline.com

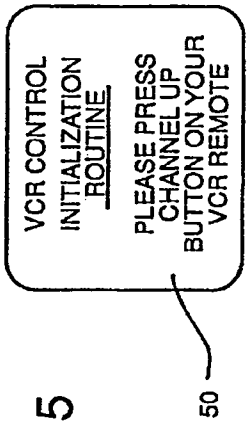


FIG - 5

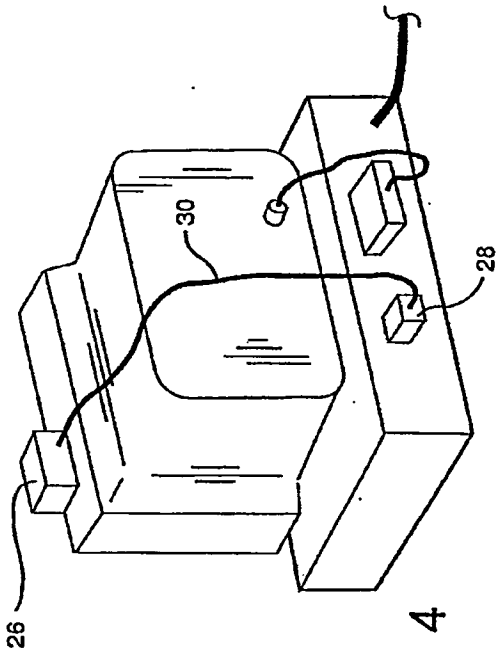


FIG - 4

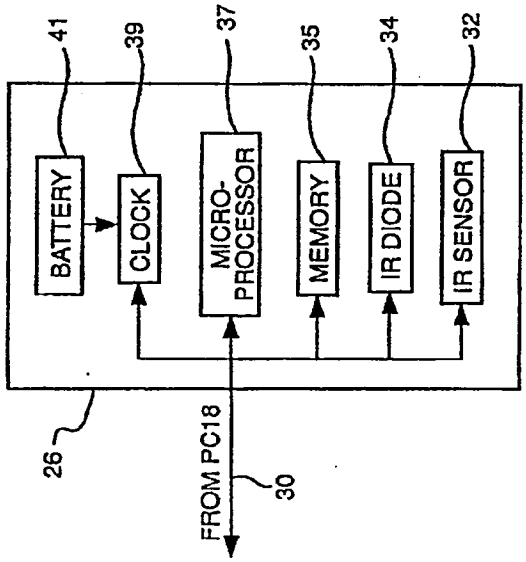


FIG - 3

www.freepatentsonline.com

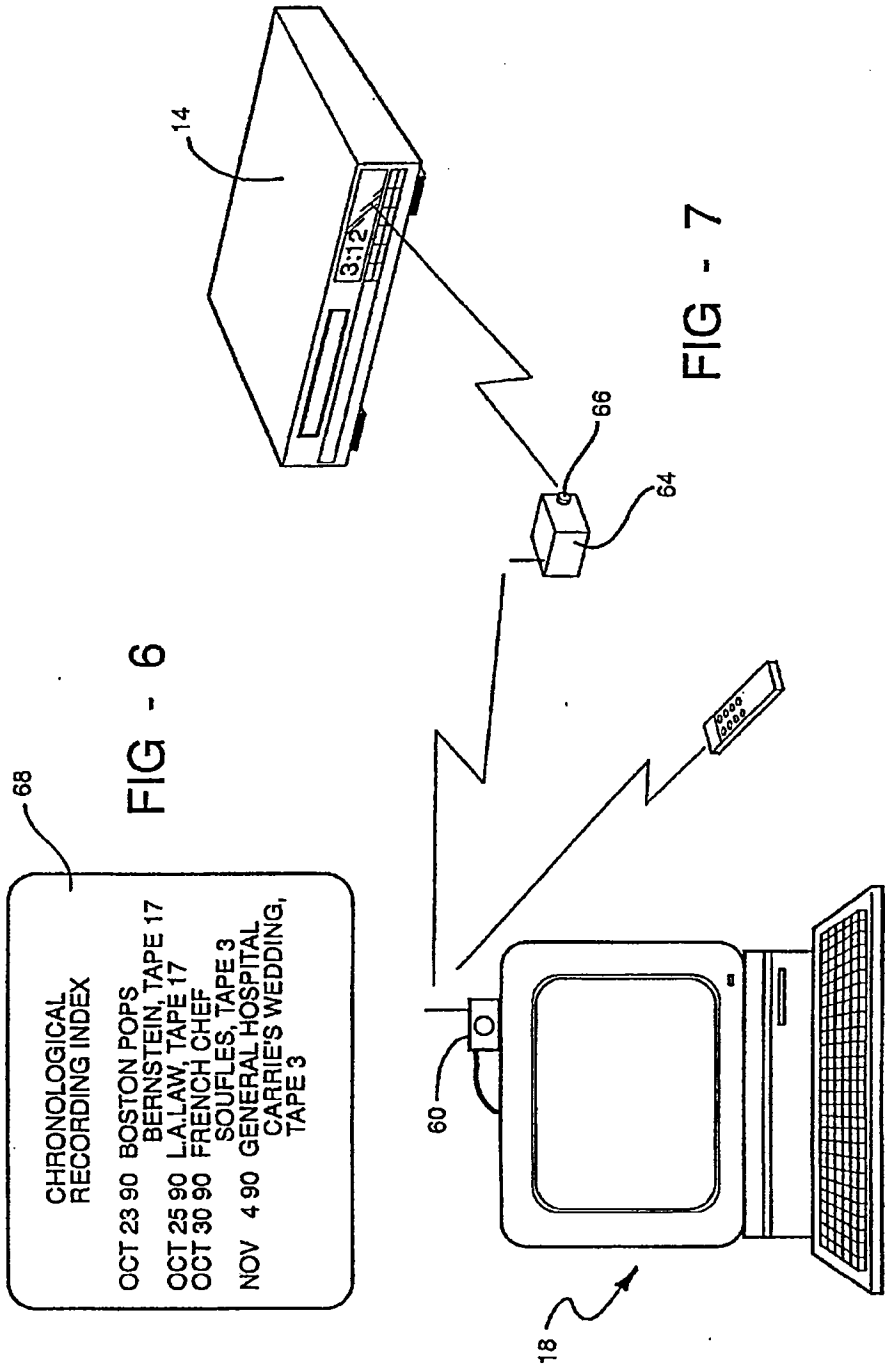


FIG - 7

FIG - 6

www.freepatentsonline.com

METHOD AND APPARATUS FOR RECEIVING CUSTOMIZED TELEVISION PROGRAMMING INFORMATION BY TRANSMITTING GEOGRAPHIC LOCATION TO A SERVICE PROVIDER THROUGH A WIDE-AREA NETWORK

RELATED APPLICATIONS

This is a continuation of application Ser. No. 08/287,343, filed Aug. 8, 1994, now U.S. Pat. No. 5,692,214 which is a continuation-in-part of Ser. No. 07/848,338, filed Mar. 9, 1992, now abandoned, which is a continuation-in-part of Ser. No. 802,249, filed Dec. 4, 1991 (now abandoned).

FIELD OF THE INVENTION

This invention relates to a method and apparatus for controlling a video recorder to allow the unattended recording of future occurring programs using a personal computer and more particularly to such a method and apparatus which provides a display of a schedule of future programming available to the recorder on the personal computer.

BACKGROUND OF THE INVENTION

My U.S. Pat. No. 4,908,713 discloses a system for providing a schedule of future video programming available to a video recorder to a database memory located at the recorder so that the operator may display selected sections of the future schedule as an aid in choosing programs for recording. The schedule may be provided to the memory and updated either by broadcasting schedule information or by delivering disposable memories to the system on a subscription basis. Other of my applications disclose such systems in which the video recorder is programmed for unattended recording of a future program by simply pointing a cursor at the listing of that program on the schedule display. Since the system already stores the data required to record the program, it is unnecessary for the operator to re-enter the same data. My application Ser. No. 802,249 further discloses such a system in which the local memory stores the identification of programs that have been recorded and allows their display in order to select previously recorded programs for viewing.

These systems greatly simplify the problems of selecting programs for recording, actually performing the recording process, and viewing recorded programs. They suffer from the disadvantage of adding hardware and software to existing video cassette recorders or cable boxes which do not contain a schedule memory and a database program for selecting particular entries on the memory for display.

SUMMARY OF THE INVENTION

The present invention allows the implementation of the electronic schedule memory and cursor-based programming on a conventional video recorder through use of an associated personal computer which communicates with the video recorder via infrared signals of the type used for remote control of the video recorder. The infrared signals are preferably generated by a transmitter connected to an output port of the personal computer and are driven by signals generated by an application program run by the personal computer. The same transmitter may control the tuner of an associated cable box.

Future programming schedule information may be provided to the personal computer from a remote database by telephonic communication, by broadcast, or by subscription provision of disposable memories. The schedule information may be displayed on the monitor of the personal computer under control of a database program allowing chronological, alphabetical or topical selection and the operator may move a cursor on the display screen to point to a particular program to select it for future recording. The remote transmitter connected to the personal computer output port can send signals to the video recorder at the time the selection is made, allowing the future unattended programming memory of the video recorder to initiate the recording of a specific channel at the proper time or the remote may exercise control over the video recorder at the time the recording is to be made.

The personal computer transmitter may be instructed as to the particular code systems used by the video recorder remote control either by information transmitted from a remote database provider based on the identification of the make of the video recorder by the computer use, or through use of an initialization program which displays commands to the computer operator on the monitor of the personal computer directing the operator to press selected buttons on the remote transmitter provided with the video recorder. The computer program thus learns and stores the required remote codes. In the same manner, the personal computer can control an associated cable tuner to ensure that the channel specified for recording is provided to the VCR. The personal computer program can also store and display an index of programming that has been recorded by the system.

Through use of the method and apparatus of the present invention the advantages of an electronic schedule guide and cursor-controlled programming of the video recorder may be achieved without the provision of a specialized form of cassette recorder or cable box.

Other objectives, advantages and applications of the present invention will be made apparent by the following detailed description of the preferred embodiment of the invention. The description makes reference to the accompanying drawings in which:

DETAILED DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates a personal computer and television viewing system including a TV receiver, a video recorder and a cable box, implementing the preferred embodiment of the present invention;

FIG. 2 is a schematic diagram of the preferred embodiment of the invention;

FIG. 3 is a schematic diagram of the IR transmitter/receiver;

FIG. 4 is a perspective view of the rear of a personal computer illustrating the method of attachment of an infrared transmitter and receiver to an I/O port of the computer;

FIG. 5 is an illustration of a screen displayed on the personal computer monitor during an initialization procedure; and

FIG. 6 is an illustration of a personal computer screen displaying an index of recorded programs and the tape cassettes on which each is recorded; and

FIG. 7 is an illustration of a second embodiment of the invention in which the personal computer and video recorder are located remotely from one another and the output signals from the personal computer are transmitted by radio to an infrared transmitter for control of the video recorder.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. 1, the preferred embodiment of the invention employs a television recording and receiving

www.freepatentsonline.com

system, generally indicated at 10, comprising a conventional television receiver 12, a video cassette recorder 14 and a cable tuner and descrambler box 16. A variety of known forms of interconnection can be made between the cable box 16, the recorder 14 and the television receiver 12 to allow either the recording or viewing of programs tuned by the cable box 16 or the simultaneous viewing of one program and the recording of another. The present invention is equally applicable to broadcast receiver systems which do not employ a cable box and to satellite receivers.

The video recorder 14 will normally be of the type employing an infrared remote control (not shown) as will the tuner in the cable box 16. The VCR 14 may, but need not necessarily, incorporate a future, unattended recording memory which includes a real time clock (not shown).

The method and apparatus of the present invention further utilizes a conventional personal computer, generally indicated at 18, incorporating a main computer housing 20, a keyboard 22 and a monitor 24. The term "personal computer" is used broadly to incorporate work stations, minicomputers and portable units.

The personal computer 18 is conventional but is provided with a special application program to implement the present invention. The organization of this application program is well within the skill of a programmer using the functional description of the program provided herein.

An infrared transmitter and receiver 26 is connected to an I/O port of the personal computer, preferably a parallel port, by a male connector 28 and a cable 30. The infrared unit 26 incorporates a conventional infrared signal detector 32 and an infrared emitter 34. In alternative embodiments the signals could represent other forms of electromagnetic or supersonic transmission, "infrared" is hereinafter used to define the generic form of signals.

The infrared signals emitted by the unit 26 are picked up by the infrared remote receiver of the video recorder 14 and may also be picked up by the infrared recorder of the cable box 16 to control its tuner.

The application program is loaded into the personal computer via a diskette or the like. The program requires as data the schedule of future programming available to the system 10 from a programming source 38, such as a cable or the like, for a particular period of time such as a week or month.

In the preferred embodiment of the invention the schedule information is provided to the personal computer 18 from a remote database 40, which may constitute a database provider such as "COMPUSERVE," "PRODIGY" or the like. This information may be customized for the cable service 38 available to the system through an initialization routine in which the computer operator keys in the postal ZIP code of his location and, if necessary, an identification of the cable service provider. The head end database uses this information to provide the computer 18 with the schedule of programming for that service. The operator of the personal computer system 18 may communicate with the schedule source over phone lines 42 using modems 44 at each end. Alternatively, the personal computer could employ a program in which the system automatically communicates with the schedule source 40 at predetermined periods, such as each morning at 4:00 a.m. or the like, to update the schedule stored in the personal computer 18. As another alternative, diskettes could mailed out to the personal computer on a subscription basis or the schedule information could be provided to the personal computer via cablecast or broadcast.

Through use of a database program employing menus, submenus and the like, the operator may obtain a display of programming for a particular period of time, such as that illustrated at 46 in FIG. 1. To select a listed program for future recording the operator may move a cursor 48 into super-position with the listing. Alternatively, two or three digit numbers could be associated with each listing and the operator could signal a programming selection by hitting an appropriate number on the keyboard 22.

In the preferred embodiment of the invention this selection transfers information relating to the programming selection to a memory 35 within the IR unit 26 (FIG. 3). The unit 26 also includes a microprocessor 37, a real time clock 39 and a power supply battery 41. The microprocessor 37 continually compares the present time signal from the clock 39 with the start time of the programs to be recorded as stored in the memory 35 and sends an appropriate infrared code to the VCR 14 (and, if appropriate, the cable box 16) at the start time. A similar signal at the programmed conclusion time of the program terminates the recording. This arrangement eliminates the need for the computer to continually remain in the on state.

In alternative embodiments of the invention employing programmable cable tuners or programmable satellite receivers, the infrared transmissions could be used to program these units.

Alternatively, the control signals to the IR unit 26 may be provided in real time by the computer 18 under control of its internal clock. The IR unit might then simply consist of an IR diode connected to the personal computer 18 by a long wire so the diode may be placed near the receiver 10. At the time the recording is to be initiated, the personal computer transmits signals from an I/O port through the cable 30 to the infrared transmitter/receiver 26. The unit 26 then send signals to the video cassette recorder 14, which tune the set to the required channel and initiates the recording. Signals might also be sent to the cable box 16 to cause it to tune to the appropriate channel. As a third alternative, when the operator makes a programming selection, the information relating to that selection, including channel and the start and stop time could be immediately sent from unit 26 to video cassette recorder 14 to program the recorder for the future unattended recording of the desired program.

Alternatively the unit 26 may be detachable from the computer 18 so that after it is loaded with data on programs to be recorded it may be detached and moved into proximity with the receiver system 10, which may be located in another room.

To perform the transmission function, the personal computer 18 requires information as to the nature of the remote control codes used by the video recorder 14 and the cable box 16 if that is additionally to be controlled. Preferably, this information is provided from the remote database 40 during an initialization routine in which the operator keys in the identification of the make and model of the VCR and cable box. Alternatively, to acquire this information, the application program for the personal computer may go through an initialization routine using screens of the type illustrated at 50 in FIG. 5. These screens advise the computer operator to press selected buttons on the remote control transmitter 52 for the VCR 14 or the transmitter for the cable box 16. The personal computer application program- receives signals from the IR sensor 32 and stores these codes for use in transmitting control signals to the video recorder 14 and the cable box 16. The application program may alternatively store a database of the control codes for popular video

www.freepatentsonline.com

recorders or cable boxes and thus allow the unit to be identified by only pressing one or two selected keys, or it may require the operator to go through all of the keys in order to develop the appropriate remote control schedule.

In another embodiment of the invention the unit 26 includes sound detection apparatus. This provides several advantages, including the ability to receive information in acoustic form either from the personal computer or over a telephone line, for example using an acoustic coupler. An increasing number of conventional personal computers are now provided in standard form with a sound generating capability, and even if not factory supplied, numerous sound-generating modules and add-on cards are widely available as options. With such a capability residing in the personal computer, information may be transmitted from the personal computer to the module 26 in acoustical form. For example, information pertaining to a program to be recorded may be delivered in this manner, as well as any control code information required for proper activation and/or tuning of other system components, including the video recorder or cable box, to ensure that the proper channel is tuned at the appropriate time.

The ability to accept an acoustical signal may further facilitate an entirely wireless implementation of module 26, and may also enable module 26 to be partially or completely compatible with automated VCR programming techniques, including the VCRPlus™ system which is currently being marketed commercially. With VCRPlus™ program listings include a multi-digit numerical code which is entered by an operator to bring about the automatic, unattended recording of a particular program without the need for entering a more sophisticated sequence of information such as program start time, stop time, channel tuning, and so forth, as is presently entered through typical on-screen programming sequences. Certain of the VCRPlus™ modules contain acoustic couplers, enabling them to be programmed over a standard telephone line. Utilizing this capability, a customer dials a service telephone number and informs a representative or uses touch tone codes to enter information such as VCR make/manufacturer, cable tuner make/manufacturer, and geographic information, for example, in the form of a zip code. Given this information, the system then down-loads the appropriate control codes to be used by the VCRPlus™ module to ensure that the entry of a VCRPlus™ numerical code records the desired program for that user in their particular geographic area.

The present invention may take advantage of some or all of the VCRPlus™ features or similar features of any similar automated programming system. If the database received and stored in the personal computer by the present invention includes encoded program information such as VCRPlus™ codes, these may be delivered directly from the personal computer to the module 26 instead of more detailed program-related information. Although presently available VCRPlus™ control units typically only receive control code information in acoustic form, with the numerical code associated with a desired program entered via keypad, such units contain all of the hardware necessary to accept the numerical code in acoustic form as well. In such a case, then, with the present invention storing a large database of programs in the personal computer, the VCRPlus™ code alone may be delivered to the remote unit 26 to bring about the desired programming sequence. In the event that the unit 26 includes a sound detection capability, the numerical code may be transmitted by the personal computer to the module 26 in acoustic form, in addition to the remote-control codes, which may also be delivered in acoustic form, either from the personal computer or over a phone line as is currently the case with the VCRPlus™ system. In the event that the personal computer is used to transmit the control codes to the module 26, regardless of the form in which such codes are delivered, a look-up table may be provided to the personal computer either in disk form or through a separate telephonic connection, and upon entry of equipment make/model and any required geographic information by the operator through the keyboard provided on the personal computer, a look-up may be carried out by the computer so that the appropriate control codes are used for all equipment involved.

The embodiment of the invention illustrated in FIG. 7 is utilized in systems where the cassette recorder 14 is located a large distance from the personal computer 18, such as in another room of the bouse. In this system the remote I/R transmitter 26 is replaced by a radio transmitter 60. The radio signals are received by a remote receiver 64 disposed physically in front of the video recorder 14. Receiver 64 includes an infrared transmitter 66 and the received radio signals are transmitted into serial infrared commands which are transmitted by the unit 64 to the infrared receiver of the video recorder 14.

The application program for the remote television receiver 18 may also maintain a database of the programs that have been recorded by the system and allow display of these programs on the monitor of the personal computer. The identifying information may include codes as to the nature of the program such as a tennis match, comedy, movie or the like to allow menu-driven database operations to be used in the selection of programming for viewing. The information may record storage location of the programming, in terms of video cassettes, which the operator may enter into the system via the keyboard. A typical screen of this index is illustrated at 68 in FIG. 6.

Having thus described my invention, I claim:

1. In a television distribution arrangement wherein a plurality of geographically dispersed television viewing locations receive television programming from a source of such programming, a method of receiving information specific to the type of programming available to a particular one of the viewing locations, the method comprising the steps of:

providing a computerized unit at the particular viewing location, the unit including an operator input and a modem;

establishing a connection to a wide-area network through the modem;

transmitting, from the computerized unit, information to a service provider through the wide-area network regarding the geographical location of the particular viewing location; and

receiving, from the service provider, information specific to the type of programming available to the particular viewing location.

2. The method of claim 1, wherein the information transmitted to the service provider includes the Zip Code associated with the particular viewing location.

3. The method of claim 1, wherein the information received from the service provider includes a schedule of the television programming available to the particular viewing location.

4. The method of claim 1, wherein the computerized unit is interfaced to a display, and wherein the method further includes the step of displaying the information specific to the type of programming available to the particular viewing location.

www.freepatentsonline.com

5. The method of claim 1, wherein the computerized unit further includes a memory for storing the information specific to the type of programming available to the particular viewing location.

6. A method of receiving customized television programming schedule information, comprising the steps of:

providing, at a television viewing location, a controller interfaced to a bidirectional modem and a display device;

establishing a connection to a wide-area network through the modem;

transmitting, from the television viewing location, information to a service provider through the wide-area network regarding the geographical area of the viewing location;

receiving, from the service provider, television programming schedule information specific to the viewing location; and

viewing the information on the display device.

7. The method of claim 6, wherein the information transmitted to the service provider through the wide-area network regarding the geographical area of the viewing location is the Zip Code associated with the viewing location.

8. A system enabling a viewer of a television receiver to download information specific to the type of television programming available to the receiver, the system comprising:

an electronic terminal unit including an operator input, a bidirectional modem, and a controller in communication with the operator input and the modem, the controller being programmed to perform the following functions:

a) establish a connection to a service provider through the modem,

b) receive information through the operator input pertaining to the geographic location of the television receiver,

c) transmit the information pertaining to the geographic location of the television receiver to the service provider, and

d) receive, from the service provider, the information specific to the type of television programming available to the receiver.

9. The system of claim 8, further including an electronic television interface in communication with the controller, the controller being further programmed to affect the operation of the television receiver in accordance with the information specific to the type of television programming available to the receiver.

10. The system of claim 8, further including a memory in communication with the controller for storing and retrieving the information specific to the type of television programming available to the receiver.

* * * * *

www.freepatentsonline.com

3 345.[illegible]-201 A

501

PERSONAL COMPUTER-BASED SCHEDULE GUIDE AND CONTROLLER FOR VIDEO RECORDER

Related Application

This is a continuation-in-part of Serial No. 802,249, filed December 4, 1991 which is a continuation-in-part of Serial No. 796,702, filed November 21, 1991, which is a continuation-in-part of Serial No. 595,393, filed October 10, 1990, which is a continuation of Serial No. 486,175, filed February 23, 1990, (now U.S. Patent No. 4,963,994), which is a continuation of Serial No. 213,162, filed June 29, 1988, (now U.S. Patent No. 4,908,713) which is a continuation of Serial No. 634,179 filed July 25, 1984 (now abandoned), which is a continuation of Serial No. 330,111, filed December 14, 1981 (now abandoned).

Field of the Invention

This invention relates to a method and apparatus for controlling a video recorder to allow the unattended recording of future occurring programs using a personal computer and more particularly to such a method and apparatus which provides a display of a schedule of future programming available to the recorder on the personal computer.

Background of the Invention

My U.S. Patent No. 4,908,713 discloses a system for providing a schedule of future video programming available to a video recorder to a database memory located at the recorder so that the operator may display selected sections of the future schedule as an aid in choosing

programs for recording. The schedule may be provided to the memory and updated either by broadcasting schedule information or by delivering disposable memories to the system on a subscription basis. Other of my applications disclose such systems in which the video recorder is programmed for unattended recording of a future program by simply pointing a cursor at the listing of that program on the schedule display. Since the system already stores the data required to record the program, it is unnecessary for the operator to re-enter the same data. My application Serial No. 802,249 further discloses such a system in which the local memory stores the identification of programs that have been recorded and allows their display in order to select previously recorded programs for viewing.

These systems greatly simplify the problems of selecting programs for recording, actually performing the recording process, and viewing recorded programs. They suffer from the disadvantage of adding hardware and software to existing video cassette recorders or cable boxes which do not contain a schedule memory and a database program for selecting particular entries on the memory for display.

Summary of the Invention

The present invention allows the implementation of the electronic schedule memory and cursor-based programming on a conventional video recorder through use of an associated personal computer which communicates with the video recorder via infrared signals of the type used for

remote control of the video recorder. The infrared signals are preferably generated by a transmitter connected to an output port of the personal computer and are driven by signals generated by an application program run by the personal computer. The same transmitter may control the tuner of an associated cable box.

Future programming schedule information may be provided to the personal computer from a remote database by telephonic communication, by broadcast, or by subscription provision of disposable memories. The schedule information may be displayed on the monitor of the personal computer under control of a database program allowing chronological, alphabetical or topical selection and the operator may move a cursor on the display screen to point to a particular program to select it for future recording. The remote transmitter connected to the personal computer output port can send signals to the video recorder at the time the selection is made, allowing the future unattended programming memory of the video recorder to initiate the recording of a specific channel at the proper time or the remote may exercise control over the video recorder at the time the recording is to be made.

The personal computer transmitter may be instructed as to the particular code systems used by the video recorder remote control either by information transmitted from a remote database provider based on the identification of the make of the video recorder by the computer use, or through use of an initialization program which displays commands to the computer operator on the

monitor of the personal computer directing the operator to press selected buttons on the remote transmitter provided with the video recorder. The computer program thus learns and stores the required remote codes. In the same manner, the personal computer can control an associated cable tuner to ensure that the channel specified for recording is provided to the VCR. The personal computer program can also store and display an index of programming that has been recorded by the system.

Through use of the method and apparatus of the present invention the advantages of an electronic schedule guide and cursor-controlled programming of the video recorder may be achieved without the provision of a specialized form of cassette recorder or cable box.

Other objectives, advantages and applications of the present invention will be made apparent by the following detailed description of the preferred embodiment of the invention. The description makes reference to the accompanying drawings in which:

Detailed Description of the Drawings

FIGURE 1 illustrates a personal computer and television viewing system including a TV receiver, a video recorder and a cable box, implementing the preferred embodiment of the present invention;

FIGURE 2 is a schematic diagram of the preferred embodiment of the invention;

FIGURE 3 is a schematic diagram of the IR transmitter/receiver;

FIGURE 4 is a perspective view of the rear of a personal computer illustrating the method of attachment of an infrared transmitter and receiver to an I/O port of the computer;

FIGURE 5 is an illustration of a screen displayed on the personal computer monitor during an initialization procedure; and

FIGURE 6 is an illustration of a personal computer screen displaying an index of recorded programs and the tape cassettes on which each is recorded; and

FIGURE 7 is an illustration of a second embodiment of the invention in which the personal computer and video recorder are located remotely from one another and the output signals from the personal computer are transmitted by radio to an infrared transmitter for control of the video recorder.

Detailed Description of the Preferred Embodiment

Referring to Figure 1, the preferred embodiment of the invention employs a television recording and receiving system, generally indicated at 10, comprising a conventional television receiver 12, a video cassette recorder 14 and a cable tuner and descrambler box 16. A variety of known forms of interconnection can be made between the cable box 16, the recorder 14 and the television receiver 12 to allow either the recording or viewing of programs tuned by the cable box 16 or the simultaneous viewing of one program and the recording of another. The present invention is equally applicable to

broadcast receiver systems which do not employ a cable box and to satellite receivers.

The video recorder 14 will normally be of the type employing an infrared remote control (not shown) as will the tuner in the cable box 16. The VCR 14 may, but need not necessarily, incorporate a future, unattended recording memory which includes a real time clock (not shown).

The method and apparatus of the present invention further utilizes a conventional personal computer, generally indicated at 18, incorporating a main computer housing 20, a keyboard 22 and a monitor 24. The term "personal computer" is used broadly to incorporate work stations, minicomputers and the like.

The personal computer 18 is conventional but is provided with a special application program to implement the present invention. The organization of this application program is well within the skill of a programmer using the functional description of the program provided herein.

An infrared transmitter and receiver 26 is connected to an I/O port of the personal computer, preferably a parallel port, by a male connector 28 and a cable 30. The infrared unit 26 incorporates a conventional infrared signal detector 32 and an infrared emitter 34. In alternative embodiments the signals could represent other forms of electromagnetic or supersonic transmission, "infrared" is hereinafter used to define these generic form of signals.

The infrared signals emitted by the unit 26 are picked up by the infrared remote receiver of the video recorder 14 and may also be picked up by the infrared recorder of the cable box 16 to control its tuner.

The application program is loaded into the personal computer via a diskette or the like. The program requires as data the schedule of future programming available to the system 10 from a programming source 38, such as a cable or the like, for a particular period of time such as a week or month.

In the preferred embodiment of the invention the schedule information is provided to the personal computer 18 from a remote database 40, which may constitute a database provider such as "COMPUSERVE," "PRODIGY" or the like. This information may be customized for the cable service 38 available to the system through an initialization routine in which the computer operator keys in the postal ZIP code of his location and, if necessary, an identification of the cable service provider. The head end database uses this information to provide the computer 18 with the schedule of programming for that service. The operator of the personal computer system 18 may communicate with the schedule source over phone lines 42 using modems 44 at each end. Alternatively, the personal computer could employ a program in which the system automatically communicates with the schedule source 40 at predetermined periods, such as each morning at 4:00 a.m. or the like, to update the schedule stored in the personal computer 18. As another alternative, diskettes could mailed out to the

personal computer on a subscription basis or the schedule information could be provided to the personal computer via cablecast or broadcast.

Through use of a database program employing menus, submenus and the like, the operator may obtain a display of programming for a particular period of time, such as that illustrated at 46 in Figure 1. To select a listed program for future recording the operator may move a cursor 48 into super-position with the listing. Alternatively, two or three digit numbers could be associated with each listing and the operator could signal a programming selection by hitting an appropriate number on the keyboard 22.

In the preferred embodiment of the invention this selection transfers information relating to the programming selection to a memory 35 within the IR unit 26 (Figure 3). The unit 26 also includes a microprocessor 37, a real time clock 39 and a power supply battery 41. The microprocessor 37 continually compares the present time signal from the clock 39 with the start time of the programs to be recorded as stored in the memory 35 and sends an appropriate infrared code to the VCR 14 (and, if appropriate, the cable box 16) at the start time. A similar signal at the programmed conclusion time of the program terminates the recording. This arrangement eliminates the need for the computer to continually remain in the on state.

In alternative embodiments of the invention employing programmable cable tuners or programmable

satelite receivers, the infrared transmissions could be used to program these units.

Alternatively, the control signals to the IR unit 26 may be provided in real time by the computer 18 under control of its internal clock. The IR unit might then simply consist of an IR diode connected to the personal computer 18 by a long wire so the diode may be placed near the receiver 10. At the time the recording is to be initiated, the personal computer transmits signals from an I/O port through the cable 30 to the infrared transmitter/receiver 26. The unit 26 then send signals to the video cassette recorder 14, which tune the set to the required channel and initiates the recording. Signals might also be sent to the cable box 16 to cause it to tune to the appropriate channel. As a third alternative, when the operator makes a programming selection, the information relating to that selection, including channel and the start and stop time could be immediately sent from unit 26 to video cassette recorder 14 to program the recorder for the future unattended recording of the desired program.

Alternatively the unit 26 may be detachable from the computer 18 so that after it is loaded with data on programs to be recorded it may be detached and moved into proximity with the receiver system 10, which may be located in another room.

To perform the transmission function, the personal computer 18 requires information as to the nature of the remote control codes used by the video recorder 14 and the cable box 16 if that is additionally to be

controlled. Preferably, this information is provided from the remote database 40 during an initialization routine in which the operator keys in the identification of the make and model of the VCR and cable box. Alternatively, to acquire this information, the application program for the personal computer may go through an initialization routine using screens of the type illustrated at 50 in Figure 5. These screens advise the computer operator to press selected buttons on the remote control transmitter 52 for the VCR 14 or the transmitter for the cable box 16. The personal computer application program receives signals from the IR sensor 32 and stores these codes for use in transmitting control signals to the video recorder 14 and the cable box 16. The application program may alternatively store a database of the control codes for popular video recorders or cable boxes and thus allow the unit to be identified by only pressing one or two selected keys, or it may require the operator to go through all of the keys in order to develop the appropriate remote control schedule.

The embodiment of the invention illustrated in Figure 7 is utilized in systems where the cassette recorder 14 is located a large distance from the personal computer 18, such as in another room of the house. In this system the remote I/R transmitter 34 is replaced by a radio transmitter 60. The radio signals are received by a remote receiver 64 disposed physically in front of the video recorder 14. Receiver 64 includes an infrared transmitter 66 and the received radio signals are transmitted into

serial infrared commands which are transmitted by the unit 66 to the infrared receiver of the video recorder 14.

The application program for the remote television receiver 18 may also maintain a database of the programs that have been recorded by the system and allow display of these programs on the monitor of the personal computer. The identifying information may include codes as to the nature of the program such as a tennis match, comedy, movie or the like to allow menu-driven database operations to be used in the selection of programming for viewing. The information may record storage location of the programming, in terms of video cassettes, which the operator may enter into the system via the keyboard. A typical screen of this index is illustrated at 68 in Figure 6.

Having thus described my invention, I claim:

Claims

Sub a'

1. A system for programming a video recorder of the type having an electromagnetic remote control, for the future, unattended recording of programming from a video programming source connected to the recorder, comprising:

a personal computer;

an electromagnetic radiation transmitter connected to an I/O port of the personal computer; and

an application program for the personal computer operative to cause generation of signals by said electromagnetic transmitter operative to program the video recorder to record a particular video program available to the video recorder on said source of said video programming at a particular future time.

2. The system for programming of claim 1 wherein said personal computer includes a real time clock, and said application program includes means for comparing the output of the real time clock with stored information relating to the time of the occurrence of video programming adapted to be recorded by the video recorder and means for energizing the electromagnetic transmitter for providing appropriate control signals to the video recorder at such time as the output of the real time clock coincides with said stored time of recording.

3. The system of recording of claim 1 wherein said video recorder includes a real time clock and means

for storing data relative to a program to be recorded including the start time of such program and said video recorder compares the output of the real time clock with the stored start times of programs to be recorded and energizes the video recorder at the time of the occurrence of the program to be recorded.

4. The system of recording of claim 1 wherein said application program further includes a database of future programming schedules.

5. The system of recording of claim 4 further including means for updating the database of future programming scheduling.

6. The system ~~of recording~~ of claim 5 wherein said means for updating the database of future programming scheduling comprises means for connecting the personal computer to a remote source of current schedule information.

7. The system of recording of claim 6 wherein said current schedule information is transmitted from said remote source of current schedule information via telephone ~~lines~~.

8. The system ~~of recording~~ of claim 1 wherein said application program for the personal computer includes means for providing the personal computer with information

as to the electromagnetic remote codes for the remote control of the video recorder.

9. The system of claim 8 wherein said means for providing the personal computer with information as to the electromagnetic remote codes for the remote control of said video recorder includes an I/O port on the personal computer, an electromagnetic receiver connected to said I/O port of the personal computer and means for generating displays on the monitor of the personal computer directing the user to transmit particular remote codes from the remote control transmitter associated with the video recorder to said electromagnetic receiver connected to said I/O port.

Sub A3

10. The method of programming a video recorder having an electromagnetic remote receiver to record programming available to the video recorder at a particular future time comprising:

connecting an electromagnetic transmitter to an output port of a personal computer; and

providing the personal computer with an application program which causes the output port to generate signals to said electromagnetic transmitter causing said video recorder to record said program at said particular future time.

11. The method of programming of claim 10 wherein said personal computer includes a real time clock

and said application program includes means for storing the start time of future programs to be recorded and the electromagnetic transmitter generates a signal to the electromagnetic receiver associated with such video recorder at such time as the output of the real time clock coincides with the start time of the program to be recorded as stored in said application program to initiate operation of the video recorder at that time.

12. The method of recording of claim 10 wherein said video recorder includes a real time clock and means for storing the start time of a video program to be recorded and said electromechanical transmitter connected to an I/O port of the personal computer transmits signals relating to a future occurring program to be recorded at such time as the operator of the computer selects the program.

13. The method of recording of claim 10 further including the steps of providing the personal computer with information relating to the remote control codes of said video recorder by the generation of a display on the screen of the personal computer directing ~~the~~ an operator ~~of this system~~ to generate predetermined remote signals from the remote control for the video recorder.

14. The method of recording of claim 10 further including the steps of providing the personal computer with information relating to the remote control codes of said

video recorder by transmitting signals from the personal computer to a remote database which identify the model of the video recorder and transmitting signals from the remote database to the personal computer identifying said remote control codes.

15. The method of claim 10 further including the step of providing the personal computer with a schedule of future programming available to said video recorder.

16. The method of recording of claim 13 wherein said personal computer includes a memory for storing said schedule of future programs and a database program allowing the operator to display selected portions of said schedule of future programming on the monitor of the personal computer.

17. Apparatus for allowing a personal computer having an I/O port to control a video recorder equipped with an infrared remote control comprising:

an application program for the personal computer including data identifying the remote control codes for the video recorder;

an infrared signal generator;

means for connecting the infrared signal generator to the I/O port of the personal computer causing the personal computer under control of said application program, to generate signals to said IR transmitter which

causes the generation of IR signals which control the operation of the video recorder.

18. The apparatus of claim 17 further including means for providing data to said personal computer comprising a schedule of future programming available with a video cassette recorder and said application program including means for displaying selected portions of said schedule and the monitor of the video recorder.

19. The apparatus of claim 17 further including a cable tuner equipped with an infrared remote control connected to said video recorder so as to provide a selected video channel to said video recorder and in which said application program controls said personal computer to cause said infrared signal generator to generate IR signals which control said cable tuner.

Abstract of the Disclosure

A personal computer is used to assist in the selection of television programs to be recorded at future times and to control a video tape recorder to implement the selected recordings. An application program allows the computer to receive data representing a schedule of future programs. The operator can perform data base operations on the data to obtain listings of programs of particular interest. A program to be recorded is selected by moving a cursor into position with the display of the program listing on the computer. An output device generates infrared signals to control the video tape recorder and a cable box to tune and record a selected program.

ADDED PAGE TO COMBINED DECLARATION AND POWER OF ATTORNEY FOR DIVISIONAL, CONTINUATION OR CIP APPLICATION

(complete this part only if this is a divisional, continuation or CIP application)

CLAIM FOR BENEFIT OF EARLIER U.S./PCT APPLICATION(S) UNDER 35 U.S.C. 120

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) or PCT international application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56(a) which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application.

PRIOR U.S. APPLICATIONS OR PCT INTERNATIONAL APPLICATIONS DESIGNATING THE U.S. FOR BENEFIT UNDER 35 USC 120:

U.S. APPLICATIONS		Status (*Check one*)		
U.S. APPLICATIONS	U.S. FILING DATE	Patented	Pending	Abandoned
802,249	Dec. 4, 1991		X	
0 / 796,702	Nov. 21, 1991		X	
595,393	Oct. 10, 1990		X	
0 / 484,175	Feb. 23, 1990	X		
213,162	June 29, 1988	X		
0 / 634,179	July 25, 1984			X
330,111	Dec. 14, 1981			X

PCT APPLICATION NO.	PCT FILING DATE	U.S. SERIAL NOS. ASSIGNED (if any)			
4.					
5.					
6.					

(Added Page to Combined Declaration and Power of Attorney for Divisional Continuation or CIP Application [1-2.1]—page 1 of 2)

UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
07/848,338	03/09/92	LEVINE M	LVN-017

B3M1/0813

ALLEN M. KRASS
KRASS AND YOUNG
3001 W. BIG BEAVER, STE. 624
TROY, MI 48084-3109

KIM, S
EXAMINER

ART UNIT	PAPER NUMBER
2317	3

DATE MAILED: 09/13/93

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined ☐ Responsive to communication filed on _____ ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 0 days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☒ Notice of References Cited by Examiner, PTO-892.
2. ☒ Notice re Patent Drawing, PTO-948.
3. ☐ Information on How to Effect Drawing Changes, PTO-1474.
4. ☐ Notice of Informal Patent Application, Form PTO-152
5. ☐ _____

Part II SUMMARY OF ACTION

1. ☒ Claims 1-19 are pending in the application.
   Of the above, claims _____ are withdrawn from consideration.
2. ☐ Claims _____ have been cancelled.
3. ☐ Claims _____ are allowed.
4. ☒ Claims 1-19 are rejected.
5. ☐ Claims _____ are objected to.
6. ☐ Claims _____ are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed _____, has been ☐ approved; ☐ disapproved (see explanation).
12. ☐ Acknowledgement is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

PTOL-326 (Rev. 9-95) EXAMINER'S ACTION

TG 000592

A 28

(1)

Current application Serial No. 07/848,338 contains new matter distinctly different than parent cases for continuation. Also, claimed subject matter in current application is related to the new matter; thus, the filing date for current application is the filing date of the last CIP December 4, 1991. New matter in current application relates to a personal computer implemented future programming of a VCR, which is not disclosed in parent cases for continuation.

(2)

Claims 1-19 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The following terms lack proper antecedent basis, and should be amended accordingly:

"the type"	Clm.1, Ln.2
"the future"	Clm.1, Ln.2
"the recorder"	Clm.1, Ln.5
"the output"	Clm.2, Ln.3
"the time"	Clm.2, Ln.5
"the occurrence"	Clm.2, Ln.5
"the electromagnetic.."	Clm.2, Ln.7
"the start time"	Clm.3, Ln.4
"the stored start times"	Clm.3, Ln.6

Claims 4-7 and 8-9 are rejected for being independent on claims 1-3. Also, claims 10-19 are rejected for containing same terms regrading claims 1-3.

(3)

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

(4)

Claims 1-9 and 17-19 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent 5,086,385 Launey et al (hereinafter Launey). Launey teaches a system for programming a video recorder with a remote control [See. Fig.1, Abstract] comprising:

1. Personal Computer
[See. Central Processor 10; Col.7, Lns.38-56]

2. Electro Magnetic Transmitter (ie. Remote Controller) connected to I/O port of personal computer.
[See. Receiver For Hand-Held Remote 20, Multiple-Serial Interface 14, Central Processor 10; Fig.1 and Fig.12D]

3. Application Program for Personal Computer to control remote controller for programming a VCR.
[See. Col.8, Lns.1-30]

Thus, Launey teaches the limitations of claim 1.

(5)

In regards to claim 2 and to the aforementioned teachings, Launey teaches a Central Processor to be a common IBM type computer (ie. 80286) which comprises a real time clock; furthermore, Launey also teaches means necessary to send instructions to a remote controller to program a VCR [See. Col.8, Lns.25-30; and Fig.12A-G]. Thus, claim 2 is anticipated by Launey.

(6)

In regards to claim 3 and to the aforementioned teachings, Launey teaches a remote controller being able to program a VCR from a personal computer; furthermore, it is inherent in all programmable VCRs to contain a realtime clock for programming the start and end time of a program.

(7)

In regards to claim 4 and to the aforementioned teachings, Launey teaches the use of an IBM AT personal computer which contains RAM memory for storing a database.

(8)

In regards to claim 5 and to the aforementioned teachings, Launey teaches a Central Processor 10 capable of updating memory (ie. Database).

(9)

In regards to claim 6 and to the aforementioned teachings, Launey teaches the limitation of claim: A Central Processor 10 has Multiple Serial Interface 14 connected to a Receiver For

Hand-Held Remote 20.

(10)

In regards to claim 7 and to the aforementioned teachings, Launey teaches means for a telephone modem hookup [Modem 42, Fig.1] which is capable of receiving information from telephone line.

(11)

In regards to claims 8 and to the aforementioned teachings, Launey teaches the limitation of the claim: See. Col.8, Lns.25-30.

(12)

In regards to claim 9 and to the aforementioned teachings, claim 9 is similar in scope to claims 6-7 and are rejected under the same rationale.

(13)

In regards to claims 17-19 and to the aforementioned teachings, claims 17-19 are similar is scope to claims 1-9 and are rejected under the same rationale.

(14)

The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which

the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

(15)

Claims 10-16 are rejected under 35 U.S.C. § 103 as being unpatentable over Launey. The method of claims 10-16 are obvious to implement over the teachings taught by Launey. Moreover, It would have been obvious to a person of ordinary skill in the art at the time the invention was made to implement the method of claim 10-16. One would have been motivated to for the following reasons:

Claim 10:

Launey teaches a Central Processor 10 (PC) connected to a Receiver For Hand-Held Remote 20 control. One would have been motivated to program the said Central Processor for sending commands to the Hand-Held Remote for sending commands to the programmable VCR to program a future event.

Claim 11:

Launey teaches a Central Processor 10 to be a personal computer (IBM AT) which contains a real time clock. One would have been motivated to use a value of a real time clock for sending said value to the hand-held remote control for programming the VCR accordingly to said value of a real time

clock.

Claim 12:

All programmable VCRs have some form of a real time clock for future programming functions. Also, it would have been obvious for Launey to send information for Central Processor 10 relating to the real time data to the hand-held remote control and, thus, sending that information to the VCR for future programming. Launey teaches the means necessary to perform these methods. [See. Fig.1; Col.7-8]

Claim 13-16:

These claims are similar to the methods of claims 10-12 and are rejected under the same rationale.

(16)

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 4,772,959 Amano et al; 4,706,121 Young; 5,113,259 Romesburg et al; 5,151,789 Young; 4,689,022 Peers et al; 5,204,768 Tsakiris et al is very similar to the general embodiment of the system for programming a video recorder.

(17)

Any inquiry concerning this communication should be directed to Mike Kim whose telephone number is (703) 305-9652. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-9600.

DALE M. SHAW
SUPERVISORY PATENT EXAMINER
GROUP 230

S.H. Mike Kim
August 11, 1993

MAIL ROOM NOV 18 1993 PAT. & TRADEMARK OFFICE

5/A

BF

11-23-93

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Levine

Serial No.: 07/848,338 Group No.: 2317

Filed: March 9, 1992 Examiner: S. Kim

For: PERSONAL COMPUTER BASED SCHEDULE GUIDE AND CONTROLLER FOR VIDEO RECORDER

RECEIVED
NOV 22 1993
GROUP 2300

AMENDMENT

Hon. Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Sir:

In response to the Office Action dated August 13, 1993, please amend the above-identified application as follows.

With regard to the filing date, the present application contains new matter relative to its parent cases, and, for this reason, is being filed as a continuation-in-part in accordance with 35 U.S.C. § 120, MPEP § 201.08, as opposed to MPEP § 201.07. As disclosed in the Background of the Invention of the present application, parent application to which the present application relates discloses a system providing a schedule of future programming available to a video recorder including a database memory so that the operator may display selected portions of the future schedule as an aid in choosing programs for recording. The present application adds to this subject matter the placement of the database memory within a general-purpose personal computer including a remote-control transmitter connected to an I/O port of the personal computer. Given the relationship and continuity between the present application and the parent application to

LAW OFFICES KRASS & YOUNG, P.C., 3001 W. BIG BEAVER ROAD, SUITE 624, TROY, MICHIGAN 48084-3108 (313) 649-3238

which it relates, Applicant believes he is entitled to the benefit of priority date under 35 U.S.C. § 120.

IN THE CLAIMS

1. (Amended) A system for programming a video recorder [of the type] having an electromagnetic remote control, for the [future,] unattended recording of programming from a video programming source connected to the video recorder, comprising:

a personal computer;

means within said personal computer for storing a database of future programming schedules including information relating to program identification and start time;

an electromagnetic radiation transmitter connected to an I/O port of the personal computer; and

an application program for the personal computer operative to cause generation of signals by said electromagnetic transmitter operative to program the video recorder to record a particular video program in accordance with information contained within said database being selected by a user of said personal computer [available to the video recorder on said source of said video programming at a particular future time].

2. (Amended) The system for programming of claim 1 wherein said personal computer includes a real time clock, and said application program includes means for comparing [the output of the] a time value generated by said real time clock with

LAW OFFICES KRASS & YOUNG, P.C., 3001 W. BIG BEAVER ROAD, SUITE 624, TROY, MICHIGAN 48084-3100 (313) 649-2323

[stored information relating to the time of the occurrence of video programming adapted to be recorded by the video recorder and means] said start time of a video program for energizing the electromagnetic transmitter for providing appropriate control signals to the video recorder at such time as the output of the real time clock coincides with said stored time of recording.

3. (Amended) The programming system [of recording] of claim 1 wherein said [video recorder] electromagnetic radiation transmitter further includes a real time clock and means for storing data relative to a program to be recorded including the start time of such program and circuitry within said [video recorder] transmitter compares the output of the real time clock with the stored start times of programs to be recorded and energizes the video recorder at the time of the occurrence of the program to be recorded.

Cancel claim 4.

5. (Amended) The programming system [of recording] of claim [4] 1 further including means for updating the database of future programming scheduling.

Claim 6, line 1, after "The" insert --programming--, and delete "of recording".

LAW OFFICES KRAUS & YOUNG, P.C., 3001 W. BIG BEAVER ROAD, SUITE 624, TROY, MICHIGAN 48084-3068 (313) 649-3333

7. (Amended) The programming system [of recording] of claim 6 wherein said current schedule information is transmitted from said remote source of current schedule information via a telephone line[s].

Claim 8, ~~line~~ 1, after "The" insert --programming--, and delete "of recording".

10. (Amended) The method of programming a video recorder having an electromagnetic remote receiver to record programming available to the video recorder at a particular future time comprising:

connecting an electromagnetic transmitter to an output port of a personal computer; [and]

storing in the personal computer a database of future programming schedules; and

providing the personal computer with an application program which causes the output port to generate signals to said electromagnetic transmitter causing said video recorder to record [said] a program [at said particular future time] selected from said database by a user of said personal computer.

11. (Amended) The method of programming of claim 10 wherein said personal computer includes a real time clock and said [application program] database of future programming schedules includes [means for storing] the start time of future programs to

LAW OFFICES KRAUS & YOUNG, P.C., 3001 W. BIG BEAVER ROAD, SUITE 624, TROY, MICHIGAN 48084-3160 (313) 649-3333

be recorded and the electromagnetic transmitter generates a signal to the electromagnetic receiver associated with such video recorder at such time as the output of the real time clock coincides with the start time of the program to be recorded as stored in said application program to initiate operation of the video recorder at that time.

a3

12. (Amended) The method of recording of claim 10 wherein said electromagnetic transmitter [video recorder] includes a real time clock and means for storing the start time of a video program to be recorded and said [electromechanical] electromagnetic transmitter connected to an I/O port of the personal computer transmits signals relating to a future occurring program to be recorded at such time as the operator of the computer selects the program.

Claim 13, lines 5 and 6, replace "the" (second occurrence) with --an--, and delete "of this system".

Cancel claim 15.

a4

16. (Amended) The method of recording to claim 13 wherein said personal computer includes [a memory for storing said schedule of future programs and] a database program allowing the operator to display selected portions of said schedule of future programming on the monitor of the personal computer.

LAW OFFICES KRAUS & YOUNG, P.C., 3001 W. BIG BEAVER ROAD, SUITE 624, TROY, MICHIGAN 48084-3108 (313) 649-3333

Remarks

By this amendment, claims 4 and 15 have been canceled, leaving claims 1-3, 5-14 and 16-19 remaining in the application, and are presented for reconsideration in light of the remarks which follow.

Claim 1-19 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The terms listed on page 1 of the Office Action were either deleted or clarified by this amendment, and the Applicant believes that all remaining claims, as amended, now clearly define Applicant's invention.

Claims 1-9 and 17-19 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Launey (U.S. Patent 5,086,385). Launey teaches a personal computer capable of controlling multiple appliances within the home. With respect to the control of a VCR, however, the Applicant respectfully disagrees that Launey teaches the limitations of Applicant's claim 1. Firstly, Launey does not disclose how a VCR is to be controlled. Hand-held remote unit 22 in Figure 1 of the Launey patent is used only to send control signals to receiver 20 within Launey's home automation system itself. This transmitter/receiver is not capable of communicating with an external device and, as such, does not meet the limitation in the present application concerning an electromagnetic radiation transmitter connected to an I/O port of the personal computer.

Secondly, Launey does not suggest where schedule

LAW OFFICES KRAUS & YOUNG, P.C., 3001 W. BIG BEAVER ROAD, SUITE 624, TROY, MICHIGAN 48084-3109 (313) 649-3333

information concerning future programming available to the VCR is to be stored. It can only be inferred from the Launey patent that such schedule information might be kept in remote database 44 and downloaded through modem 42 to central processor 10 on an as-needed basis, or is simply entered via touch-screens 16 from a printed TV guide. In any case, programming a VCR in accordance with the Launey system is essentially manual, with an operator entering the information relating to a program to be recorded. The Applicant wishes to direct the Examiner's attention to column 16, lines 34-39 in the Launey patent, which reads

> "Using a touch screen 16 or other cursor control device such as a mouse or light pen, the user can dynamically select and/or move graphics elements to indicate a date and time to start and stop any action the home automation system is capable of performing."

Additionally, column 17, lines 24-39 explain that

> "All of the functions which can be remotely controlled on a VCR, in addition to scheduling the VCR, can be controlled from the VCR touch screen of Figure 3C, ... the user can schedule the VCR to operate and record at a predetermined time. By selecting the VCR scheduling function, the scheduling screen shown in Figures 10A-10D would appear on the touch screen for the user to schedule the VCR event."

In contrast, the present invention maintains a database including information relating to programming available to the VCR during a future period, including program identification, start time and so forth. This information may be derived from a remote database via telephonic communication, by broadcast, or by

LAW OFFICES KRAUS & YOUNG, P.C., 3001 W. BIG BEAVER ROAD, SUITE 624, TROY, MICHIGAN 48084-3107 (313) 649-3333

subscription provision of disposable memories. In all cases, however, an entire block of schedule information for a given period of time is transferred to the personal computer in accordance with the present invention, thereby enabling an operator to perform database-type manipulations directly on this information, including its use to immediately schedule a particular video program for future recording.

Claims 1 and 10 have been amended to include means within the personal computer for storing a database of future programming schedules. These limitations were previously recited by claims 4 and 15, now canceled. The Applicant respectfully submits that this database, in combination with the electromagnetic radiation transmitter already recited, distinguish claims 1 and 10 over the prior art, including the Launey patent.

With regard to claims 2 and 11, Launey does not teach means necessary to send instructions to a remote controller in order to program a VCR. Column 8, lines 25-30 of the Launey patent, cited by the Examiner, read as follows:

> "A receiver for a hand-held remote control unit may also be connected to the serial interface 14 so that the user may be provided with a hand-held infrared, RF or other type of remote 20 for commanding the central processor to perform the various available tasks."

This simply means that Launey's expandable home automation system may be remote controlled; it doesn't mean that the Launey system can control an external piece of hardware, such as a VCR.

LAW OFFICES KRASS & YOUNG, P.C., 3001 W. BIG BEAVER ROAD, SUITE 624, TROY, MICHIGAN 48084-3109 (313) 649-3313

With regard to claims 3 and 12, a mistake was made in the original drafting of these claims. Instead, of the video recorder including the real-time clock and means for storing the start time of the video program to be recorded, it is the electromagnetic transmitter connected to the I/O port of the personal computer which contains the real-time clock and associated storage unit so that, once programmed, the main personal computer need not remain energized in order for a particular program to be recorded on an unattended basis. Support for this claim is contained in the original specification on page 8, lines 14-26.

With regard to claim 6, Launey does not teach the limitations of this claim. Although it is conceded that the Launey system includes a serial interface which may be connected to a remote database, no suggestion is made that this remote database contains program schedule information. The Launey patent only suggests the retrieval of weather reports, financial reports or sports reports. (See column 21, lines 22-24 of the Launey patent.) As mentioned previously, it can only be presumed that the Launey system is capable of accessing video program schedule information stored within a remote database. In actuality, an operator of the Launey system probably programs the VCR using the touch screen in conjunction with a printed TV guide, though, in any case, Launey does not disclose how a VCR would or could be programmed using the system described in the issued patent.

Claims 10-16 stand rejected under 35 U.S.C. § 103 as

LAW OFFICES KRAUS & YOUNG, P.C., 3001 W. BIG BEAVER ROAD, SUITE 624, TROY, MICHIGAN 48084-3108 (313) 649-3313

being obvious over the teachings of Launey. According to the Examiner, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to implement the method of claim 10-16. With regard to claim 10, it is stated on page 5 of the Office Action that "one would have been motivated to program the central processor for sending commands to the hand-held remote for sending commands to the programmable VCR to program a future event". The Applicant respectfully disagrees, first, because Launey does not teach a bidirectional hand-held remote unit capable of receiving commands from the central processor. Even if it included such a facility, if the Examiner is suggesting that the hand-held remote receive commands from the central processor then somehow re-broadcast these commands to program a VCR, this configuration bears no resemblance to the present application. Similarly, regarding claim 11, the Examiner states "One would have been motivated to use a value of a real-time clock for sending said value to the hand-held remote control before programming the VCR accordingly to said value of a real-time clock." Again, Launey does not teach the ability to transmit anything to an external device, including the hand-held remote unit associated with its system. For the same reason, with regard to claim 12, it would not have been obvious for Launey to send information or central processor 10 relating to the real-time data to the hand-held remote control.

In summary, Launey does not teach or in any way suggest the hardware necessary to execute the functions claimed in the

LAW OFFICES KRAGER & YOUNG, P.C., 3001 W. BIG BEAVER ROAD, SUITE 624, TROY, MICHIGAN 48084-3108 (313) 649-3333

present application. With regard to the § 103 rejections, obviousness cannot be established by the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the basis for a rejection. "Obvious to try" is not the standard under which a claim may be rejected under 35 U.S.C. § 103. As such, in light of the foregoing amendments and comments, the Applicant respectfully submits that all claims are now in condition for allowance, and requests timely notice thereof.

Respectfully submitted,

By: _____
John G. Posa
Reg. No. 37,424

Dated: Nov. 16, 1993

LAW OFFICES KRAUS & YOUNG, P.C., 8061 W. BIG BEAVER ROAD, SUITE 624, TROY, MICHIGAN 48084-3109 (313) 649-3333

UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
07/848,338	03/09/92	LEVINE M	LVN-017

KIM, S EXAMINER

B3M1/0207

ALLEN M. KRASS
KRASS AND YOUNG
3001 W. BIG BEAVER, STE. 624
TROY, MI 48084-3109

ART UNIT	PAPER NUMBER
2317	6

DATE MAILED: 02/07/94

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☐ This application has been examined ☒ Responsive to communication filed on 11/19/93 ☒ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), ____ days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☐ Notice of References Cited by Examiner, PTO-892.
2. ☐ Notice of Draftsman's Patent Drawing Review, PTO-948.
3. ☐ Notice of Art Cited by Applicant, PTO-1449.
4. ☐ Notice of Informal Patent Application, PTO-152.
5. ☐ Information on How to Effect Drawing Changes, PTO-1474.
6. ☐ _____

Part II SUMMARY OF ACTION

1. ☒ Claims 1-3, 5-14, 16-19 are pending in the application.
   Of the above, claims _____ are withdrawn from consideration.
2. ☐ Claims _____ have been cancelled.
3. ☐ Claims _____ are allowed.
4. ☐ Claims _____ are rejected.
5. ☐ Claims _____ are objected to.
6. ☐ Claims _____ are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed _____, has been ☐ approved; ☐ disapproved (see explanation).
12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

EXAMINER'S ACTION

PTOL-326 (Rev. 2/93)

1. The amendment filed November 18, 1993 has been received and placed of record. Applicant has amended claims 1-3, 5-8, 10-13, and 16. Applicant has canceled claims 4 and 15.

2. In response to applicant's remarks concerning the effective filing date. The effective filing date of this current application Serial No. 07/848,338 is December 4, 1991 for the material that has been found in parent application Serial No. 07/802,249. The current application contains new matter not in the original application Serial No. 07/802,249, as well as material that was filed in the parent application. Therefore, applicant is entitled to the filing date of December 4, 1991 for the material that was filed on December 4, 1991, and earns the filing date of March 9, 1992 for the new matter.

3. In regards to amended claims, examiner withdraws all 35 USC 112, second paragraph, rejections concerning reasons for lack of antecedent basis.

4. Applicant's arguments with respect to claims 1-19 have been considered but are deemed to be moot in view of the new grounds of rejection. Applicant's amendment necessitates a new grounds of rejection. Applicant has amended claim 1 adding the following new claim language, "means within said personal computer for storing a database of future programming schedules including

information relating to program identification and start time." [lines 6-8] Said new claim language necessitates a new grounds of rejection.

5. Claims 1-3, 5-14, and 16-19 are rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent 5,086,385 Launey et al in view of U.S. Patent 4,706,121 Young. Launey teaches a system for programming a video recorder with a remote control [See. Fig.1, Abstract] comprising:

a. Personal Computer
[See. Central Processor 10; Col.7, Lns.38-56]

b. Electro Magnetic Transmitter (ie. Remote Controller) connected to I/O port of personal computer.
[See. Receiver For Hand-Held Remote 20, Multiple Serial Interface 14, Central Processor 10; Fig.1 and Fig.12D]

However, Launey does not teach a means for storing a schedule of programs for programming a VCR. The Young reference teaches such a system in the Abstract. Young teaches a system (90) to control a TV receiver 126 and VCR 150 whereby a user can select programs from a schedule to program a VCR. Thus, it would have been obvious to a person of ordinary skill in the art of home automation systems at the time the invention was made to implement the programming of a VCR taught by Young with the system taught by Launey. One would have been motivated to do so because of the desire for unattended recording of selected programs as taught by Young. Thus, Launey in view of Young teach the limitations of claim 1.

6. As per claim 2, Launey in view of Young teach the limitation of claim wherein Launey teaches a Central Processor to be a common IBM type computer (ie. 80286) which comprises a real time clock; furthermore, Launey also teaches means necessary to send instructions to a remote controller to program a VCR [See. Col.8, Lns.25-30; and Fig.12A-G].

7. As per claim 3, Launey in view of Young teach the limitation of the claim wherein Launey teaches a remote controller being able to program a VCR from a personal computer; furthermore, it is inherent in all programmable VCRs to contain a realtime clock for programming the start and end time of a program.

8. As per claim 4, claim 4 has been canceled and withdrawn from consideration.

9. As per claim 5, Launey in view of Young teach the limitation of the claim wherein Launey teaches a Central Processor 10 capable of updating memory (ie. Database).

10. As per claim 6, Launey in view of Young teach the limitation of the claim wherein Launey teaches a Central Processor 10 has Multiple Serial Interface 14 connected to a Receiver For Hand-Held Remote 20.

11. As per claim 7, Launey in view of Young teach the limitation of the claim wherein Launey teaches means for a telephone modem hookup [Modem 42, Fig.1] which is capable of receiving information from telephone line.

12. As per claim 8, Launey in view of Young teach the limitation of the claim [Col.8, Lns.25-30; Launey]

13. As per claim 9, claim 9 is similar in scope to claims 6-7 and are rejected under the same rationale.

14. As per claims 17-19, claims 17-19 are similar is scope to claims 1-9 and are rejected under the same rationale.

15. As per the method of claims 10-14 and 16, the means claims of 1-9 teach the limitation of claims 10-14 and 16, and, thus, are rejected under the same rationale and teachings.

16. Applicant's arguments with respect to claim 1-19 under 35 USC 102(e) and 103 have been considered but are deemed to be moot in view of the new grounds of rejection. Applicant's amendment necessitated a new grounds of rejection under 35 USC 103.

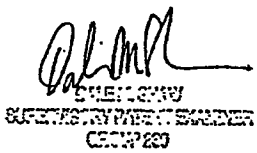
17. Applicant's amendment necessitated the new grounds of rejection. Accordingly, **THIS ACTION IS MADE FINAL.** See M.P.E.P.

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Kim whose telephone number is (703)305-9652.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703)305-9600.



S.H. Mike Kim

2/2/94

MAIL ROOM AUG 8 1994 PAT. & TRADEMARK OFF.

08/287343 A

8H4

~~PERSONAL COMPUTER BASED SCHEDULE GUIDE AND CONTROLLER FOR VIDEO RECORDER~~

Related Applications

This is a continuation-in-part of Serial No. 07/848,338, filed March 9, 1992, which is a continuation-in-part of Serial No. 07/802,249, filed December 4, 1991 (now abandoned), which is a continuation-in-part of Serial No. 07/796,702, filed November 21, 1991, which is a continuation-in-part of Serial No. 07/595,393, filed October 10, 1990, which is a continuation of Serial No. 07/484,175, filed February 23, 1990, (now U.S. Patent No. 4,963,994), which is a continuation of Serial No. 07/213,162, filed June 29, 1988, (now U.S. Patent No. 4,908,713) which is a continuation of Serial No. 06/634,179 filed July 25, 1984 (now abandoned), which is a continuation of Serial No. 06/330,111, filed December 14, 1981 (now abandoned).

Field of the Invention

This invention relates to a method and apparatus for controlling a video recorder to allow the unattended recording of future occurring programs using a personal computer and more particularly to such a method and apparatus which provides a display of a schedule of future programming available to the recorder on the personal computer.

Background of the Invention

My U.S. Patent No. 4,908,713 discloses a system for providing a schedule of future video programming available to a video recorder to a database memory located at the recorder so that the operator may display selected sections of the future schedule as an aid in choosing programs for recording. The schedule may be provided to the memory and updated either by broadcasting schedule information or by delivering disposable memories to the system on a subscription basis. Other of my applications disclose such systems in which the video recorder is programmed for unattended recording of a future program by simply pointing a cursor at the listing of that program on the schedule display. Since the system already stores the data required to record the program, it is unnecessary for the operator to re-enter the same data. My application Serial No. 802,249 further discloses such a system in which the local memory stores the identification of programs that have been recorded and allows their display in order to select previously recorded programs for viewing.

These systems greatly simplify the problems of selecting programs for recording, actually performing the recording process, and viewing recorded programs. They suffer from the disadvantage of adding hardware and software to existing video cassette recorders or cable boxes which do not contain a schedule memory and a database program for selecting particular entries on the memory for

3

display.

Summary of the Invention

The present invention allows the implementation of the electronic schedule memory and cursor-based programming on a conventional video recorder through use of an associated personal computer which communicates with the video recorder via infrared signals of the type used for remote control of the video recorder. The infrared signals are preferably generated by a transmitter connected to an output port of the personal computer and are driven by signals generated by an application program run by the personal computer. The same transmitter may control the tuner of an associated cable box.

Future programming schedule information may be provided to the personal computer from a remote database by telephonic communication, by broadcast, or by subscription provision of disposable memories. The schedule information may be displayed on the monitor of the personal computer under control of a database program allowing chronological, alphabetical or topical selection and the operator may move a cursor on the display screen to point to a particular program to select it for future recording. The remote transmitter connected to the personal computer output port can send signals to the video recorder at the time the selection is made, allowing the future unattended programming memory of the video recorder to initiate the

4

recording of a specific channel at the proper time or the remote may exercise control over the video recorder at the time the recording is to be made.

The personal computer transmitter may be instructed as to the particular code systems used by the video recorder remote control either by information transmitted from a remote database provider based on the identification of the make of the video recorder by the computer use, or through use of an initialization program which displays commands to the computer operator on the monitor of the personal computer directing the operator to press selected buttons on the remote transmitter provided with the video recorder. The computer program thus learns and stores the required remote codes. In the same manner, the personal computer can control an associated cable tuner to ensure that the channel specified for recording is provided to the VCR. The personal computer program can also store and display an index of programming that has been recorded by the system.

Through use of the method and apparatus of the present invention the advantages of an electronic schedule guide and cursor-controlled programming of the video recorder may be achieved without the provision of a specialized form of cassette recorder or cable box.

Other objectives, advantages and applications of the present invention will be made apparent by the following detailed description of the preferred embodiment

5

of the invention. The description makes reference to the accompanying drawings in which:

Detailed Description of the Drawings

FIGURE 1 illustrates a personal computer and television viewing system including a TV receiver, a video recorder and a cable box, implementing the preferred embodiment of the present invention;

FIGURE 2 is a schematic diagram of the preferred embodiment of the invention;

FIGURE 3 is a schematic diagram of the IR transmitter/receiver;

FIGURE 4 is a perspective view of the rear of a personal computer illustrating the method of attachment of an infrared transmitter and receiver to an I/O port of the computer;

FIGURE 5 is an illustration of a screen displayed on the personal computer monitor during an initialization procedure; and

FIGURE 6 is an illustration of a personal computer screen displaying an index of recorded programs and the tape cassettes on which each is recorded; and

FIGURE 7 is an illustration of a second embodiment of the invention in which the personal computer and video recorder are located remotely from one another and the output signals from the personal computer are transmitted by radio to an infrared transmitter for control

of the video recorder.

Detailed Description of the Preferred Embodiment

Referring to Figure 1, the preferred embodiment of the invention employs a television recording and receiving system, generally indicated at 10, comprising a conventional television receiver 12, a video cassette recorder 14 and a cable tuner and descrambler box 16. A variety of known forms of interconnection can be made between the cable box 16, the recorder 14 and the television receiver 12 to allow either the recording or viewing of programs tuned by the cable box 16 or the simultaneous viewing of one program and the recording of another. The present invention is equally applicable to broadcast receiver systems which do not employ a cable box and to satellite receivers.

The video recorder 14 will normally be of the type employing an infrared remote control (not shown) as will the tuner in the cable box 16. The VCR 14 may, but need not necessarily, incorporate a future, unattended recording memory which includes a real time clock (not shown).

The method and apparatus of the present invention further utilizes a conventional personal computer, generally indicated at 18, incorporating a main computer housing 20, a keyboard 22 and a monitor 24. The term "personal computer" is used broadly to incorporate work

7

stations, minicomputers and portable units.

The personal computer 18 is conventional but is provided with a special application program to implement the present invention. The organization of this application program is well within the skill of a programmer using the functional description of the program provided herein.

An infrared transmitter and receiver 26 is connected to an I/O port of the personal computer, preferably a parallel port, by a male connector 28 and a cable 30. The infrared unit 26 incorporates a conventional infrared signal detector 32 and an infrared emitter 34. In alternative embodiments the signals could represent other forms of electromagnetic or supersonic transmission, "infrared" is hereinafter used to define the generic form of signals.

The infrared signals emitted by the unit 26 are picked up by the infrared remote receiver of the video recorder 14 and may also be picked up by the infrared recorder of the cable box 16 to control its tuner.

The application program is loaded into the personal computer via a diskette or the like. The program requires as data the schedule of future programming available to the system 10 from a programming source 38, such as a cable or the like, for a particular period of time such as a week or month.

In the preferred embodiment of the invention the

schedule information is provided to the personal computer 18 from a remote database 40, which may constitute a database provider such as "COMPUSERVE," "PRODIGY" or the like. This information may be customized for the cable service 38 available to the system through an initialization routine in which the computer operator keys in the postal ZIP code of his location and, if necessary, an identification of the cable service provider. The head end database uses this information to provide the computer 18 with the schedule of programming for that service. The operator of the personal computer system 18 may communicate with the schedule source over phone lines 42 using modems 44 at each end. Alternatively, the personal computer could employ a program in which the system automatically communicates with the schedule source 40 at predetermined periods, such as each morning at 4:00 a.m. or the like, to update the schedule stored in the personal computer 18. As another alternative, diskettes could mailed out to the personal computer on a subscription basis or the schedule information could be provided to the personal computer via cablecast or broadcast.

Through use of a database program employing menus, submenus and the like, the operator may obtain a display of programming for a particular period of time, such as that illustrated at 46 in Figure 1. To select a listed program for future recording the operator may move a cursor 48 into super-position with the listing.

9

Alternatively, two or three digit numbers could be associated with each listing and the operator could signal a programming selection by hitting an appropriate number on the keyboard 22.

In the preferred embodiment of the invention this selection transfers information relating to the programming selection to a memory 35 within the IR unit 26 (Figure 3). The unit 26 also includes a microprocessor 37, a real time clock 39 and a power supply battery 41. The microprocessor 37 continually compares the present time signal from the clock 39 with the start time of the programs to be recorded as stored in the memory 35 and sends an appropriate infrared code to the VCR 14 (and, if appropriate, the cable box 16) at the start time. A similar signal at the programmed conclusion time of the program terminates the recording. This arrangement eliminates the need for the computer to continually remain in the on state.

In alternative embodiments of the invention employing programmable cable tuners or programmable satellite receivers, the infrared transmissions could be used to program these units.

Alternatively, the control signals to the IR unit 26 may be provided in real time by the computer 18 under control of its internal clock. The IR unit might then simply consist of an IR diode connected to the personal computer 18 by a long wire so the diode may be placed near the receiver 10. At the time the recording is to be

10

initiated, the personal computer transmits signals from an I/O port through the cable 30 to the infrared transmitter/receiver 26. The unit 26 then send signals to the video cassette recorder 14, which tune the set to the required channel and initiates the recording. Signals might also be sent to the cable box 16 to cause it to tune to the appropriate channel. As a third alternative, when the operator makes a programming selection, the information relating to that selection, including channel and the start and stop time could be immediately sent from unit 26 to video cassette recorder 14 to program the recorder for the future unattended recording of the desired program.

Alternatively the unit 26 may be detachable from the computer 18 so that after it is loaded with data on programs to be recorded it may be detached and moved into proximity with the receiver system 10, which may be located in another room.

To perform the transmission function, the personal computer 18 requires information as to the nature of the remote control codes used by the video recorder 14 and the cable box 16 if that is additionally to be controlled. Preferably, this information is provided from the remote database 40 during an initialization routine in which the operator keys in the identification of the make and model of the VCR and cable box. Alternatively, to acquire this information, the application program for the personal computer may go through an initialization routine

using screens of the type illustrated at 50 in Figure 5. These screens advise the computer operator to press selected buttons on the remote control transmitter 52 for the VCR 14 or the transmitter for the cable box 16. The personal computer application program receives signals from the IR sensor 32 and stores these codes for use in transmitting control signals to the video recorder 14 and the cable box 16. The application program may alternatively store a database of the control codes for popular video recorders or cable boxes and thus allow the unit to be identified by only pressing one or two selected keys, or it may require the operator to go through all of the keys in order to develop the appropriate remote control schedule.

In another embodiment of the invention the unit 26 includes sound detection apparatus. This provides several advantages, including the ability to receive information in acoustic form either from the personal computer or over a telephone line, for example using an acoustic coupler. An increasing number of conventional personal computers are now provided in standard form with a sound generating capability, and even if not factory supplied, numerous sound-generating modules and add-on cards are widely available as options. With such a capability residing in the personal computer, information may be transmitted from the personal computer to the module 26 in acoustical form. For example, information pertaining

17

to a program to be recorded may be delivered in this manner, as well as any control code information required for proper activation and/or tuning of other system components, including the video recorder or cable box, to ensure that the proper channel is tuned at the appropriate time.

The ability to accept an acoustical signal may further facilitate an entirely wireless implementation of module 26, and may also enable module 26 to be partially or completely compatible with automated VCR programming techniques, including the VCRPlus™ system which is currently being marketed commercially. With VCRPlus™ program listings include a multi-digit numerical code which is entered by an operator to bring about the automatic, unattended recording of a particular program without the need for entering a more sophisticated sequence of information such as program start time, stop time, channel tuning, and so forth, as is presently entered through typical on-screen programming sequences. Certain of the VCRPlus™ modules contain acoustic couplers, enabling them to be programmed over a standard telephone line. Utilizing this capability, a customer dials a service telephone number and informs a representative or uses touch tone codes to enter information such as VCR make/manufacturer, cable tuner make/manufacturer, and geographic information, for example, in the form of a zip code. Given this information, the system then down-loads the appropriate

control codes to be used by the VCRPlus™ module to ensure that the entry of a VCRPlus™ numerical code records the desired program for that user in their particular geographic area.

The present invention may take advantage of some or all of the VCRPlus™ features or similar features of any similar automated programming system. If the database received and stored in the personal computer by the present invention includes encoded program information such as VCRPlus™ codes, these may be delivered directly from the personal computer to the module 26 instead of more detailed program-related information. Although presently available VCRPlus™ control units typically only receive control code information in acoustic form, with the numerical code associated with a desired program entered via keypad, such units contain all of the hardware necessary to accept the numerical code in acoustic form as well. In such a case, then, with the present invention storing a large database of programs in the personal computer, the VCRPlus™ code alone may be delivered to the remote unit 26 to bring about the desired programming sequence. In the event that the unit 26 includes a sound detection capability, the numerical code may be transmitted by the personal computer to the module 26 in acoustic form, in addition to the remote-control codes, which may also be delivered in acoustic form, either from the personal computer or over a phone line as is currently the case with the VCRPlus™

14

system. In the event that the personal computer is used to transmit the control codes to the module 26, regardless of the form in which such codes are delivered, a look-up table may be provided to the personal computer either in disk form or through a separate telephonic connection, and upon entry of equipment make/model and any required geographic information by the operator through the keyboard provided on the personal computer, a look-up may be carried out by the computer so that the appropriate control codes are used for all equipment involved.

The embodiment of the invention illustrated in Figure 7 is utilized in systems where the cassette recorder 14 is located a large distance from the personal computer 18, such as in another room of the house. In this system the remote I/R transmitter 26 is replaced by a radio transmitter 60. The radio signals are received by a remote receiver 64 disposed physically in front of the video recorder 14. Receiver 64 includes an infrared transmitter 66 and the received radio signals are transmitted into serial infrared commands which are transmitted by the unit 64 to the infrared receiver of the video recorder 14.

The application program for the remote television receiver 18 may also maintain a database of the programs that have been recorded by the system and allow display of these programs on the monitor of the personal computer. The identifying information may include codes as to the nature of the program such as a tennis match, comedy, movie

15

or the like to allow menu-driven database operations to be used in the selection of programming for viewing. The information may record storage location of the programming, in terms of video cassettes, which the operator may enter into the system via the keyboard. A typical screen of this index is illustrated at 68 in Figure 6.

Having thus described my invention, I claim:

Sub B1

1. A system for the unattended recording of a video program by a remotely controlled video recorder connected to a video source, comprising:

a personal computer having a display and a memory to receive and store a schedule of video programming available from the source;

an application program resident on the personal computer enabling an operator to view portions of the schedule on the display and select one or more programs for recording by the video recorder; and

an electronic module, including:

means for receiving and storing information from the personal computer relating to a program to be recorded,

a memory for storing control codes associated with the operation of the video recorder, and

a remote-control transmitter operative to activate the video recorder using a stored control code to record the program in accordance with the information received from the personal computer.

2. The system of claim 1, the personal computer including an output port to which the electronic module is connected to receive the information relating to a program to be recorded, the module being detachable therefrom to activate the video recorder.

3. The system of claim 1, the electronic module

17

further including sound detection apparatus for receiving information in the form an acoustical signal.

4. The system of claim 3, the personal computer including sound-generation apparatus, the information received by the electronic module in the form an acoustical signal including the information from the personal computer relating to a program to be recorded.

5. The system of claim 3, the information received in the form an acoustical signal including the control codes associated with the operation of the video recorder.

6. The system of claim 3, the information received in the form an acoustical signal including the control codes associated with the operation of the video recorder.

7. The system of claim 1, the schedule of video programming including a numerical code associated with a program to be recorded, the information received by the electronic module from the personal computer including the numerical code.

8. The system of claim 1, the module further including a remote-control receiver to detect codes

transmitted by the remote control unit supplied with the remotely controlled video recorder, enabling the module to ascertain and store the codes associated with the operation of the video recorder.

9. A system to bring about the unattended recording of a video program by a remotely controllable video recorder connected to a source of programs through a remotely controllable multi-channel tuner, the system comprising:

a personal computer of conventional design including a display and a mass storage facility to receive a database of video programs available from the video source, including program title, date of occurrence, start time and channel tuning information;

an application program to be executed by the personal computer which enables an operator to view portions of the database on the display and to select one or more of the ~~stored~~ video programs to be recorded; and

a transmitter module in an enclosure separate from that of the personal computer, the module including:

a data-input port,

a memory,

a time-keeping device,

a wireless remote-control transmitter, and

a central processing element connected to the data-input port, the memory, the time-keeping device, and

19

the remote-control transmitter, the central processing element being pre-programmed to perform the following functions:

cause the data-input port receive information from the personal computer relating to a program to be recorded, and store the information in the memory,

compare the output of the time-keeping device with the information stored in the memory, and

cause the remote-control transmitter to activate the video recorder and multi-channel tuner to record the program.

10. The system of claim 9, the remotely controllable multi-channel tuner forming part of the remotely controllable video recorder.

11. The system of claim 9, the remotely controllable multi-channel tuner forming part of a cable tuner.

12. The system of claim 9, including two remotely controllable multi-channel tuners, one forming part of the remotely controllable video recorder and the other forming part of a cable tuner.

13. The system of claim 9, the data-input port including an acoustic coupler to receive information in the

form of an acoustic signal.

14. The system of claim 9, the memory within the transmitter module further storing control codes used to control the remotely controllable video recorder and multi-channel tuner.

15. The system of claim 9, wherein the information received from the personal computer includes program information in encrypted form.

16. The system of claim 15, wherein a program is encrypted in the form of a multi-digit numerical code.

17. A system for programming a video recorder having a remote control receiver for the unattended recording of programming from a video programming source connected to the video recorder, comprising:

a personal computer;

means within the personal computer for storing a database of future programming schedules including information relating to program identification and start time;

a wireless remote control transmitter including a real-time clock, means for storing data received form the personal computer relative to a program to be recorded including the start time of such program, and circuitry within the transmitter operative to compare the output of

the real time clock with the stored start time of a program to be recorded and operate the video recorder at the time of the occurrence of the program to be recorded; and

an application program for the personal computer to transfer the data to the remote control transmitter to record a particular video program in accordance with information contained within the database being selected by a user of the personal computer.

18. The system of claim 17, including a remotely controllable cable tuner connected between the video programming source and the video recorder, the transmitter being further operative to send a signal to the cable tuner to record a particular video program in accordance with information contained within the database being selected by a user of the personal computer.

Add B2)

08/287,343

Abstract of the Disclosure

A personal computer is used to assist in the selection of television programs to be recorded at future times and to control a video tape recorder to implement the selected recordings. An application program allows the computer to receive data representing a schedule of future programs. The operator can perform data base operations on the data to obtain listings of programs of particular interest. A program to be recorded is selected by moving a cursor into position with the display of the program listing on the computer. An output device generates infrared signals to control the video tape recorder and a cable box to tune and record a selected program.

TG 002395

A 74